

1. INTRODUCTION

1.1 The Occupational Therapy Perspective on Function

Occupational therapy practitioners have a unique perspective on function that focuses on occupation — *meaningful doing*. That is, function from the perspective of occupational therapy practitioners relates primarily to the ability of an individual to perform the daily life tasks that he or she *wants and needs to perform* or that the person is *expected to perform* by society. In our practice, we emphasize the ability to do, and we evaluate and treat within the context of the client’s doing occupation (Fisher, 1992, 1994b, 1998).

Occupation is defined as the action of seizing, taking possession of, or occupying space or time. It is also defined as the holding of positions — as in one’s roles. Finally, in the sense of action, occupation refers to the being engaged in something (*The Oxford English Dictionary*, 1989).¹ Occupational therapy practitioners enable their clients to seize, take possession of, or occupy the spaces, time, and roles of their lives (Fisher, 1994, 1998). When we speak of the action of seizing, taking possession of, or occupying *space*, we can think of the actions our clients must perform to occupy their homes, their schools, their workplaces, and the places where they engage in recreation or leisure. Similarly, when we speak of the action of seizing, taking possession of, or occupying *time* — and being engaged in something — we can think that as our clients engage in task performances, they engage in a course of action that unfolds over time. We can also think about our client’s need to occupy time, not just in the sense of “being busy,” but also in a sense that connotes the action of doing a mental, physical, or social task that is meaningful to the person. And lastly, when we speak of the action of seizing, taking possession of, or occupying *roles*, we can think about the task performances our clients must enact in order to assume their life roles.

While we often think of occupation as if it refers to an end-product, outcome, or *something we do* (e.g., work, play, self-care), occupation actually pertains to the action, the

¹ While the term *occupation* was originally used in naming our profession, other terms have been used in other countries to replace the term *occupation*. For example, in Europe terms that refer to work (e.g., *ergo*, *arbete*) have been used in place of occupation. The use of these terms may be due to the fact that in English, occupation is commonly used to refer to one’s work, job, or profession — a use that does not convey the true essence of our profession. Perhaps, however, it was this meaning of the term that provided the basis for translating occupation from English into a term that refers to work. It also may be that the term *occupation* more frequently is used in other countries to refer to occupation in a military sense (to invade, to occupy, to seize), and hence, it may connote a more negative meaning than desired. However, it is actually this meaning of the term *occupation* that is being expressed in the actions of seizing, taking possession of, or occupying time, space, and roles. When we use the term *occupation* in the sense of “to be occupied” or “to occupy a room” we use it in an active, but neutral (nonmilitary), manner. We use the term *occupation* in the same manner when we use it to refer to our profession. Whatever term has been adopted in other countries, it is important to be aware of the root meaning of the original name given our profession — occupational therapy.

process, or the *doing of something* (e.g., working, playing, dressing). Occupational performance, therefore, refers to the engagement in a course of actions or performances that comprise the process of working, the process of playing, or the process of dressing — performing occupations, *performing actions in time* (Fisher, 1994b).

Occupation is activity that is both meaningful and purposeful to the person who engages in it. *Meaning* pertains to the significance of the task to the person and provides a source of motivation for performance. *Purpose* pertains to the person's aim, reason for doing, or intended goal; a sense of purpose helps to organize performance (Fisher, 1998; Trombly, 1995a). Moreover, the meaning is often derived from the purpose. When we consider occupation in this manner, we are free to acknowledge that *the meaningfulness or the purpose of the doing* can be derived from either extrinsic (end-products — preparing a meal to eat) or intrinsic values (intention, reasons — preparing a meal in order to please a friend, preparing a meal to learn a new recipe). We no longer are tied to purpose expressed as “the thing being done.” Whether or not it is productive, occupation is self-directed and is concerned with autonomy and choice (Yerxa, 1991). It is essential, therefore, to understand that “persons are agents who, for various reasons, decide what they will do and when and how they will do it” (Yerxa, 1991, p. 201).

Hence, we must stress a *top-down approach to assessment* that begins with the ability of the individual to perform the daily life tasks that he or she wants and needs to perform to be able to fulfill his or her roles competently and with satisfaction. These are the daily life tasks that commonly are meaningful and purposeful to the person who performs them. In contrast to a bottom-up approach that focuses on impairments and capacity limitations, a top-down approach focuses on the quality of occupational performance as the person interacts with the physical and social environment in the context of his or her roles.

Daily life tasks are cultural acts. What tasks one does; how, when, and where one does those tasks; and what tools and materials one uses while performing those tasks are all constrained by culture. Culture both provides the context for the assessment and contributes to the meaning and purpose of one's doing (Spencer, Krefling, & Mattingly, 1993). A top-down approach begins, therefore, with an inquiry into role competency and meaningfulness, gives consideration to culture, and clarifies the broad purpose of occupational therapy for the client (Trombly, 1993).

When we evaluate the quality of the person's occupational performance as he or she interacts with the physical and social environment, we are implementing a *performance analysis*. Performance analysis refers to the *observational evaluation of the quality of a person's task performance* to identify discrepancies between the demands of a task and the skill of the person. The person's problems and strengths are described in terms of goal-directed actions that comprise the occupational performance and not underlying impairments

and capacities. The AMPS is a standardized method for implementing performance analyses.

Finally, we have available to us several intervention strategies, including adapted methods of doing (alternative or compensatory techniques), adaptive equipment, environmental adaptations, and treatment of the underlying impairments and capacity limitations. The first three forms of intervention are examples of *adaptive occupation*, provided those occupations are meaningful and purposeful to the client (Fisher, 1998). Our design and therapeutic use of adaptive occupation reflect an application of the *compensatory model* (Fisher, 1997a, 1998; Trombly, 1989, 1995e) (see also Vol. 1, Chapter 4). When we use this approach, we focus on methods that enable our clients to perform “as independently and in the most satisfying way that their residual disability allows” (Trombly, 1989, p. 375).

When we engage the person in meaningful and purposeful occupations for purposes of restoring impairments or developing underlying capacities, we are using *therapeutic occupation* (Fisher, 1998) (see also Vol. 1, Chapter 4). Our use of therapeutic occupation reflects occupational-therapy-specific applications of various restorative² approaches or models of practice (e.g., biomechanical model, sensory integration theory, behavioral, developmental).

Adaptive occupation and therapeutic occupation, when based on performance analyses and a top-down approach to assessment, are the *very essence of occupational therapy*. When occupational therapy practitioners use evaluation and intervention strategies that reflect our unique focus on occupation, we more readily convey to our clients and health care payers³ that we possess unique expertise within the health care arena.

If occupational therapy practitioners are to be fully recognized as uniquely qualified to respond to increasing demands for cost-effective intervention programs that improve the functional status and the quality of life of our clients, we must be prepared to use measurement methods that reflect the unique perspective of occupational therapy. Our assessment methods, therefore, must emphasize the ability to do and must place doing within a top-down context that begins with cultural relevance, meaning, and purpose. Finally, instead of focusing on the “something we do” (outcome), we must focus on the “doing of something” (process). *We must observe and evaluate a person’s skill as he or she engages*

² As we will discuss further in Vol. 1, Chapter 4, we have chosen to use the term *restorative* to refer to models of practice that are used to (a) *restore* or remediate underlying capacities or performance skills that have been lost due to disease or injury, (b) *develop* underlying capacities and performance skills in persons who have not yet achieved age-appropriate occupational performance, or (c) *enhance* underlying capacities and performance skills for purposes of promotion of wellness and prevention of functional decline.

³ We have used the term *health care payers* in a generic sense to refer to insurance companies, managed care providers, government agencies, or other organizations that pay for health care or occupational therapy services.

in the course of actions that comprises the process of performing occupations (Fisher, 1994b).

1.2 An Overview of the AMPS

The Assessment of Motor and Process Skills (AMPS) is a performance evaluation. The person evaluated is observed doing occupations. The occupations the person performs for the AMPS are activities of daily living (ADL). ADL tasks include self-care or *personal activities of daily living* (PADL) as well as domestic or *instrumental activities of daily living* (IADL).

