Home Modifications for People with Dementia

Section I
Introduction to Dementia
This course is about Home Modification and how it relates to caregivers and people living in the household with dementia. A home modification, as it will be used in this module, is a change in the physical environment of the home to enhance the safety, functioning, and quality of life for people with dementia and their caregivers. There are several important learning objectives in this section of the course.

Learning Objectives
Gain a better understanding of the role of the physical environment in supporting both the person with dementia and the caregiver.
Learn how the environment needs to change as the disease progresses.
Understand how to help the caregivers develop environmental coping strategies.
Learn practical solutions to real problems.

Case Study
Meet Inez. She is 63, and has been showing signs of dementia for about 6 years. It started with forgetting things, like going to the grocery store and forgetting to buy items she needed. Sometimes she would just buy a candy bar or lots of things that weren't on her shopping list. Her husband would get mad, and ask what in the world she had been thinking about-and she honestly couldn't tell him. Even when she bought things on her list, she would often forget to put them away, or she put them in odd/inappropriate places. Then one day, she got lost going to the store, which was a store she had been going to for 35 years. This experience frightened her, so she agreed to her husband's request to go to the doctor. She was diagnosed with Alzheimer's disease. Inez and her husband have been trying to cope with their situation, and have had lots of ups and downs. You'll learn more about their trials and tribulations throughout this course. Maybe you can help them with new problems that arise once you learn about effective ways of dealing with dementia.
Recently, Inez has had a couple of episodes of incontinence. Once she used the wastebasket in the living room, and another time she urinated on a chair in the bedroom. Can you think of some ways that home modifications could help Inez and Frank deal with this problem? Think about and write down three reasons why Inez might be experiencing such episodes of incontinence.

It is important to be aware that there are many ways to help people with dementia and their caregivers. Only those behaviors that can be helped by home modification will be discussed in this course. For example, changes in personality are not helped by home modification. For the most part, the course will not be dealing with physical, mobility or sensory changes. These physiological changes will be addressed in a separate course. A home modification is an intervention that changes something in the physical environment of the home. Home modifications include:
1. Making structural changes to the house, such as the addition of a bathroom, the addition of a ramp at the front entry door or widening a doorway.
2. Adding or changing elements of the house, such as adding locks on doors or cabinets, or changing door or faucet handles.
3. Rearranging, modifying or adding things that are within the house, like decreasing clutter or posting a reminder. These are obviously only a few examples. Many more home modification ideas will be covered later in this course.

Most older Americans live at home and prefer to stay there. In a recent study, 93 percent of people over the age of 45 said they wanted to stay home as long as possible. The same is true for people with dementia. Despite the significant body of literature on supportive residential care settings for people with dementia, which includes nursing homes, assisted living, congregate care and the like, most of these individuals live at home in the community, often with one or more family members, and prefer to stay there. Keeping people with dementia at home, however, is often a challenge. With concerns about safety and the overwhelming demands on caregivers, many families relocate the person with dementia to a shared residential care setting.

Modifying the home environment to enhance safety, promote independence, and ease caregiving is increasingly recognized as an important strategy for dealing with dementia. Unfortunately, research suggests that home modifications are often not made.

Many of the professionals who routinely conduct home evaluations for accommodating senior citizens’ living situations have never received specific training on the problems and needs of people with different types of dementias such as Alzheimer's disease. Without knowledge about the characteristics and progression of the disease, it can be difficult to know what types of modifications are appropriate in a given situation. Conversely, other professionals, who have an in-depth understanding of the disease, often lack training on what environmental modifications best respond to the needs of people with dementia and their caregivers.

This course will be covering five content areas. The latter sections of the course will provide a detailed description of a wide variety of home modifications that are appropriate for people with dementia. After taking this course, you'll know how to assess a situation and what recommendations to make.

What is Dementia?
Some of you taking this course already know something about dementia, so part of this section may be review for you. However, please read through it anyway because it will help you understand what the course is covering and why later on in this course. Keep in mind, this course is focused on the cognitive aspects of dementia, not on physical or sensory changes of older adults unless these changes are associated with cognitive loss.

Many people are confused about the difference between terms like Alzheimer's disease, dementia, senility, etc. They are not all the same thing. Alzheimer's is a disease. Dementia is not a disease. It is a set of symptoms that include memory loss, forgetfulness, impaired judgment, and sometimes language or speaking problems. These are not the
only symptoms but are some of the more common ones. Senility is another word for the set of symptoms this course will refer to as dementia.

While Alzheimer's disease is the most common form of irreversible dementia, there are other forms, such as multi-infarct and dementia associated with Parkinson's disease. There are also reversible forms of dementia caused by certain medical conditions such as a thyroid problem. Other forms of irreversible dementias such as Fronto-temporal dementias (Pick's), Creutzfeldt-Jacob disease, Lewy Body disease, Huntington's disease, and Korsakoff's syndrome will not be covered. The differences among them are not as important as their similarities, which are described in greater detail in the next section of the course.

Alzheimer’s Disease: Gradual worsening of symptoms. Early symptoms include losing things, forgetting peoples' names, getting lost in familiar places and executive function (ability to plan and carry out complex tasks requiring multiple steps). This is usually followed by problems with language (can't find the right words) and familiar tasks, disorientation (to location of current events), poor judgment, changes in mood or personality, and loss of initiative. Motor changes may happen later in the course of the disease.

Multi-infarct Dementia: Multi-infarct dementia often progresses step by step, with declines in memory and mental functions occurring each time another stroke occurs. The specific symptoms a person has depends on which area of the brain the strokes have affected, but common symptoms are disorientation, confusion and behavioral changes.

Parkinson’s disease: Changes in motor ability such as tremors, stiffness, balance/coordination and speech impediments come earlier in the disease process. Memory loss and behavioral changes, later in the disease. Communication skills remain largely intact until late in the disease.

**Symptoms Associated with Dementia**

This course will now get more specific about the kinds of changes that will take place due to dementia, focusing on those changes for which home modifications may be an appropriate intervention. This is important because it relates to home safety as well. People with dementia gradually lose the ability to remember how to safely use objects or complete tasks. You will be introduced to other people living with dementia and their caregivers, so you can see what is meant by loss of judgment. Read the case study of the gentleman with loss of judgment. Another example of how the loss of judgment can affect a person is their use of cooking equipment. An individual with dementia will turn on the stove and walk away and let pots burn dry, a clear fire hazard. Another example would be a demented person taking the milk out of the refrigerator, pouring a glass, and then putting the milk back in a cupboard instead of the refrigerator.