The AMPS is designed to be used to measure a person's quality of performance of ADL tasks. The quality of a person's performance is measured in terms of the effort, efficiency, safety, or independence of the goal-directed actions that the person enacts to effect the ADL task performance. That is, the ADL motor and ADL process skills are the small units of occupational performance — *they are the performance*, they are not the underlying functions or capacities.

More specifically, the occupational therapy practitioner uses the AMPS to evaluate two domains of occupational performance: ADL motor skills and ADL process skills. ADL motor skills are the observable goal-directed actions the person enacts during the performance of ADL tasks in order to *move oneself or the task objects*. ADL process skills are the observable actions of performance the person enacts to *logically sequence the actions of the ADL task performance over time, select and use appropriate tools and materials, and adapt his or her performance when problems are encountered*. The occupational therapy practitioner administers the AMPS to determine whether or not a person has the necessary motor and process skills to effortlessly, efficiently, safely, and independently perform the ADL tasks needed for community living.

The motor and process skills shown in Table 1-1 are universal goal-directed actions that comprise and support all ADL task performances. For example, whether a person makes a sandwich, folds a basket of laundry, or sweeps the floor, he or she must *reach* for, *grip*, and *lift* the task objects. Similarly, he or she must *search* for and *locate* the needed tools and materials, *gather* them to the workplace, and *sequence* the steps of the task performance in a logical order. What we assess with the AMPS is the degree of skill the person manifests when performing these individual, goal-directed actions that make up the overall occupational performance.

The AMPS is a test of skill in occupational performance. It is important to note, that the AMPS is not designed to be used to evaluate for the presence of neuromuscular, biomechanical, cognitive, or psychosocial impairments (e.g., strength, range of motion, memory), nor is it designed to be used to evaluate underlying capacities (e.g., ability to grip,

ability to remember, ability to plan a course of action) (see Vol. 1, Chapter 2). Unlike impairments and underlying capacities, the ADL motor and ADL process skills of the AMPS are goal-directed actions enacted in the context of occupational performance. That is, they are actions performed as one interacts with task objects in the context of enacting a task performance that is meaningful, purposeful, and relevant to the person who is performing the task (e.g., reaching for, grasping, and lifting a glass from a shelf in the context of pouring oneself a glass of juice).

Table 1-1 Motor and Process Skills Defined in the Assessment of Motor and Process Skills

<i>Motor Skills</i>		
Stabilizes	Coordinates	Lifts
Aligns	Manipulates	Calibrates
Positions	Flows	Grips
Walks	Moves	Endures
Reaches	Transports	Paces
Bends		
<i>Process Skills</i>		
Paces	Initiates	Restores
Attends	Continues	Navigates
Chooses	Sequences	Notices/Responds
Uses	Terminates	Accommodates
Handles	Searches/Locates	Adjusts
Heeds	Gathers	Benefits
Inquires	Organizes	

When the occupational therapy practitioner administers the AMPS, he or she evaluates the quality of the person's motor and process skills as they are manifested in the context of the ADL task performance. The interpretation of the AMPS, therefore, addresses the question: Does this person have the necessary motor and process skills to perform ADL tasks effortlessly, efficiently, safely, and independently? The AMPS process skill scale provides further information regarding the extent to which the person has overcome residual neuromuscular, biomechanical, cognitive, and psychosocial impairments and capacity limitations by using alternative or compensatory strategies during task performance. The

occupational therapy practitioner then uses the results of the AMPS to plan and implement interventions designed to enhance the person's occupational performance.

The AMPS is based on the premise that a person's performance is influenced by the meaningfulness of the tasks to the person who performs them (Doble, 1988; Kielhofner, 1985). The administration procedures of the AMPS, therefore, are designed to allow the person to choose at least two ADL tasks to perform for an AMPS evaluation. The tasks the person performs are familiar, have current or future relevance to the person's daily life routine, and are ones that the person has had prior experience performing. Since the rater scores the quality of the person's ADL motor and ADL process skills in the context of performance of client-chosen tasks, the result is *client-centered assessment*. Client-centered assessment refers to the use of evaluation procedures that are individualized and sensitive to the person's varying needs, interests, and contexts (Pollock, 1993).

Since the AMPS has been standardized internationally and cross-culturally (Bernspång & Fisher, 1995b; Goldman & Fisher, 1997; Goto, Fisher, & Mayberry, 1996; Magalhães, Fisher, Bernspång, & Linacre, 1996), it has been imperative that we recognize that task familiarity and relevance are heavily influenced by the cultural background of the person evaluated (Magalhães et al., 1996). To meet the demand for task choices appropriate for persons from diverse backgrounds and with diverse needs and interests, 83 standardized task choices have been included in the AMPS manual. Through an informal interview between the client and the rater, AMPS task choices that are matched to the abilities, needs, interests, and cultural background of the client are narrowed by the rater to a small subset of approximately three to five relevant tasks that provide the client a sufficient level of challenge. This subset of tasks is then offered to the client, and, from this subset, the client chooses at least two tasks to perform.

The task descriptions outlined in Vol. 2, Chapter 2 (AMPS Task Descriptions) include *specific task guidelines* (i.e., Essential task and Specific criteria) that provide sufficient requirements for each task to allow for standardization; yet are flexible enough to allow each person to perform the tasks in his or her usual manner using the tools and materials he or she typically would use. *Flexible task options* (i.e., Options) (see Vol. 2, Chapter 2, AMPS Task Descriptions) also allow for the diversity of methods people use cross-culturally to perform otherwise comparable tasks. For example, to perform the AMPS task of brewing a pot of coffee or tea, the client is free to specify if he or she will brew coffee or tea; and if he or she chooses to brew coffee, whether he or she will boil the coffee, use a French press, or make the coffee in an electric coffee maker. Brewed tea is the more common option chosen by persons in the United Kingdom and Asia, whereas persons from the United States or the Nordic countries are more likely to brew coffee. The use of a French press may be an option chosen by a person from Europe, Australasia, or North America, while boiled coffee tends to be unique to northern Sweden, Alaska, and parts of New Zealand.

Both the specific guidelines and the task options the person chooses become a **task contract** that the occupational therapy practitioner and the client establish collaboratively during the interview that precedes the AMPS observation. The task contract defines a component of the specific **constraints of the task** to be performed. The constraints of the task also include implicit, culturally-shared understandings of how one is to perform the task and what tools and materials are appropriate. The task contract negotiated with the client may be that the person will prepare a pot of brewed tea for two persons, pour the tea into cups, and serve the tea with a container of cream at a table or counter. The task contract does not specify which tea pot is to be used, how the water is to be heated, or in what cups the tea will be served. Whatever options the client chooses, the task constraints require that the client (a) choose and use appropriate tools and materials (including those that were prechosen), (b) brew the coffee or tea, (c) serve it, and (d) restore the workspace upon completion of the task.

Once the person has chosen what tasks he or she will perform, and he or she has set up the test environment, the occupational therapy practitioner observes the client's AMPS task performances. The AMPS-trained rater then scores each motor and process skill item according to the quality of each action as observed during each of the ADL task performances. Each of the 16 motor and 20 process skill items (see Table 1-1) is scored based on the quality of performance of each ADL skill.

More specifically, the client's performance on each of the ADL motor and ADL process skill items for each task is scored by the AMPS-trained rater on a 4-point scale as follows: **4 = competent** performance without evidence of increased effort, decreased efficiency, or lack of safety; **3 = questionable** performance in which the examiner questions the effectiveness of the observed performance; **2 = ineffective** performance that slows the task progression or otherwise interferes with effective task completion (e.g., increased effort or difficulty, decreased efficiency, decreased safety); and **1 = markedly deficient** performance as indicated by (a) the need for the examiner to intervene or provide assistance, or (b) performance that results in task breakdown, unacceptable delay, or imminent risk of damage to task objects or danger to the client. The scoring criteria (see Vol. 2, Chapter 4, AMPS Skill Items) are designed to allow the occupational therapy practitioner to consider the client's level of effort (difficulty), degree of efficiency, degree of safety, and need for assistance.