**Case Study**
Tim was a maintenance man at the local elementary school for 37 years before he retired. Now with time on his hands, he wanted to get around to fixing up the house doing all the things he had put off because he was so busy with the school. For a while his wife really appreciated all the work he was doing. But then he started working at odd times. She remembers vividly the time she had some friends over for lunch, and in the middle of lunch, he decided it was time to fix the radiator in the dining room. Nothing she could say would convince him that he should wait until after the lunch to start that project. Unfortunately, he had forgotten to turn the water off, so when he started, hot water went spurting out, spraying the walls and getting some of the guests wet. Tim left the room to go get another tool, leaving the water flowing. Fortunately, no one was hurt, but after that, everyone knew there was a problem.

Persons with dementia can also use objects inappropriately. For instance, one day shortly after Tim left his job at the school and was at home, he tried to open a can of soup. He couldn't remember where the can opener was (forgetfulness will soon be covered). He went to the basement to get a hacksaw to cut off the top of the soup can. Of course, the soup went all over the counter and the floor, and he ended up putting a big gash in the counter-top as well. When people with dementia lose the ability to recognize objects for their intended purpose, this is called object misidentification.

Object misidentification can be a real problem if someone goes to take a couple of aspirin and instead takes some other medication. Often they may misidentify foods. For example, a person with dementia may pour vinegar on a bowl of cereal instead of milk. Caregivers are susceptible to stress because almost anything in the house can be used inappropriately and many of these errors in judgment have serious safety consequences.

Forgetfulness is another common problem. Losing one's orientation and getting lost are common examples of forgetfulness. For example, Inez got lost going to the store where she had shopped for 35 years. That's often an early sign to caregivers that something is wrong. At one time or another, everyone gets lost going to new and unfamiliar places, but getting lost going to familiar places is a sign that a problem might exist.

Persons with dementia sometimes forget names, even of close family members, which can be very disheartening. They can also forget where things such as silverware and glasses are kept in the kitchen. This forgetfulness can make it hard for them to be productive. Again, it becomes especially difficult for care takers, family and especially the individual with dementia, when they are unable to do even the most basic household chores. A related aspect of forgetfulness is that people with dementia often misplace or lose things. It may start with misplacing the car keys or forgetting how to sort the mail and soon expand to the point where they cannot remember that “safe place” they keep their bills. At this point, problems can occur.

If someone isn't there to help, a person with dementia may forget to eat a meal. Or he or she may not brush their teeth for days. Some people forget to change their clothes and sleep in their daytime clothes. Forgetfulness can cause many unforeseen problems. People with dementia often have difficulty initiating an activity. Maria is one example.
Case Study

Maria has had dementia for 5 years. She lives with her daughter and son-in-law, and wants to be helpful and not be a burden to them. After breakfast, she likes to clear the table and wash the dishes. She didn't always get them as clean as they should be, but the family respected her desire to help, and let her do this chore for them. But it was taking longer and longer for her to get this done. Her daughter, Dorothy, would help bring the dishes over to the counter next to the sink, then go upstairs to get dressed. Then, one day Maria looked at the stack of dishes, the boxes of cereal and milk that were still on the counter, at the sink, at the dish drying rack that still had last night’s dishes in it, and just stood there. Her daughter came downstairs half an hour later, and Maria was still standing there, looking at everything around her. She was losing the ability to know what the first steps were to this task that she had been doing for years. As she thought about it, Maria realized that her mother had stopped making her bed, and wasn't cleaning her room anymore either.

Another change that is almost the opposite of not being able to start an activity is called **perseveration**, and it means doing the same thing over and over again. It's often a physical motion, like rubbing the arm of a chair, or rocking back and forth for hours on end.

Difficulty sequencing tasks is another symptom, which some can relate to forgetfulness. **Sequencing** means knowing the order in which a task or activity is done. Tim, our maintenance man, was fiercely independent. As his dementia progressed, he started having problems getting dressed. First, he would pick out pants and shirts that clearly didn't go together. This could be called an error in judgment. But then he started putting on two or three tee shirts before he put on his shirt. One morning, his wife came in and found him trying to put his underwear over his pajama bottoms. He already had his shoes on, and had put the socks on over the shoes. Tim was losing the ability to remember the proper order in which clothes are put on.

Sequencing affects tasks like preparing meals, doing the laundry, making a bed or brushing one’s teeth- almost anything that involves multiple steps. There are lots of behaviors that appear to be “wandering”, when that may not be what they are doing. As discussed earlier, Inez got lost going to the store. She wasn't wandering then; she was just lost. Tim never really got lost, but he would spend hours every day walking around the house. This is considered a form of wandering. Often his path would take him into the dining room, around the table, through the living room and into the kitchen. Sometimes he opened every door along his path and went in. Occasionally he would get stuck in the closet and get very upset because he couldn't keep walking. Sometimes his wife found him in the basement, walking around the perimeter of the room. This type of persistent walking would be an example of perseveration.

There are two types of visual changes that are associated with cognitive loss. The first has to do with what's called **contrast sensitivity perception** or a decrease in the ability to see the edges of things when they are the same color or hue as what's around them. This can
be a difficult concept to grasp, so let's start with a few examples. If you serve a meal on white china that is placed on a white table, it will be hard for the person with dementia to see where the edge of the plate is. As a result, food might be put on the table instead of the plate. This may not seem so important, but if the floor is also white, the person with dementia may not be able to determine where the edge of the table is. So he/she may place things too close to the edge of the table which could cause an accident. In the image to the right you see from the point of view of a person with dementia. A sandwich is placed on the table, but he or she cannot see the edge of the plate, therefore the peppers appear to be placed on the table.

Another place where contrast sensitivity is a common problem is in the bathroom, which often has a white or light floor, white toilet and maybe even white or light colored walls. In the first exercise with Inez, her ability to see the toilet from outside of the bathroom was in question. If she was unable see it, she may not have been able to find it easily. The top picture to the right of the white bathroom is how it is seen by a person without dementia. The picture below it is from the perspective of a person with dementia facing contrast sensitivity perception.

The other visual change relates to depth perception, which is the ability to discern when objects in the environment are at the same or different depth levels. This can cause problems with stairs. Often, if there is a dark rug on a light floor, the person with dementia will try to step around it because they perceive it to be a hole. There can also be changes in balance and walking patterns of people with dementia. As the disease progresses, their gait may become stiff or awkward. Their posture could change, so they often become stooped over and shuffle their feet. The opposite might also occur, a person with dementia might pick up their feet too high and be unable to balance on one foot. All of these situations put the person with dementia at a high risk of falling.