The scoring criteria that are learned in AMPS training courses also **emphasize the importance of the person performing each task in his or her usual manner**, rather than meeting preestablished, externally-imposed, or contrived performance criteria. The effectiveness of the person's performance is judged based on what is logical or appropriate given the person's culture and the constraints of each task performed.

For example, in the case of Diane, whose AMPS evaluation we present in Vol. 1, Chapter 6, the examiner knew that Diane intended to (a) make a tossed green salad with lettuce, tomatoes, cucumber, and radishes; (b) prepare the salad in a large bowl and serve it in two individual serving dishes; (c) use bottled Italian-style salad dressing; and (d) clean up the workspace and put away tools and materials that were not used. Notice that such **details as to how** Diane intended to cut cucumber and tomatoes, **or what bowls or plates** Diane would use to prepare and serve the salad, **were not predetermined**. Rather, as Diane's performance unfolded, the appropriateness of the tools and methods she used was judged based on what is logical given Diane's cultural background and the constraints of the task she chose to perform: making a tossed green salad and serving it. Knowing ahead of time that Diane had decided to make a tossed green salad with specific ingredients **she had chosen** enabled the examiner to more accurately judge the quality of Diane's performance.

Since Diane forgot to add the radishes, the examiner scored Diane's **choosing** and **heeding** performances as ineffective (score = 2) during salad making. Only by knowing that Diane planned to make a salad according to certain task constraints (e.g., preparing the salad in a large bowl, serving the salad in individual bowls, using ingredients Diane specified), could the examiner judge the meaning of Diane's performances that deviated from what she had originally decided and agreed to do. Beyond these task constraints, the client's performances are scored based on what is viewed as efficient, effective, safe, and logical performance within a specific culture. For example, when Diane used a sharp knife to cut the tomatoes, she handled the knife in an unsafe manner which required examiner intervention. The examiner, therefore, scored Diane's **handling** skill as markedly deficient (score = 1).

Following scoring, the AMPS rater enters the client's raw scores into his or her personal copy of the AMPS computer-scoring software. The AMPS computer-scoring software is used to convert a person's ordinal raw AMPS skill item scores into linear **person ability measures** that can be placed on linear motor and process ADL continua, the AMPS motor and process skill scales. The person ability measures are adjusted by the AMPS computer-scoring software to account for (a) skill item difficulty, (b) task challenge, and (c) rater severity (Fisher, 1993, 1994a). A higher ADL motor or ADL process ability measure indicates that the individual is more able or higher on the continuum of the AMPS motor and process skill scales.

The calibrated AMPS rater is able to use the AMPS computer-scoring software to generate several reports, including the following: (a) an AMPS evaluation summary report, (b) a table of the client's raw scores (raw score profile), and (c) a graphic report showing the client's ADL ability measures plotted on the AMPS motor and process skill scales.

The results of the AMPS can be used to answer four questions. The first question is **Why does this person experience difficulty?** The answer is derived from the AMPS profile

of that person's motor and process raw scores. The second question is, ***What level of task challenge can this person manage?*** The answer to this question is derived from the ADL motor and ADL process ability measures. The third question is, ***Is this person a candidate for restorative interventions based on the use of therapeutic occupation or compensatory interventions based on the use of adaptive occupation?*** The answer to this question is also derived from the person's ADL motor and ADL process ability measures. Finally, the fourth question is, ***Has this person's ADL performance improved as a result of our interventions?*** The answer to this question is also derived from the ADL motor and ADL process ability measures that provide an objective basis for measuring change. Changes in client ADL ability measures are used in research and quality assurance programs to provide us with an objective method to demonstrate to our clients, colleagues, health care administrators, and health care payers that occupational therapy services are cost-effective and improve the functional status of our clients. Even when effective interventions based on designing adaptive occupation are implemented, client ADL ability measures increase because environmental constraints are eliminated. Improved ADL ability can occur in the absence of any change in the status of a person's neuromuscular, biomechanical, cognitive, or psychosocial impairments or his or her underlying capacity limitations.

1.3 Unique Features of the AMPS

There are several features of the AMPS that make it a unique and innovative observational assessment. There also are some limitations that arise because of its unique and innovative design.

1.3.1 Advantages of the AMPS

1. The AMPS represents an ***occupational-therapy-specific*** evaluation tool.
2. The AMPS has been fully standardized, internationally and cross-culturally, on **46,886** subjects.
3. The AMPS is a ***test of occupational performance***; it is used to evaluate a person's ***ability*** to do the ADL tasks he or she needs or wants to do.
4. The AMPS is designed to allow the person evaluated to choose what ADL tasks he or she will perform for the evaluation based on (a) the familiarity and relevance of the tasks to the client's daily life needs, and (b) the degree of challenge that the tasks offer the client. We believe that task performance is maximized when an individual has the opportunity to choose and enter into task performances that match the individual's volitional traits.
5. The administration of the AMPS requires no special equipment, and the AMPS can be administered in any task-relevant setting within a 30 to 40 minute period.

6. The AMPS is designed so that it can be administered to children (3 years of age and older), adolescents, adults, or older persons for whom there is concern about occupational performance.
7. AMPS can be used with all persons without regard for their diagnosis or the reasons for the client's disability.
8. The measurement model used to develop the AMPS and to analyze the client's scores allows us to determine the ADL motor and ADL process abilities of the client while taking into account (a) the relative challenge of each of the tasks the client performed, as well as (b) the severity of the rater who observed and scored the client's performance.
9. The unique design of the AMPS allows the occupational therapy practitioner to compare the ability of a client who performed one set of tasks upon initial evaluation with the results of his or her performance on a different set of tasks upon reevaluation. In a like manner, the AMPS can be used to compare performances among several clients who each performed a different set of AMPS tasks.
10. The AMPS provides occupational therapy practitioners with a powerful and sensitive tool that can assist with planning effective interventions and documenting change. The AMPS, therefore, also is an ideal tool for use in outcomes research.

1.3.2 Limitations of the AMPS

1. The AMPS is not suitable for evaluation of children under the age of 3 or persons who have no need or who are unwilling to participate in simple daily life tasks.
2. If the AMPS is to be used for documenting the efficacy of our interventions, quality assurance, or research, it must be computer-scored. This is necessary to compute overall ADL motor ability and ADL process ability measures that have been adjusted to account for the challenge of the tasks the person performed and the leniency of the rater who scored the client's performance. *The use of raw item scores for documenting efficacy interventions or in other forms of research is never valid.*
3. The AMPS computer-scoring software is provided only to persons who participate in AMPS training and calibration workshops.
4. Because the estimation of a client's ADL ability measures must take into account the relative severity or leniency of the AMPS rater, persons who take AMPS training courses cannot generate AMPS Graphic Reports of the client's ADL motor and ADL process ability until they have completed rater calibration requirements.

1.3.3 Rater Training and Calibration Requirements

In the process of developing the AMPS, we have found that valid and reliable administration and interpretation requires that interested occupational therapy practitioners

(a) participate in a training workshop, and (b) become calibrated as a rater. The 5-day training workshops provide critical information related to the theoretical basis of the AMPS as well as experiential learning of the AMPS administration and scoring procedures. Rater calibration requires that potential raters view and score videotaped AMPS observations during the course and then complete 10 live observations after the course. A crucial component of AMPS training is the practical experience that is obtained through scoring the AMPS during the training courses and completion of rater calibration procedures. Rater calibration allows us to determine if the rater is scoring the AMPS reliably. We also use rater calibration to determine each rater's personal rater severity calibration value that is used in the AMPS computer-scoring software to adjust the client's ADL motor and ADL process ability measures to account for the severity of the rater who scored the client's performance.