Agitation isn't quite like the other issues discussed in this course. It's not a direct consequence of dementia, but it is the reaction an individual with dementia may have when he or she can no longer cope with an activity. Because of the changes taking place within the brain of someone with dementia, they have a hard time making sense of what's
going on in the environment around them. They can only deal with a limited amount of stimulation before they are overwhelmed. When overwhelmed, their most typical response is agitation. Any one of the changes described above—forgetfulness, problems sequencing activities, or getting lost—can result in the person with dementia becoming upset, frustrated, and then agitated. They may also show agitation in response to how someone else interacts with them. A stressed caregiver who snaps at an individual with dementia could set off an episode of agitation.

Section II
Performance Goals for Home Modifications
So far, the course has emphasized declining mental skills, the limited abilities of the person with dementia and how their lack of cognitive ability affects their performance around the house. This course has briefly touched on how to approach environmental supports for both people with dementia and their caregivers. You will now learn how to plan a solution keeping specific goals in mind.

This course will give you specific design objectives in order to help you make decisions about what to change and what to look for in making changes. As dementia progresses, there is a continuum of solutions that are appropriate at different stages.

The first performance goal is regulating stimulation. This is important because people with dementia are unable to cope with much stimulation. When they get upset, they are likely to express it as agitation. Stimulation can include noises, glare (from sunlight or exposed light bulbs), and busy visual environments. For instance, if there is a lot of clutter around a room it can be over stimulating for an individual with dementia. Read about stimulated regulation below.

Case Study
Maria has had a problem with this. After she couldn’t remember how to start washing the dishes, her daughter Dorothy would start filling the sink with water and a little soap to get her started. One sunny morning, when Dorothy went up to take her shower, she left the television on. With the noise from the TV, the water from the faucet filling the sink, the bright sunlight streaming in the kitchen window above the sink, the dishes all on the counter, and the cereal boxes and milk still out—it was too much for Maria. She started pacing around the kitchen, tried to turn the TV off but turned the volume up instead. Meanwhile, the sink was overflowing; there was water everywhere. She couldn’t remember what to do with the dishes, so she threw them away, breaking several of them. When Dorothy came down, Maria was upset and crying, and it took hours before she would calm down.

Next, it is important to maximize orientation. There are two different sides to orientation; one is way-finding or helping people to reach their destination. If you go to an unfamiliar place you might get a map to help you "way-find." People with dementia can get lost in their own home, unable to find the bathroom or bedroom. There were orientation problems associated with the case study of Inez at the beginning of this course. A main concern for Inez was coming up with some strategies to help her find the
bathroom more easily. The other aspect of orientation relates to helping people stay focused on what's going on around them or to what they should be doing. A common example of lack of orientation occurs when people with dementia lose sense of time. In this situation, they may either forget to eat, or want to eat again after just consuming a meal. Or they may walk into the dining room and try to lie down under the table. They may no longer recognize the function of a dining room table.

**Ensuring safety** is important because there are so many objects in the household environment that could cause harm to the person with dementia, the caregiver, others who may be around or to the house itself. Safety can be provided using different strategies. The challenge with safety is to place only the necessary restrictions on the person with dementia, matching the level of safety intervention with their abilities and disabilities. Think about safety as a continuum, beginning with alarms or alerts to tell the caregiver where the person with dementia is located and progressing to removing unsafe objects or even cordon off certain areas of the house.

A related concept to ensuring safety is supporting caregiver control. This is a double-sided issue, which sometimes pits the caregiver against the person with dementia. In general, people like to be able to exert some control over their lives. People like to make their own decisions. As the disease progresses, caregivers need increased ability to monitor and later control where the person with dementia is and what they are doing, until the final stage, when the person is almost totally dependent. However, people with dementia also have the desire and the right to make decisions as well. The best solution is to often limit the number or range of choices available to the person with dementia to a few choices, which are all acceptable and safe.

**Retaining a home-like atmosphere** means keeping the home as familiar as possible. Don't make it institutional-- a substitute nursing home. There may even be value in making elements of the home more like the person's previous homes- tying into their long-term memory capacity.

**Maintaining independence** is very important for self-esteem. People with dementia are constantly faced with what they can't do anymore because of the disease. To help them maintain a high quality of life, it's important to find ways to enable them to continue to do their personal care and daily chores and activities as independently as possible. If you've ever broken a leg or an arm or had some other condition that made it difficult to do some of the things you routinely do, you can relate to the feelings of frustration and sometimes embarrassment of asking someone for help. People with dementia face that everyday; they are faced with a multitude of tasks they know they were once capable of doing. Independence relates not only to chores and personal care tasks, but also to their ability to socialize.
with others in meaningful ways.

**General Guidelines for Home Modifications**

There are two more topics that are important to understand about home modification for people with dementia. The first is a set of general guidelines that can be used with the information already covered to plan appropriate modifications. The second is a problem-solving process that can be used to make the best decisions about what modifications should be made. These two topics are related. The guidelines are the big picture rules for how to think about planning modifications and the problem-solving process involves more specific details on how to make modifications successful.

It is important to think about judgment issues and how they impact the safety of the person with dementia. Many people, both caregivers and professionals, immediately look for quick-fix safety solutions and then stop there. However, it's equally important to look for solutions that maximize a person's ability to continue to participate in daily activities and chores for as long as possible. Everyone likes to feel productive and useful. Thus, home modifications should meet the needs of both the individual with dementia and the caregiver. Because things can change rapidly- what wasn't an issue yesterday is one today- and because the person with dementia may not even realize there's a new problem, caregivers play a critical role in the lives of people with dementia. Most of the ideas for home modifications come from caregivers. But, as said before, caring for someone with dementia is incredibly difficult. The modifications you recommend or install will impact the caregiver as much as the person with dementia. So you always need to consult with and consider the needs of the caregiver when making recommendations for home modifications.

The focus of home modification must not only help people with dementia engage in activities as independently as possible, but also provide caregivers with the appropriate level of supervision or control over these activities. Sometimes these can be in conflict with each other. Remember, Tim, who walked around so much? Well, his wife was afraid he'd walk out of the house and get lost, so she locked all the doors. But that just made him more frustrated when he came to a door and couldn't open it. He'd get very agitated, start rattling the door handle and pound on the door. Once he broke a window in the door, cutting his hand badly.

There are six general guidelines to keep in mind when designing a supportive environment for a person with dementia.