2. BACKGROUND INFORMATION

When we originally developed the AMPS, we decided to focus on the assessment of instrumental (complex or domestic) activities of daily living (IADL) (e.g., meal preparation, homemaking, laundry) because IADL task performance is one of the best indicators of functional competence. According to Lawton (1987), “IADL is one of the most objectively measurable and usefully predictive of all functions to measure” (p. 23). Further, IADL tasks have the advantage of varying in difficulty from very simple to very complex (e.g., pouring a beverage from a pitcher vs. preparing eggs, toast, and brewed coffee). Like basic self-care or personal activities of daily living (PADL), most individuals perform at least some IADL tasks within the context of their daily routines, and IADL tasks are critical to functional independence.

Our *original goal* was the development of a tool that could be applied equally to all populations without regard for age (5 years and above), diagnosis, or degree of physical or cognitive disability. This wide-ranged application required that we construct linear scales of sufficient length to enable us to test persons who are very low functioning as well as those who are more able and live independently in the community. Our intention was to design the AMPS to minimize the problems of tools that lack sensitivity at the upper and lower ends of the scale.

A subsequent concern was expressed among AMPS raters suggesting that there may be a problem at the lower end of the AMPS scales. This concern pertained to a need to extend the range of the AMPS scales down to include easier tasks that would enable us to evaluate clients who are too disabled or frail, who are too young, or who have no need or interest in doing IADL tasks. This led us to add seven new PADL tasks to the second edition of the AMPS.

An additional concern that has been raised by AMPS raters stressed the need to add additional tasks that (a) are more relevant to men; (b) involve cooking, but not cooking eggs; (c) are relevant to Asian cultures; or (d) involve multiple subgoals suitable for testing persons with disorders of executive abilities (Duran & Fisher, 1999). As a result, we have added (a) 1 new PADL task and 12 new IADL tasks to the third edition of the AMPS, and (b) 1 new PADL and 6 new IADL tasks to the fourth edition of the AMPS. As a result of these efforts, there are now 83 standardized ADL tasks in the AMPS.

These more recent concerns that we add more tasks at the lower and upper ends of the AMPS scale has led to our revising our original goal. Our *current goal* is the development of a tool that can be applied across populations without regard for diagnosis, degree of disability, cultural background, nationality, or age, provided the person tested is at least 3 years of age.

We did not include PADL tasks in the first edition of the AMPS as numerous tests of PADL already existed (Eakin, 1989; Law & Letts, 1989), and we were concerned that PADL and IADL represented two different constructs (Fisher, 1995a). Several advantages of the AMPS, however, led to our recognition that adding PADL tasks to the AMPS had the potential to meet existing needs beyond those realized merely by extending the range of the AMPS scales.

In this chapter, we first summarize a number of *limitations or critical issues related to the reliability, validity, and usefulness of existing ADL assessments* that we felt were imperative to address in the design and development of the AMPS. We then discuss our *rationale for adding PADL tasks* to the AMPS. Since we believe that the development of a functional assessment must be guided by a clear conceptual model of the construct to be tested, we next present an overview of the *conceptual model of the AMPS*. The conceptual model of the AMPS provided us with an operational definition of disability that was consistent with the intended purpose of an AMPS observation. The conceptual model also guided the development of the test items as well as the test administration procedures.

Because occupational therapy practitioners often confuse impairments and underlying capacities with the AMPS skill items, we follow our overview of the conceptual model of the AMPS with a discussion of the *relationship between impairments and underlying capacities and the AMPS skill items*. This section will also include a discussion of the relationship between the AMPS and the revised World Health Organization (World Health Organization [WHO], 1999) classification of body functions and structure, activities, and participation (ICIDH-2). Finally, we present the *measurement model* we used to develop the AMPS. This measurement model provided us with a set of assertions against which the data were evaluated to ensure that we were constructing a valid and reliable measurement system.

2.1 Limitations of Existing Functional Assessments

2.1.1 Use of Standardized Assessments

While occupational therapy practitioners routinely evaluate ADL by direct observation, the majority use “homegrown” evaluation tools without known validity or reliability. That is, many programs have developed their own ADL assessments without adequate attempts to establish the validity and reliability of the instruments; no instrument has become a gold standard (Eakin, 1989; Guralnik, Branch, Cummings, & Curb, 1989; Keith, 1984; Law & Letts, 1989; Jongbloed, 1986; Poon, 1994). The failure to adequately standardize an instrument and to establish its validity and reliability may, in part, reflect the recognition that “norms” are not meaningful in the measurement of ADL. Rather, the expectation is that “normal” individuals will not demonstrate any limitations, and, as a result, will obtain maximum possible scores. The use of classic psychometric methods to develop norm-referenced tests that are designed to assess clients of lower ability is not appropriate.

2.1.2 Rater Reliability

The influence of rater judgment is another frequently-cited area of concern, especially for IADL assessments (George & Fillenbaum, 1985; Lawton, 1987; Rubenstein, Schairer, Wieland, & Kane, 1984). Rubenstein et al. (1984) found that clients rate themselves higher on ADL performance than do nurses or “community proxies.” Other factors that *may* affect the reliability of ratings include the competence of the client doing the self-rating, the physical capacity of the client, rater familiarity with the client, the professional discipline of the rater, the function being rated, and the purpose of the assessment (Lawton, 1987).

Another major reason for lowered reliabilities of IADL assessments is that the complexity of IADL tasks requires that greater degrees of rater judgment be used in scoring. What constitutes adequate performance is highly variable and reflects the personal biases of the raters (Lawton, 1987). This bias occurs at two levels. The first level pertains to rater judgment regarding what specific IADL task constitutes an acceptable representation of the global IADL category. For example, the “preparation of a full meal” may mean roast meat, vegetables, and potatoes to one rater or warming a frozen TV dinner to another rater. The second level pertains to rater bias in judging the quality of the performance. Two raters simultaneously observing the same person prepare a meal may not agree on whether or not the quality of the performance or the final outcome of the meal preparation was acceptable. In both instances, the raters differ in severity; the raters do not agree because each has a different definition of the level of challenge of the task or of the difficulty of the test items that describe performance. However, evidence suggests that while severity of scoring varies between raters, the *degree of severity remains stable* within individual raters over time (Lunz & Wright, 1989).

2.1.3 Global vs. Discrete Capacities Approaches to Functional Assessment

Standardized evaluation of ADL abilities is generally *global* and commonly emphasizes assessing whether or not the person can perform independently a number of ADL tasks (e.g., eating, dressing, bathing, housekeeping, meal preparation), and, if not, what level of assistance is required. Such standardized global assessments provide an indication of *what* a person can or cannot do, but no information about *why* the person might be having difficulty.

Discrete capacities evaluation emphasizes thorough assessment of the distinct underlying constituents of ADL performance — the neuromuscular, biomechanical, cognitive, or psychosocial impairments (e.g., strength, range of motion, perception, mental status, mood) and underlying capacities (e.g., ability to grip, ability to reach, figure-ground ability, ability to plan). The basic assumption made is that if the underlying cause of the ADL limitations can be identified and treated, then the effects will generalize to improved functional performance across a wide range of ADL tasks. While this approach has logical appeal, research has not demonstrated a strong enough relationship between underlying

constituents and capacities and ADL performance to be able to make valid predictions about the abilities of a person to perform daily life tasks based on his or her discrete test scores (Bernspång, Asplund, Eriksson, & Fugl-Meyer, 1987; Jongbloed, Brighton, & Stacey, 1988; Pincus et al., 1989; Reed, Jagust, & Seab, 1989; Skurla, Rogers, & Sunderland, 1988; Teri, Borson, Kiyak, & Yamagishi, 1989). Thus,

it may be inappropriate to extrapolate performance on a specific [test item] to an individual's abilities in daily life. Furthermore, performance tests may not give specific information on whether the identified limitations have any relevance to the actual activities or needs of the individual, or how well an individual with a limitation in a specific test item might have adapted to his or her individual environment. (Guralnik et al., 1989, p. M143)

Despite these caveats, Judge, Schechtman, Cress, et al. (1996) continued to claim strong relationships between discrete physical performance measures and IADL performance even though 75% of their observed relationships were $r < .50$ (< 25% explained variance) and 100% were $r < .60$ (< 36% explained variance).