First, the environment should give the caregiver opportunities for **passive monitoring**. The second guideline is for progressive types of dementia in which symptoms get worse over time. In this situation, a home modification that works today may not work later on.

Third, **knowing that what works for one person may not work for another** is essential. Solutions to problems with dementia always have to be customized to the situation of the individual, his or her caregiver or caregivers, and the home in which they live.
Fourth, because of progressive deterioration, it is often better to make changes early on when the person with dementia has a better chance of learning how to use or adapt to the modification. There are people who believe that someone with dementia is incapable of learning anything new. While it is true that in the later phases of the disease learning is compromised, there is evidence that some people with dementia can still learn and remember new concepts in nascent phases.

Fifth, it's also better if changes are made, or at least introduced to the person with dementia, incrementally. Making substantial changes that require the person to do a task in a totally different way is likely to be overwhelming, and can cause a significant amount of agitation.

Finally, the sixth guideline is to make modifications that are consistent with the care setting. If the person with dementia lives alone, it is unlikely they will be able to stay at home far into the progression of the disease. If the person is living with one of their grown children, who is determined to try to keep them at home as long as possible, more significant modifications suitable to later stages of the disease may be appropriate.

Section III
Problem Solving Process

The final section of this course will present a 6-step process, defining the problem; determining underlying causes; performing a task analysis; identifying design goals; determining key design characteristics; and applying design guidelines to ensure goodness of fit, that you can use to select the most appropriate modifications for any particular situation. In this section, you will learn how to gather the necessary information, ask the right questions, and focus on the critical tasks and key design issues.

STEP 1: Define the Problem. The first step in the process is to develop an understanding of the individual and caregiver experience, their problems and the underlying causes of these problems. This will lead to a firm understanding of the needs of the individual and his/her caregiver. Asking questions and observing are the best ways to define exactly what the problems are. It is important to ask about the tasks and activities that a person is having trouble with, or what tasks the caregiver is most concerned about. There will likely be a lot of issues, so sometimes it is easier to do this while walking around the house. In each room, ask what the person can do, or is having problems doing.

STEP 2: Find Underlying Causes. Second, you need to use the information about the symptoms of dementia that you just learned about (errors in judgement, loss of vision perception, etc.) to get at the underlying cause of the problem. This is important, because symptoms will affect the type of modifications that will be most effective. A person may be having episodes of incontinence, or uncontrollable bladder, because they have trouble remembering where the bathroom is, or because they can't see the toilet against the white floor and walls. Different modifications would be used to address each of these issues.

STEP 3: Do a Task Analysis. The next step in the process is to perform a task analysis of activities the person is having problems with, such as bathing, toileting, dressing, etc.
Task analysis breaks the activity down into simpler components, allowing you to determine what's keeping the person from being able to complete the task successfully. Once you have an idea of the problems and their underlying causes, it's best to break that basic problem down into its component parts or tasks. Analyze each of those tasks, and relate them to the client's functional abilities and behaviors. List all of the areas of need, or all of the component tasks for which some special help from the product is required. Task analysis is the critical first step in the process of understanding where problems occur and developing solutions to address those problems. Suppose a caregiver says that he or she has a serious problem getting a person with dementia in and out of the bathtub. Our first inclination might be to recommend a roll-in shower. However, closer examination of the component tasks involved may reveal a number of different types of potential functional problems, such as space issues in a particular bathroom. Performing a task analysis to identify the key component tasks that are causing the problem is critical in determining the best modifications to meet the needs of the individual with dementia and his or her caregiver. For example, the individual may have difficulty bathing because he/she cannot lift his/her leg over the tub or lower down and rise up from the bottom of the tub. Even if the individual does not use a wheelchair, but might someday, a roll-in shower might not be the best solution for the client's immediate situation, particularly when cost and comfort level in a bathtub are important factors to consider.

STEP 4: Identify Design Goals. Once a task analysis has identified the component tasks that define the problem, it is possible to identify the design goals for the modification. What are the goals of the modification? Are you trying to enhance safety, maintain independence or support caregivers? This is when you need to identify design goals. Many times there will be more than one goal, and sometimes the goals can conflict. For instance, helping someone maintain independence in cooking meals can be more difficult if they are using appliances in an unsafe manner. But laying out the goals explicitly makes sure the modification will be supportive- not just restrictive.

STEP 5: Determine the key design characteristics. For example, suppose a task analysis identifies the problem as the inability of a caregiver to maneuver a wheelchair so that the person with dementia can wash up and brush his or her teeth. The initial thought might be to just do the tasks for the person, but this impacts the design goal of maintaining independence. The next thought might be to replace the existing sink with an institutional, it-only-comes-in-white, wall-hung sink. While this may be a functional solution, it is not very familiar or residential, and might affect the individual adversely. You need to think about the design characteristics of the "handicapped" sink that enable a wheelchair user to reach the faucet and use the sink. Key design characteristics coupled with situational factors are important to select the most appropriate modification. Determining the key design characteristics can be accomplished by analyzing the characteristics of a modification that meets the functional requirements of the design goals. The sink is open below, allowing a person using a wheelchair to pull up underneath the fixture. In addition, it is deeper than a standard residential sink allowing the wheelchair user to pull up all the way to the front edge of the sink. Clearly, there are off-the-shelf, more residential options available that would provide those essential characteristics. A standard wall-hung or half pedestal sink could be used. Alternatively, if
a full counter is desired to accommodate toothbrushes, hairbrushes, toiletries, and other items that will prompt the person with dementia to engage in grooming tasks, a countertop can be installed either open or without a full base cabinet below.

STEP 6: **Goodness of Fit.** While "goodness" of functional fit between client and caregiver needs and design characteristics can be observed or reported, there is no such way of determining when the modification fits the situation. Experience is the best ally in this regard, but common sense and following the design guidelines that were discussed in the previous section can be very helpful.

To summarize, a task analysis defines the basic problems in activity performance or with dementia-related behaviors. Once design goals for the modifications are identified, specific modifications will potentially address the problems. A careful examination of the ways in which the solution will be used will identify the key design characteristics that are necessary to address a client's and caregiver's specific needs. Key design characteristics are important in making decisions about which modifications will be the best functionally for an individual and caregiver. Finally, overlaying functional needs with situational ones will help decide which modification is the best overall fit.

Armed with this information, you are now ready to move on to learn about specific recommendations for environmental modifications that will support people with dementia and their caregivers. The information in the next course's class is structured by activities, those that you want to support for as long as possible, like dressing and bathing, and those you want to diminish, like wandering away from the house.