2.1.4 Method of Assessment — Self-report vs. Performance Evaluation

Most *standardized global assessments* of ADL follow a *self- or proxy-report* interview format (Fillenbaum, 1988; Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963; Lawton, 1971). There is concern, however, about the validity of the frequently-cited assumption that the use of such self- or proxy-reports is necessary because direct observation is too time-consuming and of limited usefulness in assessing ADL abilities (cf. Harris, Jette, Campion, & Cleary, 1986; Spitzer, 1987). Furthermore, there is increasing recognition that *observational assessment of ADL may be preferred* in many instances (Consensus Development Panel, 1988; Guralnik et al., 1989). Occupational therapy practitioners, because of our recognized expertise in performance evaluation (i.e., evaluation based on *direct observation* of performance) (Guralnik et al.), have the basic knowledge needed to develop *standardized performance assessments*.

2.1.5 Sensitivity and Range of Scales

There is growing recognition of the need for more sensitive scales that can be applied across disability groups and to a wider range of ability levels. Scales defined by small increments of change are more sensitive; longer scales make it possible to measure change over a broader ability range (Spector, Katz, Murphy, & Fulton, 1987). However, existing global scales tend to be narrow in range, and the increments in challenge between global task categories are often large. As a result, the summary ratings obtained from global ADL assessments lack the sensitivity needed to detect small to modest improvements in ADL functioning (George & Fillenbaum, 1985).

2.1.6 Knowledge of Task Hierarchy

Another important identified limitation of existing ADL assessments pertains to the fact that the relative challenge of most ADL tasks is unknown. Knowledge of the relative difficulty of tasks can provide a sequential guide for planning and grading intervention programs.

A number of investigators have demonstrated a Guttman hierarchy among *global* ADL task categories (Fillenbaum, 1985; Katz et al., 1963; Lawton, 1971; Spector et al., 1987). For example, it has been generally recognized that meal preparation is easier than is heavy housework. Yet, each global task category actually consists of many *specific tasks of varying challenges* that may overlap in difficulty with tasks that are included in other global categories. That is, while we can safely speculate that preparing a meal consisting of roast meat, vegetables, and potatoes is more challenging than warming a frozen TV dinner in the oven, or than preparing a breakfast of cold cereal and juice, we currently can only guess at the actual challenge of these three meal preparation tasks. Moreover, we can only guess at whether they are easier or harder than the heavy housework task of vacuuming or the self-care task of total body dressing. Clearly, there has been a need for research focused on establishing the hierarchical relationship among specific ADL tasks of varying challenges.

2.1.7 Scores vs. Measures — Ordinal vs. Interval Scales

Tests that we develop are based on raw ordinal scores. We sum or count the number of seconds a person stands on one foot, the number of steps taken on a balance beam, or the number of items passed on a test of ADL. These raw, ordinal counts are referred to as *scores* (Wright & Linacre, 1989). Scores are merely *numerical codes* for qualitative or ordinal increments in ability (Michell, 1990).

An ordinal score, regardless of how it was developed, is defined as ordinal because the distance from class to class is not known. Thus, there is no real basis for choosing one number progression instead of another; there is no underlying number line with equal intervals. . . . Nevertheless, ordinal data frequently are treated as though the distance from 2 to 4 is known relative to the distance from 2 to 3. (Merbitz, Morris, & Grip, 1989, pp. 308-309)

The terms *measure* and *measurement* refer to tools that we use to assess quantity in equal interval units along a number line. Measuring length with a ruler, weight with a scale, or temperature with a thermometer are examples of measures. Note that in each of these examples, the units of measurement are the same as the construct being measured. When we measure length in units of length (inches or centimeters) and we measure weight in units of weight (ounces or grams), we are measuring in equal units of “same” or “like kind” (Michell, 1990). When we evaluate standing balance in seconds, we do not use equal units of like kind. Instead, we use time (seconds) to *represent* balance ability. *Equal increments of time*

are used to represent *ordinal increments in balance ability*. We deceive ourselves if we think using time to measure balance means that we are using an equal interval scale or that we have achieved measurement (Michell, 1990) (see Short-DeGraff & Fisher, 1993 for further discussion).

The use of ordinal data presents us with several problems that are common in tests of ADL. The first problem occurs when we total individual item scores that do not represent equal units of ADL ability. Consider, for example, a 3-item test that includes mobility, meal preparation, and dressing. We might rate each item on the 4-point scale: 4 = independent, 3 = requires verbal assistance, 2 = requires physical assistance, and 1 = unable to perform. Not only might the distance between 2 and 3 be different for each of these items, but also, requiring assistance with dressing means something very different from requiring assistance with mobility or meal preparation. These tasks vary in difficulty, and the ease with which assistance is provided is distinctly different (e.g., helping someone cut meat is much easier than driving the person to the store). Yet, when we sum ordinal item scores, we assume that they represent equal units of difficulty.

The second problem occurs when we add item scores from diverse dimensions of function. When we add item scores from different dimensions of function, we create situations in which we equate persons who obtain equal scores for very different reasons. Imagine, for example, two clients with very different profiles. The first has an upper limb amputation, lives alone, and has not worked for the past 2 years. The second has sustained a spinal cord injury, lives with his wife, and is a university professor. The first client might obtain high scores on self-care and mobility, but low scores on social functioning. The second client might obtain high scores on social functioning, moderate scores on self-care, and low scores on mobility. These two people could easily obtain equal total scores. How are we to determine which of these people is more able? While it is not meaningful or valid to sum scores that reflect different dimensions of function (e.g., social, physical), that is what we do when we sum scores from multidimensional scales (cf. Merbitz et al., 1989; Silverstein, Kilgore, & Fisher, 1989; Wright & Linacre, 1989).

Whenever we construct a test of ADL, we must begin with a set of items that yield ordinal raw scores that are used to represent *qualitative increments of ADL ability*. But then, in order to have measurement, these ordinal units must be transformed into equal interval units of measurement — *quantitative units of like kind* — *ADL ability units*. In addition, each measure must represent a single (unidimensional) abstract continuum of greater or lesser ADL ability. When this occurs, we have units of measure that are additive (Silverstein et al., 1989; Wright & Linacre, 1989).

2.1.8 Relationship Between Level of ADL Performance and Need for Service

Finally, there is a need for research aimed toward maximizing the ability of ADL assessments “to lead to a prescription for treatment or predict a future state such as institutionalization or residential status” (Lawton, 1987, p. 28). Criterion-referenced hierarchical scales have the potential to guide the progression of intervention and to target specific areas for intervention. They also have the potential to help us to determine whether or not a client has the ADL performance ability to live independently, safely, and without an unreasonable degree of effort.

2.2 Considerations Related to the Addition of PADL Tasks to the AMPS

As we noted earlier, we originally did not include PADL tasks in the AMPS. While we were aware that scales that include both PADL and IADL have the potential to better identify problems in daily life task performance and need for service (Spector et al., 1987), our major concern was whether PADL and IADL ability were one construct or two — unidimensional or multidimensional.

A number of studies, however, supported the idea of combining PADL and IADL tasks in a single scale (Finch, Kane, & Philp, 1995; Kempen & Suurmeijer, 1990; Siu, Reuben, & Hays, 1990; Silverstein, Fisher, Kilgore, Harley, & Harvey, 1992; Spector et al., 1987; Suurmeijer et al., 1994). While the order of task difficulty has varied across scales, IADL tasks generally are more difficult than PADL tasks. There also is obvious overlap between the two. A comparison of selected tasks included in existing scales revealed that feeding and grooming, as well as washing hands and face, are commonly among the easiest tasks. Heavy housework and meal preparation are commonly among the hardest. Dressing and bathing tend to vary in difficulty (in part, based on how the representative items are operationally defined) and may be harder than some of the easier IADL tasks (Suurmeijer et al.).