The previous section of the course focused on how dementia's symptoms can impact a person's ability to function safely or easily inside the home. You also learned how setting realistic goals can lead to decisions about home modifications. In this section of the course, you will become familiar with the specific behavioral problems that people with dementia and their caregivers experience in the home and the types of modifications that can be made to ameliorate the effects of these problems.

Home modifications are changes to the physical environment of the home. These changes will be different for people with dementia than other types of physical impairments in spite of the similarity of symptoms to other physical ailments. Some of the common dementia difficulties are entering and leaving the residence, remembering how to use household appliances or even going to the restroom. Home modifications must be customized in order to conform to the manner in which people with dementia experience these difficulties, which is inevitably different than people with motor or sensory impairments who have similar behavior problems. Case in
point, for people with dementia it helps to label rooms as reminders of where things are in the home. This may not be useful for a person recovering from a stroke who is living with hemiparesis.

People with dementia have a number of behavioral issues that are unique to their ailment such as randomly wandering off or sporadic agitation. These behaviors are not linked to any particular activity and affect an individual's ability to function safely and independently at home. They can also exhibit seemingly benign behaviors that are disruptive to care providers such as rummaging through the belongings of others. These behaviors will be addressed uniquely to dementia when evaluating household modifications.

Over time modifications become less supportive of autonomy and are more focused on supporting caregiver supervision. As a result, the nature of home modifications change over time from those that focus on the person with dementia, to those that focus on both the person with dementia and the caregiver, to those that focus on the caregiver. For example, as an individual's function levels decline from independence to dependence, modifications related to routine household activities will move from those that support independent functioning for the person with dementia (reminder note on how to wash laundry), to modifications that help the caregiver provide assistance in routine activities (taking the knobs off the washer), to modifications that support caregiver supervision (relocating the washer and dryer to be near the bedroom). Similarly, as dementia-related behaviors increase over time, modifications will change from those that support engagement in activities by the individual with dementia through minimal supervision (e.g., a "DO NOT ENTER" sign or reminder note to call caregiver), to those that limit activity by imposing passive caregiver controls (e.g., cover or remove doorknobs), to those that restrict activity by imposing active caregiver controls such as an alarm system.

Section IV
Home Modifications for Dementia-Related Problems

You will learn about the specific types of problems experienced by people with dementia in the home that can be addressed by home modifications. Once again, home modifications are changes to the physical environment of the home. It is important to stress that this course only covers problems for which modifications may be effective solutions. Many problems that people with dementia have will not be affected by changing the physical environment. This is not to say that other problems with dementia cannot be addressed, rather that they cannot be effectively addressed by home modifications and therefore will not be broached in this course.

Home modifications, therefore, are part of a larger set of situation-directed solutions intended to help cope with dementia. Changes to the environment create opportunities for enhancing autonomy between parties and supervision capabilities. Ultimately, home modifications should provide an environment that is supportive of the needs of the person with dementia, and his or her caregiver. The effectiveness of the modifications in supporting either of these goals will depend on the situation.
This section of the course will cover how specific household problems are caused by the dementia-related symptoms learned previously. The lessons will illustrate the connection between the dementia and problems in the home. Performance goals previously discussed will also be focused upon for selection of appropriate design objectives/modifications for each problem area. This will give a better understanding of what the modifications are intended to do and why certain modifications are recommended. Please view the Adobe Acrobat file. This file is a table of problems in the home that are associated with dementia, as well as their underlying symptoms and the modifications that can address these problems based on the performance goals. This table is very comprehensive. However, it still is not an all-encompassing list.

**Problems with Routine Household Activities**

In the linked table, you will see the problems in red and underlying symptoms listed along the left hand column. For each problem, there are a number of specific design objectives in green based upon the performance goals. These appear in the second column on the table. The subsequent three columns represent the types of modifications in blue that will meet the design goals at different times in the progression of the disease.

The three columns represent a conceptual progression of the dementia. The progression is actually a continuum, not stages that are identifiable by points in time. Therefore, choosing a modification is determined by situation, not by time or stage of dementia. Try to use your best judgment, in consultation with the person with dementia and the caregiver, to determine what modification is best for the situation. The right modification will meet the needs of the person with dementia, the caregiver(s), and the therapeutic goals. There might be different levels of autonomy and supervision for different problems. For example, someone may need modifications to help him or her manage finances independently, but they might need higher levels of supervision in getting around because they have more advanced gait and balance problems. Remember you need to promote autonomy for one problem, but also limit autonomy and promote supervision for another problem. It all depends on the situation!

**Problems with Routine Household Activities**

As previously stated, people with dementia may have some of the same types of problems with routine activities that people with other types of impairments experience. However, because of their dementia, the specific problems are different. Within each of these areas there are specific obstacles caused by dementia-related symptoms. Each problem has its own set of design goals and objectives. In turn, each objective has a number of modifications. This course will organize these modifications by problem area.

1. **Mobility/transfer** (e.g. ambulating and getting up and down)
2. **Personal hygiene** (e.g. toileting, bathing, dressing, grooming)
3. **Household activities and chores** (e.g. doing laundry, cleaning, managing finances)
4. **Control of ambient conditions in the home** (e.g. using a thermostat, opening a window)
5. **Communication and response** (e.g. using a telephone, answering the door)

The first problem area this course will discuss concerns about mobility and transfer. There are three basic categories of mobility and transfer problems people with dementia experience: getting into and out of the home, getting around the home, and transferring into or out of furniture and the bed. These are typically caused by forgetfulness, loss of visual perception, and changes in gait and balance that affect an individual’s mobility and transfer skills.

Three basic categories of mobility and transfer problems:
1. Getting in and out of the home.
2. Getting around the house.
3. Transferring into/out of furniture and bed.

**Mobility and Transfer - Getting in and out of the home**

To help maintain independence and ensure safety in getting into and out of the home, a number of modifications are possible that compensate for changes in vision and gait. *Increasing lighting and visual contrast* by adding lamps or motion activated lighting is important to ensure that people can see where they are going to avoid accidents and trip hazards. *Adding assistive features* at level changes such as installing new handrails and putting a reflective strip on stair edges, or *eliminating level changes* altogether (e.g., installing a ramp or lift) will help minimize the risk of stair falls. Similarly, adding assistive features that reduce the need for strength and dexterity at doors, such as using lever handles or power assisted openers, and *removing obstacles that tax motor skills*, such as mats and flower pots, will also minimize risk of falls. To compensate for forgetfulness, *prompts and reminders* can be used at doors to enhance orientation and maintain independence. These include keeping keys in the door or attached to a string on the door handle, or labeling entrances to help an individual with dementia to remember how to get out of the house.

**Mobility and Transfer - Problems with Routine Household Activities**

Several of the modifications to help an individual get around the home safely and independently are similar to those used to get in and out of the house, including *increasing lighting and visual contrast*, *adding assistive features at level changes* or *eliminating them all together*, and *adding assistive features and removing obstacles at doors*. In addition, *removing obstacles and hazards*, such as removing clutter and objects that will impede a shuffling gait and installing hand holds along routes and in specific activity areas in the home will help to ensure safety in ambulation and maintain independence. Finally, *using prompts and reminders*, such as labeling rooms, leaving doors open, and using cues to mark paths to important destinations (like the bathroom) will maximize orientation and help maintain independence.

**Transferring**

Transferring is the last problem of mobility. Transfers include getting into and out of the bed or other furniture, on and off the toilet, and into and out of a tub or shower. The latter two will be discussed in the next section - personal hygiene - so the course will
focus on bed transfers here. Transferring into and out of bed or furniture is difficult due to changes in gait and balance. To ensure safety and maintain independence, you should provide supports such as bed rails, floor to ceiling poles (e.g., superpole), or sturdy furniture adjacent to a bed or chair. As an individual's ambulation skills decline, you might want to use modifications that will prevent someone from transferring on his or her own, or you might want to install a lift system to increase safety. Please note how the table actually has a lot more specific recommendations than covered in this course. Not every modification has been examined thoroughly but the table offers a flavor for how to use the table to explore a range of possible alternative modifications.

**Personal Hygiene**
The second area explores problems with personal hygiene. This area includes toileting, bathing, grooming, dressing, and managing healthcare needs.

**Toileting**
Problems with toileting are complex because they are associated with many of the dementia-related symptoms including forgetfulness, decreased ability to initiate and sequence an activity, loss of visual perception, and changes in gait and balance. To address these symptoms, a variety of home modifications are typically used to ensure safety and maintain independence. *Prompts and reminders* about toileting, such as labeling the bathroom door, or keeping it open to provide cueing, can be used to promote continence. Grab bars and raised toilet seats are assistive features that can be added to help the individual with dementia and help the caregivers so they don't have to lift the individual on and off the toilet. *Increased lighting and visual contrast* are important to see the toilet, which often is the same color as the walls.

Among the dementia-related problems that Inez had was a loss of contrast sensitivity and depth perception. At first, it didn't affect many activities, but Frank began to notice that Inez would always use the bathroom downstairs before she went upstairs to bed. Then one night Inez had to use the bathroom in the middle of the night. She got up and went into the master bathroom. Her husband Frank heard a crash and found her lying on the upstairs master bathroom floor wedged between the toilet and the wall. Inez had misperceived the location of the toilet. The next day Frank compared the two bathrooms. He noticed that the master bathroom had a white toilet, white floor and white walls. The toilet was located next to a wall on one side, but was 3 feet from the sink on the other. In contrast, the downstairs bathroom had a white toilet, but the walls were blue and it had a natural wood floor. In addition, the sink in the downstairs bathroom was right next to the toilet so Inez could use it for support while sitting down. --- That day, Frank went to the local chapter of AARP. They gave him some information on home modifications. He went out and got a colored toilet seat for the upstairs toilet and bought a couple of stainless steel grab bars. He thought white would be more aesthetic, but he knew that Inez would have a hard time seeing them. He also bought motion activated light switches that would turn on the hall light outside the bathroom and the bathroom lights as soon as Inez walked by. Since he was pretty handy around the house, Frank had no trouble putting in the grab bars and switches himself. --- These modifications worked for quite a while, until Inez started to forget where the bathroom was located. At first, labels on the
door worked, then Frank used arrows in the hallway. That worked for a short time and then Frank just left the light on and the door open. Eventually, he had to take Inez to the bathroom, but having grab bars that Inez could hold on to made it much easier for Frank to help Inez with her clothing.

**Bathing**
Like toileting, bathing is a multi-symptomatic personal hygiene problem that is due to forgetfulness, decreased ability to initiate and sequence an activity, loss of visual perception and changes in gait and balance. Similarly, modifications to assist bathing include: *prompts and reminders* about taking a bath (e.g., labeling the bathroom door or using a timer as a reminder), *assistive features and removing obstacles* to help get in and out of the tub or shower (e.g., adding grab bars outside the tub, using a non-skid surface in the tub), *increased lighting and visual contrast* to see the tub (adding lighting fixtures and contrasting colored tape on the edge of the tub or shower curb), and *prompts and reminders about washing* (e.g., labeling hot and cold on faucet, putting soap and shampoo in plain sight). In addition, *assists and preventative measures* should be used to avoid accidents and injuries. These include modifications such as lowering the water temperature, installing an anti-scald valve, reinforcing towel rods since they may be used as grab bars, installing in-tub grab bars, and removing the drain plug from the sink and/or tub.

**Problems with Routine Household Activities**

**Grooming**
The case study about Maria was presented in the first section of the course. It discussed some major issues she had with bathing due to her inability to start and sequence an activity. Loss of independence and safety risks in grooming is caused by poor judgment, forgetfulness, and decreased ability to initiate and sequence an activity. To address these symptoms, modifications include *prompts and reminders* about grooming (e.g., notes on the mirror, automatic shut offs on faucets, grooming aids in plain sight), *precautions to avoid accidents and injuries* (e.g., installing anti-scald valves, insulating exposed plumbing, installing a grab bar at the sink for balance, covering outlets, putting away products like hair spray), and *increasing lighting and visual contrast* to make grooming easier. Pictured here is a reminder note that can be placed into the bathroom. Sensoed faucets can also be installed for ease of use.

**Dressing**
Problems in dressing, like grooming, are caused by poor judgment, forgetfulness, and decreased ability to initiate and sequence an activity. In addition, changes in gait and balance also contribute to problems dressing. *Prompts and reminders*, such as a list of activities, as well as *limiting alternatives*, such as installing sliding closet doors, or placing clothes where they are visible will help maintain independence and regulate stimulation by minimizing decision-making. *Assists* such as a sturdy piece of furniture or a pole will also help maintain as much independence as possible by facilitating balance...
while getting dressed. Place clothes where they are visible. It will help maintain independence and regulate stimulation by minimizing decision-making.