Our other reason for not including PADL tasks in the AMPS was that numerous tests of PADL already existed (Eakin, 1989; Law & Letts, 1989). While Fisher, Harvey, and Kilgore (1995) argued against the “massive proliferation” of functional status instruments, they also recognized that “different applications require different degrees of specificity, precision, and accuracy, and they may well also require different ranges in the measurement continuum” (p. 5). We decided to add PADL tasks to the AMPS because the *AMPS is not like most existing functional status instruments* designed to measure ADL.

Unlike the AMPS, most global scales of ADL emphasize the physical or motor component of ADL task performance, expressed in terms of independence or need for assistance (cf. Silverstein et al., 1992; Siu et al., 1990; Wright, Linacre, & Heinemann, 1993). Reuben (1995) has expressed concern that such scales are insensitive to change. Moreover,

most of the scales developed have created response categories that indicate the degree of assistance required, which, albeit important, frame disability in economic terms (i.e., resource demand) rather than personal estimates of quality of life. More recently developed scales. . . have phrased responses in terms of degree of difficulty and amount of limitation. One can argue the pros and cons of each approach, but clearly none is comprehensive. Moreover, the differences in how functional status questions are phrased are not trivial. (Reuben, 1995, p. 937)

In most existing tests of ADL, the test items (“questions”) are global, referring to behaviors such as “upper body dressing,” “meal preparation,” or “home management” scored based on level of assistance needed (*what* can the person do). In contrast, the AMPS test items are the goal-directed motor and process actions of the ADL task performance (see Table 1-1). The scoring criteria for each AMPS skill item have been designed such that the rater considers not only need for assistance, but also the *quality of the performance* as indicated by level of effort, degree of efficiency, and degree of safety of the performance. The result is a broader and more detailed view of not only *what* can the person do effectively, but also *why* a person may experience problems in ADL task performance.

These factors converged to convince us that the unique design of the AMPS, combined with evidence that PADL and IADL comprise a single unidimensional construct, provided a strong rationale to include several PADL tasks in the AMPS (Fisher, 1997c). More importantly, the addition of PADL tasks offers greater task choice options for persons who are not able to perform or who have little interest in performing IADL tasks.

2.3 Conceptual Model of the AMPS

Figure 2-1 is a schematic representation of the conceptual model of the AMPS. It illuminates the complex relationship among (a) the person, (b) the task to be performed, (c) the environment, (d) culture, and (e) occupational performance. The conceptual model of the AMPS originally was based on the Model of Human Occupation (Kielhofner, 1985). Our work on the AMPS, however, resulted in our development of operational definitions and the clarification of concepts within the Model of Human Occupation that now have been incorporated into the revised version of the Model of Human Occupation (Kielhofner, 1995). In particular, the development of the AMPS culminated in significant revision of how the

Figure 2-1. Conceptual model of the Assessment of Motor and Process Skills.

mind-brain-body performance subsystem and performance skills are conceptualized within the Model of Human Occupation (Fisher & Kielhofner, 1995a, 1995b).

In developing the AMPS, we asserted that functional behavior (occupational performance) is a complex set of interactions between the person and his or her environment. According to Connolly and Dagleish (1989),

skills are practiced abilities that show deftness, dexterity, and confidence in performance; they are goal-directed actions. . . . Skill [involves] a transaction between the performer and the environment, and to understand skilled performance it is necessary to understand the nature of the [person]-environment interaction with regard to the specific context and the goal in question. Skills are always jointly determined by the [person], the task, and the precise environment in which the actions take place. (p. 894)

Therefore, we developed the AMPS based on the premise that accurate determination of a person's ability to perform daily life tasks is **most directly assessed** through the evaluation of his or her skills (practiced abilities) observed in the context of his or her dynamic interaction with the environment during performance of a specified task (Fisher, 1995a).

2.3.1 Environment

The environment provides the context for the performance, and the various features of the environment can provide opportunities, limits or constraints, challenges, and important physical and social supports. The environment includes the **social and physical contexts** (the people who are present and the physical spaces — rooms, work surfaces — where the task performance occurs). The **task objects** are the tools and materials that are available or used. Finally, the **task constraints** are a set of culturally-defined task characteristics that result in shared recognition that “this” individual is performing “this” task. These culturally-defined task characteristics specify the appropriate context, the tools and materials to be used, the norms or rules for the performance, and the necessary temporal order of actions (Nelson, 1988). **Specific task constraints** are derived from (a) the guidelines for each task outlined in Vol. 2, Chapter 2 (AMPS Task Descriptions) and (b) the client-chosen task options that become part of the task contract that the occupational therapy practitioner and the client establish collaboratively during the interview that precedes the AMPS observation.

Since **task constraints are culturally-defined conventions or task characteristics**, we expect that the tools and materials a person chooses to use, his or her temporal order of actions, and his or her values or norms for an expected outcome may vary somewhat from our own (cf. Goto et al., 1996). In the AMPS, what is critical is that the person performs the task in a manner that would be recognized by his or her cultural group as effective, logical, and oriented toward the goal mutually agreed upon by the person evaluated and the rater who scores the performance.

2.3.2 Person

The person evaluated is an open system comprising three interrelated subsystems that interact with each other and influence the quality of task performance. The three subsystems are volition, habituation, and the mind-brain-body performance subsystems. The ***volition subsystem*** includes dispositions and traits that guide and motivate choices for occupational performance. ***Motivated choice*** determines “why we do what we do” and contributes to the organization of performance by giving it meaning (Fisher, 1995a; Kielhofner, 1995).

A critical feature of the AMPS is our assertion that volitional (motivational) factors influence the quality of task performance. When an individual has the opportunity to choose and enter into the performance of a task that matches his or her volitional traits (i.e., value placed on the task, interest in or enjoyment derived from the task, sense of competence or belief in the ability to perform the task), task performance is maximized (Dickerson & Fisher, 1997; Doble, 1988; Kielhofner, 1985, 1995). That is, volitional traits influence the choice to engage in task performance, and then sustain and motivate task performance once the individual begins performing the task.

The ***habituation subsystem*** organizes “what we do” into patterns and “when we do it” into ***internalized routines*** (Fisher, 1995a). The components of the habituation subsystem include organizational structures and images called (a) ***role scripts*** or internalized expectations of what it means to be and how to be “someone” (particular social identity and related obligations) that guide the related construction of actions that are used to enact a given role, and (b) ***habit maps*** or internalized structures that guide well-learned patterns of behavior to help us construct our daily routines and our style of doing (Kielhofner, 1995). This subsystem is primarily relevant to the logical organization of task performance over time; role scripts and habit maps are internalized models or rules that help us to organize behavior into socially recognizable patterns or routines (e.g., ADL task performance). Within the context of an AMPS observation, a person who has lost or has never developed well-defined role scripts and habit maps is likely to experience disruption in the enactment of the ADL tasks the person chooses to perform.

The ***mind-brain-body performance subsystem*** constitutes “what we have to do it with” and includes the structures and underlying capacities used by the human open system to effect occupational performance. The constituents of the ***mind-brain-body*** are (a) ***musculoskeletal*** or the muscles, joints, and related biomechanical structures; (b) ***neurologic*** or the central and peripheral nervous systems; (c) ***cardiopulmonary*** or the cardiovascular and pulmonary systems; and (d) ***cognitive*** or mental events and processes (Fisher, 1995a; Fisher & Kielhofner, 1995a). The underlying capacities are the behavioral manifestations of the constituents (e.g., the ability to grip or reach, the ability to execute smooth coordinated movement, the ability to engage in activity without fatigue, the ability to remember or plan). A key feature of these underlying capacities is that they are ***not*** goal-directed actions of task

performances. The goal-directed actions of task performance are skills (learned abilities) (Connolly & Dalglish, 1989; see also section 2.3).