Managing Health Care Needs
Finally, managing healthcare needs are problematic due to poor judgment, forgetfulness and decreased ability to initiate and sequence activities. Modifications that provide prompts/reminders and that limit alternatives for medication adherence (e.g., a timer as a reminder, keeping meds in one place or keeping them out of reach or locked) or forgetting healthcare information (e.g., reminder notes for appointments, doctor's phone number in phone memory button) will help ensure safety and maintain as much independence as possible in the home. In addition, increasing lighting and visual contrast will enable an individual to read medication labels and distinguish one medication from another. Reminder notes for appointments will help ensure safety and maintain as much independence as possible in the home.

Household Activities and Chores
Meals
Another problem area is household activities and chores. These activities include preparing meals and eating, doing laundry, cleaning and organizing, maintaining the home, and managing finances. Some of the difficulties associated with these activities are poor judgment, forgetfulness, inability to initiate and sequence activities, and decreased visual perception. They often cause difficulty in eating and meal preparation. Therefore, prompts and reminder cues are often used to maintain safety and independence in the early stages of dementia. Modifications include: placing food items in plain view or in a storage place, arranging reminder notes that list the order of doing things or ingredients in a recipe, and labeling appliances such as the microwave and stove. Additionally, safety precautions such as lowering water heater temperature and installing smoke detectors in early stages and then installing childproof knobs and locks in later stages, will help to avoid accidents and injuries. And, as always, increasing lighting and visual contrast will help compensate for loss of depth perception and contrast sensitivity.

Laundry
Doing laundry, cleaning and organizing, and maintaining the home are other problematic household activities for persons with dementia. Basically, using prompts and reminders and taking safety precautions to avoid accidents can address each of these activities. Simple modifications such as step-by-step reminder notes, pre-measuring cleaning supplies, and installing an intercom so the individual with dementia can communicate with the caregiver (and vice-versa) can be used at early stages for each of these activities. Later on, the caregiver will want to take precautionary measures such as locking up or hiding cleaning supplies and installing an overflow pan for the washer.

Upon first meeting Maria, she had lost the ability to know what the first steps were of the tasks that she had been doing for years (because there were too many for her to remember the order). After a couple of months she lost the ability to sequence tasks even after her daughter, Dorothy, got her started. Maria was still able to complete tasks by herself when there was someone there to remind her what to do. So Dorothy started leaving notes for
her that listed the order in which to complete certain activities. This worked pretty well for many activities, including bathing where Dorothy had hung a laminated list that reminded her mother to turn on the water, use the shampoo and soap, and rinse off, in that order. She also labeled the hot and cold water on the faucet and hung the soap and shampoo where they were easy to see and reach. -- Then about a year later, Maria started having problems lifting her legs and walking. As a result, she couldn't step over the side of the tub to take a bath. At first, Dorothy would help her mother get into the tub, but that was beginning to strain her back, so she went onto the internet and found a website that had some good solutions for these kinds of problems. As a result, Dorothy had a local handyman install some grab bars on the outside of the tub to help her mother step into the tub and some on the inside to help her lower herself down. This worked for about a year, but eventually Maria was no longer able to step into the tub. At this point Dorothy bought a tub transfer bench that her mother could sit on outside the tub and use to slide into the tub. She still wasn't able to get to the bottom of the tub to take a real bath, so Dorothy purchased a hand held shower wand that her mother could use while sitting on the tub bench. She also moved the list of tasks, as well as the soap, shampoo and other items closer to the tub bench. This arrangement is still working pretty well for Maria.

Managing Finances
The last set of problems in household activities is managing finances. This becomes difficult due to poor judgment, forgetfulness, inability to initiate and sequence activities, and decrease in visual perception. As a result, modifications that increase lighting and visual contrast, such as a large print calculator and large print checks, or the use of organizational strategies, such as slot files, will help an individual with dementia maintain independence as long as possible.

Controlling Ambient Conditions
The next problem area is controlling ambient conditions. Ambient is just a fancy name for things like the temperature, light, and noise levels in the home. Problems in this area usually involve forgetfulness, like forgetting how to regulate indoor temperature, or forgetting to turn on lights or to close windows. Providing prompts and reminders is the most effective way to address these problems. At early stages of dementia, placing labels on the thermostat to indicate hot and cold or step-by-step reminders can be helpful. Reminder notes on light switches and window sashes can also help. However, as the dementia progresses, automated systems such as pre-programmed thermostats, timers and motion sensors on lights and lamps will probably be needed. Ultimately, hiding or covering the thermostat and light switches, or adding locks to limit how far windows can open might be necessary. Problems in controlling ambient conditions usually involve forgetfulness. Covering light switches, as the example indicates, will be helpful.

Communicating with Others
The final problem is communicating with others through phone, snail mail, or email, and responding to stimuli such as the phone, a doorbell, or fire alarm. These are two important aspects of being able to live at home as independently and safely as possible. However, many people with dementia have problems communicating and/or responding
due to forgetfulness and loss of visual perception. *Prompts or automated systems* can be used to help find the phone (e.g., locator beeper on cordless phones) and phone numbers (e.g., phone list next to phone or speed dial). Prompts to send and get mail and email can also be used to remind people with dementia to communicate with others. *Increasing visual contrast* by using large button phones and colored phones can also help locate the phone and numbers on it. Large button phones like the one pictured here will help locate the numbers.

**Managing Alarm Systems**

At early stages of dementia, *reminders and automated systems*, such as notes to turn on and shut off alarm systems, or to ask who is at the door, can also be useful in alerting individuals to respond to an alarm or to open the door. However, in later stages, *using redundant cues*, such as lights and sounds or devices that can be carried by the individual, such as a pager or a cell phone set to vibrate, may be more effective in getting an individual with dementia to respond to alarms, doorbells, or incoming phone calls. Carrying devices such as cell phones in their vibration mode is very effective.

**Section V**

**Dementia-Related Behaviors**

This last section before the course summary deals with problems associated with dementia-related behaviors. Unlike modifications for household activities, which are primarily intended to ensure safety by maintaining independence, modifications for behavior problems are primarily intended to ensure safety by regulating stimulation and supporting caregiver control. There are four types of behaviors covered in this section:

1. Wandering and Exiting
2. Agitation
3. Rummaging and Hiding Things
4. Shadowing

**Wandering**

Although wandering and exiting are really two different behaviors, this course is going to cover them together. The main reason for doing this is that even though wandering can be a positive behavior that should be supported (it's great exercise), the course will only deal with behaviors here that involve negative consequences. Since the primary negative consequence of wandering is exiting, it makes sense to talk about the two together.

When an individual exhibits poor judgment, forgetfulness, and perseveration behaviors (i.e., wandering), allowing access to selected spaces and not understanding perimeter boundaries can potentially result in exiting. There are three methods of providing selective access to spaces to ensure safety and supporting caregiver control. First, design elements that direct or attract attention to a space or door can be *camouflaged*. For example, door knobs or locks can be covered, doors can be painted to match the walls, or a curtain can be hung in front of the door. Second, barriers that *permit selective access* to space can be used. These include "do not enter signs" on doorways, removing doorknobs, using gates or furniture to block access, or installing complicated locks or a second door knob. Third, cues or devices can be used to *increase caregiver awareness* of
the care recipient's location. Reminder notes, bells on the door, motion sensors that turn on lights or alerts, or alarm systems are various modifications that are effective at different stages of the dementia.

The inability to understand perimeter boundaries is also a problem that can result in exiting. Modifications that clearly differentiate boundary lines to maximize orientation and cues and devices that increase caregiver awareness of a care recipient's activities are two common methods of overcoming problems with perimeter boundaries. Clearly marking pathways and using fencing to mark the perimeter can differentiate outdoor boundary lines. As the dementia progresses, locks on gates or keeping people with dementia on a deck or porch may be necessary. Cues and devices, such as motion sensors on outdoor lighting, increasing caregiver views out of windows, and installing an alarm system can often compensate for a person's lack of understanding of where the boundary limits are located by alerting the caregiver to an individual's location.

Home modifications for people with dementia are made for one of two reasons, either to maintain the autonomy of the person with dementia or to enhance the ability of a caregiver to provide supervision. Generally, there is an inverse relationship between these two goals that is dependent on the stage of dementia. Autonomy is generally the goal in the early stages of the dementia when the individual is capable of maintaining independence and performing routine activities independently or with little supervision. As a result, home modifications in the early stages primarily focus on improving function to maintain independence and safety of the person with dementia. However, as the dementia progresses and the individual is less able to do things on his or her own and dementia-related behaviors worsen, autonomy gives way to ever-increasing levels of caregiver supervision. The diagram below shows the inverse relationship. As dementia progresses from early to late (horizontal axis), autonomy, represented by the blue arrow, goes from high to low and supervision (red arrow) goes from low to high.

Tim spent hours and hours every day walking around the house. Often his path would take him into the dining room, around the table, through the living room and into the kitchen. Sometimes he opened every door along his path and went in. Occasionally he would get stuck in the closet, and then get very upset because he couldn't keep walking. Sometimes his wife found him in the basement, walking around the perimeter of the room. This wandering behavior was very early in the course of Tim's dementia. Then one day, when his wife had some friends over, the front door was left open. Tim was drawn to the bright light streaming through the storm door. He opened the door and went outside and wandered down the street. He wandered for about an hour when he saw the local hardware store. Fortunately, Tim lived in a small town and everyone there knew him. One of his neighbors saw him wandering around the store and brought him home. - - Tim's wife was extremely relieved to have him back home, but also very lucky that he
wandered into town and not the other direction, which was a heavily wooded area. It was at this point that she knew something needed to be done to keep him from exiting again.

-- She called the local Alzheimer's Association and requested some information on home modifications. Not knowing who to get to do the work, she hired the only person she trusted, the school maintenance man who worked for Tim and replaced him when he retired. Dan didn't have any experience with modifications for dementia, but he was honest and wanted to do the right thing. So he took the material from the Alzheimer's Association and followed the suggestions as best he could. -- The first thing he tried was to put "do not enter" signs on the exterior doors. These did not deter Tim, so Dan tried covering the doorknobs and locks. This worked for a month, but eventually Tim was attracted to the covers and discovered the door again. Dan thought about putting multiple locks on the doors, but he knew that his wife had arthritis and it would be difficult for her to operate the locks. So, he installed an alarm system that would beep whenever the door opened so she would be alerted anytime Tim went outside. -- But that was only part of the solution. What if Tim's wife didn't hear the alarm or couldn't get to the door fast enough? So Dan put up a 6' privacy fence in the backyard with a latch on the outside that would allow Tim to wander without supervision. However, local codes would not permit such a tall fence in the front yard. So Dan put up a 4' decorative picket fence in the front yard that would slow Tim down just enough to give his wife the time to respond to the alarm and keep him from exiting the yard.

Agitation
The next two problems relate to agitation behavior. They are: 1) encountering agitating situations due to poor judgment, forgetfulness, and perseveration, and 2) risk of injury due to agitation. Agitating situations are often the result of over-stimulation. Therefore, modifications designed to regulate stimulation are typically used to reduce the incidence of agitating situations. These include: providing adequate lighting for daily tasks, minimizing glare and reflections that can cause hallucinations by minimizing access to mirrors, using low glare wax on floors, reducing potentially disruptive auditory and visual noise by blocking violent TV shows, using calming colors, reducing volume on phones and alarms, and minimizing changes in the home that can cause confusion. Glare and reflections can cause hallucinations. Use calming colors. Reduce the volume on phones.

Agitation can easily lead to injury. As a result, precautionary measures in specific activity areas should be taken, such as removing clutter and sharp objects. In addition, using childproof locks on cabinets and window locks can prevent people with dementia from getting to things or places that might be harmful to them.

Rummaging or Hoarding
The next set of dementia-related behaviors that cause problems are rummaging and hiding things due to perseveration. There are three types of modifications that are intended to regulate stimulation and support caregiver control that can be made to minimize rummaging. Denying access to valued items such as jewelry or even the mail by placing them out of sight, providing low cost substitutes, or simply locking them up. Second, decreasing the number of places where rummaging can occur can be
accomplished by removing clutter, cleaning out drawers and closets, or locking them. Finally, creating appropriate places to rummage such as junk filled drawers can divert attention away from other places where rummaging is unwanted.

Hiding items can also be minimized by limiting access to items that are commonly hidden. This can be accomplished by keeping valued or important items out of sight, attaching small movable items such as a phone or remote control to a piece of furniture, or hiding items yourself. Hiding items can also be reduced by minimizing the number of places to hide things, such as removing drawers, cabinets, or trash cans from a room or locking them.

**Shadowing**
The last dementia-related behavior discussed in this section is shadowing, which is caused by perseveration. Shadowing is following surreptitiously. Since shadowing is a response to agitating situations, minimizing those situations will help minimize shadowing. In addition, providing areas for activities, such as painting, gardening, or preparing a meal that have visible lines of sight to the caregiver will help reduce incidences of shadowing.