2.3.3 Task

The task is simply the *ADL task* the person chooses to perform. There is a subtle (perhaps confusing) interrelationship among occupational performance (the enactment of the ADL task), the culturally-shared task characteristics that define the constraints of the task, and the task itself that is named and defined conceptually outside of the actual enactment or performance of the task. We consider the task in our conceptual model because different ADL tasks present different levels of challenge and various tasks may be more or less familiar to the person who is evaluated. Moreover, what we actually observe differs depending upon what task is enacted — a person performs a recognizably different series of actions when making a sandwich than when vacuuming the floor.

2.3.4 Occupational Performance

Within the theoretical framework of the AMPS, we view the person evaluated as an open system that interacts with the environment and produces output in the form of occupational performance (skills and ADL task performance) (see Figure 2-1). We view occupational performance as a meaningful sequence of actions in which the person enacts and completes a specified task that is relevant to his or her culture and daily life roles.

Performance skills are the discrete behavioral elements of the task performance. They are the learned motor and process skills, the goal-directed actions of performance, that are enacted to compile a task performance. More specifically, when we carry out a task performance, we link together a series of goal-directed actions. As we link our actions together, we progressively construct the larger, overall task performance. Both the individual actions and the larger task performance are occupation. That is, whether we are talking about small units of the task performance (the individual goal-directed actions) or the overall task performance (that is compiled as the individual goal-directed actions are progressively linked together), we are able to observe the *doing* of something that is meaningful and purposeful to the person performing. Occupational performance is always action — the actions of *gathering* butter, *lifting* a coffee pot, *watering* a plant, or the actions of *making* a sandwich, *brewing* coffee, *repotting* a plant (cf. Fisher, 1994b). In contrast, the task, when named, is what is done — tuna sandwich, brewed coffee, or repotted plant.

2.3.5 Culture

Finally, culture (shared beliefs, values, and customs) influences where we perform tasks, what tasks we perform, how we perform them, and what tools and materials we use (Goto et al., 1996; Magalhães et al., 1996). We have already discussed the role of culture in

the determination of task relevance and familiarity, as well as how tasks are performed and what tools and materials are used when a particular individual enacts an ADL task (culturally-defined task constraints). Culture also plays an important role in the development of our internalized values (volition) as well as our internalized role scripts and habit maps (Kielhofner, 1995). The conceptual model of the AMPS recognizes the pervasive role of culture in occupational performance. This is an important requirement for an assessment tool designed for international, cross-cultural applications where one wants to ensure valid measurement within a context where the person evaluated performs familiar, culture-relevant ADL tasks of his or her choice (Bernspång & Fisher, 1995b; Goldman & Fisher, 1997; Goto et al., 1996; Magalhães et al., 1996).

2.4 Relationship Between the AMPS and the WHO Classification of Body Functions, Activities, and Participation

The World Health Organization (WHO) recently revised its 1980 classification of impairments, disabilities, and handicaps to a classification of body functions and structure, activities, and participation (cf. WHO, 1980, 1999). *Body functions and structures* pertains to the “biomedical status of the body and its functions” (WHO, 1999, p. 16); *impairments* are present when there are deficits in anatomical structures or underlying aptitudes, potentials, or capacities (i.e., the person’s mind-brain-body, as shown in Figure 2-2).

Activities pertain to functioning at the level of the person. Activities range from simple goal-directed actions (searching for a shoe, reaching for a glass) to complex activity (task performance — getting dressed; preparing meal of pasta, sauce, salad, bread and butter, and a beverage for 10 people) (see Figure 2-2). More specifically, “activities represent the integrated use of body functions, often in a purposeful manner, as performed in life tasks by the individual. In short, activity is what an individual does” (WHO, 1999, p. 18). *Activity limitations* are present when the person has difficulty performing daily life tasks. Occupational therapy practitioners evaluate activity and activity limitations when they implement performance analyses and evaluate the quality of the goal-directed actions performed as part of a complex activity (e.g., daily life task).

Thinking of each of the performance skills as a part of a complex activity requires that activity be viewed as a series of actions (simple activities) that are linked together over time to become complex activity. For example, as part of the activity of pouring a glass of juice, the person can be observed *searching for* and *locating* a glass, as well as *choosing* an appropriate glass. In that same process, the person can be observed *reaching up*, *opening* the cupboard door, *reaching in* and *grasping* the glass, *lifting* it, and *removing* it from the cupboard. Having done that, the person can be observed *carrying* the glass over to the table

BODY FUNCTIONS	ACTIVITIES Simple ←-----→ Complex			PARTICIPATION
	MIND-BRAIN-BODY		OUTPUT: Occupational Performance	
Constituents	Underlying Capacities	Goal-directed Task Actions	Tasks	Roles
Musculoskeletal Strength Range of motion Neurologic Muscle tension (tone) Sensory processing Cardiopulmonary Vital capacity Cognitive (Symbolic) Perception Memory Motor planning	Ability to grip Ability to reach Ability to execute smooth coordinated movement Ability to see or smell Ability to move without fatigue Ability to recognize shapes Ability to plan a movement	Motor Skills Grips the shirt Reaches for the glass Manipulates the knife Process Skills Chooses the butter Gathers the juice and glass to the table Sequences the task actions in a logical order Social Interaction Skills Looks at partner Confirms partner's comment Encourages partner to continue	Personal ADL Instrumental ADL Work School Productive Play Leisure	Self-maintainer Home-maintainer Worker Student Volunteer Hiker Traveler Friend

Figure 2-2. Relationship among (a) body functions, activities, and participation (WHO, 1999), (b) the mind-brain-body, and (c) occupational performance

and **setting** it down on the table beside the juice. Such an occupational performance is a process that is enacted as a series of actions over time. When we perform our performance analyses, we are evaluating the quality (level of skill) of each of the actions that are linked together over time to construct the occupational performance.

Participation can be viewed as being related to role competence and satisfaction (see Figure 2-2). Participation pertains to the degree of involvement of the person in daily life situations when viewed from the perspective of the client-centered performance context (see Vol. 1, Chapter 4). Hence, personal, environmental, and societal factors are viewed as facilitators and barriers to both engagement in occupational performance as well as to the degree of satisfaction or enjoyment one derives from that performance. **Participation restrictions** are viewed as resulting from factors other than the person's actual disability (WHO, 1999).

While a performance analysis involves judging the quality of the individual ADL motor and ADL process skills observed as a person engages in activity, the clarification or interpretation of the cause of the person's ineffective actions cannot be made in isolation of the contextual elements of the performance. **The interpretation of the performance analysis, therefore, yields information at the level of participation.** "Participation may be characterized as the outcome or result of a complex relationship between an individual's health condition and personal factors, and of the external factors that represent the circumstances in which the individual lives" (WHO, 1999, p. 19). Personal factors include one's "age, race, gender, educational background, experiences, personality and character style, aptitudes, other health conditions, fitness, lifestyle, habits, upbringing, coping styles, social background, profession and past and current experience" (p. 22). When we consider the interpretation of the performance analysis at the level of participation, we address the question: **Is the quality and the level of the person's performance at an expected level of achievement given the personal, environmental, and societal factors that may be facilitating or hindering the person's performance?**

In contrast, activity pertains to the quality of the person's occupational performance: **Does the person do this task without increased effort, decreased efficiency, decreased safety, or need for assistance?** The answer to these questions is the outcome of the performance analysis. When we progress to clarifying or interpreting the cause of the person's activity limitations, we consider those factors that are hindering or failing to facilitate the person's performance. Once we progress to the idea that a person experiences increased effort and decreased efficiency when buttoning because the size of the buttons on his shirt are hindering his ability to manipulate the buttons, we have progressed to analysis at the level of participation.

2.4.1 Relationship Among Impairments, Capacities, and AMPS Skills

As shown in Figure 2-2, impairments result when there is disruption of the mind-brain-body performance subsystem. Disruption of the mind-brain-body performance subsystem also can result in limitations of underlying capacities (simple activity restrictions). Impairments pertain to loss of functions of the mind-brain-body performance subsystem constituents — strength, range of motion, memory, etc. Underlying capacities pertain to basic abilities — ability to reach, ability to lift, ability to remember, ability to sequence, etc. Abilities or capacity limitations are noncontextual. That is, they pertain to whether or not one can perform an action, but they are not goal-directed actions observed within the context of performing daily life tasks.

In contrast, the AMPS skills are goal-directed actions and the quality of each skill is evaluated within the context of the person performing daily life tasks. That is, the AMPS is designed to be used to evaluate whether or not the person effectively reaches for the shirt from the closet, lifts the bag of bread from the table, chooses needed tools and materials, heeds the goal of the ADL task, and performs the steps of the ADL task in a logical order. *The AMPS, therefore, is not designed to be used to test impairments or underlying capacities.*

2.4.2 Relationship Between Cognitive Capacities and Impairments and Process Skills

A common source of confusion is the relationship between cognition or mental processes and what is measured by the AMPS process skill scale. Cognition, defined as mental events or processes involved in attention, perception, memory, thought, capacity to problem-solve, acquisition and use of knowledge, and capacity to motor plan, is related to those mind-brain-body performance subsystem constituents or capacities that underlie *some aspects* of the ADL process skills.

For example, the ability to search for and locate objects used in task performance involves many basic cognitive processes, including memory, attention, capacity to problem-solve, visual-spatial perception, and capacity to motor plan. We assert, however, that the relative contribution of specific cognitive capacities to ADL process skills varies across skill items and tasks. For this reason, the AMPS process skills scale should not be equated with mental status evaluations, neuropsychological tests, or other tools designed to test cognitive impairments and underlying capacities.

Confusion also arises because the term *process* means a *continuous action or succession of actions*, taking place or carried out in a definite manner, and leading to the accomplishment of some result. Both the term *mental processes* (cognition) and the term *processes of task performance* (process skills) are consistent with this definition, but it is the latter that is evaluated when we administer the AMPS. Similarly, ADL process skills also

may be referred to as *procedural skills*, but the use of this term may result in confusion between procedural knowledge at the level of discrete mental processes and procedural skills at the more global level of ADL task performance. Procedural knowledge pertains to knowledge of *how* to do something. The AMPS is used to measure observable procedural skills related to enacting an ADL task performance.

2.4.3 Interaction Among Physical and Cognitive Impairments and Capacities and Motor and Process Skills

Discrete cognitive deficits related to perception, memory, motor planning, problem-solving, etc. can have an impact on and result in more global ADL process (and, possibly, ADL motor) skill deficits. There are, however, clients (e.g., some older adults) who have documented deficits on cognitive tests, but who have normal performance on global ADL tests. Although it is assumed that cognitive as well as neuromuscular and biomechanical (physical) deficits have an impact on occupational performance, it has been difficult to document how such discrete underlying deficits specifically affect performance of daily living tasks because underlying cognitive and physical impairments and capacities cannot be observed directly. Thus, the conceptual model of the AMPS distinguishes between underlying cognitive and physical impairments and capacities within the mind-brain-body performance subsystem and observable ADL motor and ADL process skill deficits. Moreover, deficits in any of the underlying constituents and capacities of the mind-brain-body performance subsystem (musculoskeletal, neurologic, cardiopulmonary, and cognitive) can result in either ADL motor or ADL process skill deficits.

For example, impairments in *any* of the underlying performance constituents of the mind-brain-body performance subsystem (physical or cognitive) also can impact the goal-directed motor actions of task performance (ADL motor skills). When problems in ADL motor skills occur, there is increased demand on the ADL process skills that reflect the underlying organizational and adaptive capacities of the individual (e.g., ability to use “cognitive compensation,” ability to use alternative or compensatory strategies). However, the primary and secondary physical and cognitive impairments and capacity limitations that frequently are associated with physically disabling conditions also may impact directly on ADL process skills. When this occurs, the individual may have a decreased underlying capacity to adapt to or compensate for ADL motor skill deficits and is at even greater risk for losing independence. In both instances, decreased underlying adaptive capacity may manifest as ineffective ADL process skills, particularly the skills of Accommodates and Benefits.

We cannot overemphasize the importance of this interaction between the underlying physical and cognitive constituents or capacities of the mind-brain-body performance subsystem and the AMPS motor and process skill scales. *When occupational therapy*

practitioners do not acknowledge this interaction, errors in professional judgments occur.

For example, the occupational therapy practitioner might erroneously score the ADL process skills that reflect adaptation or compensation too high if he or she assumes the AMPS process skill scale reflects only cognitive impairments and capacities. In fact, persons who are experiencing increased effort, decreased efficiency, lack of safety, or need for assistance when performing ADL tasks as a result of physical impairments or capacity limitations will have lower scores on the ADL motor skill items as well as any ADL process skill items that reflect the person's lowered quality of ADL task performance — especially those that reflect the person's adaptation skills. Similarly, many cognitive impairments and capacity limitations often are associated with poorer quality of ADL motor performance, but if the occupational therapy practitioner does not acknowledge this interaction, errors in judging the quality of a person's ADL motor ability will be affected.

A fruitful line of inquiry has been to study the link between discrete mental abilities as measured by traditional cognitive tests and skilled ADL task performance as measured by the AMPS (cf. Doble, Fisk, MacPherson, Fisher, & Rockwood, 1997; Robinson & Fisher, 1996). We anticipate that persons with different cognitive deficits will demonstrate different ADL motor and ADL process skill profiles. For example, persons with mild cognitive impairments typically demonstrate deficits with higher level cognitive abilities such as comprehension monitoring, using cues to evaluate one's performance, planning and problem-solving, maintaining goals, and exercising flexibility (Snow & Lohman, 1989). Depending on the specific nature of the person's deficits, they may be translated into an ADL process skill item profile characterized by relatively lower calibrated item difficulties for the following process skill items: (a) Inquires and Notices/Responds (awareness of need for further information); (b) Adjusts, Accommodates, Notices/Responds, and Benefits (effective use of cues that provide intrinsic feedback related to task performance); (c) Initiates and Continues (efficient planning); (d) Heeds and Chooses (goal maintenance); or (e) Accommodates, Adjusts, and Navigates (flexibility).

2.5 The Many-faceted Rasch Model for the AMPS

With the conceptual model serving as a guide (see Figure 2-1), we developed the AMPS in response to the critical need for a valid and reliable assessment that (a) allows for the individual's choice of specific ADL tasks to perform and (b) informs us about the quality of a person's ADL task performance in a manner that can be used to guide the process of planning intervention. This double need required that we use a measurement model that allowed us to calibrate and equate tasks for their challenges, discover the hierarchical order of the AMPS skill item difficulties and the task challenges, and verify that the skill items and

tasks worked together to define unidimensional constructs (Fisher, 1993, 1994a, 1997c; Fisher et al., 1994).

2.5.1 Development of the AMPS Skill Items

The AMPS ADL tasks vary from easy (low task challenge) to hard (high task challenge), and each is conceptualized as the outcome of a series of actions that can be observed as the person compiles them over time to enact a task or effect task performance. For the AMPS, we identified two taxonomies of actions that could be observed across all ADL task performances (see Table 1-1).

The choice of items to include in most ADL tests has been driven by “item content specification” derived from expert opinion and common practice. The problem with this approach is that it does not ensure that the test is testing the intended construct (cf. Fisher, 1993). In developing the AMPS, we chose a different approach to item selection. We began with a conceptual model and allowed that model to drive the design and content of the AMPS.

We used a variety of procedures to select the final AMPS skill items. First, we implemented an extensive review of the literature to identify goal-directed actions of performance that could be derived from existing theories of practice. These theories included sensory integration (Ayres, 1972, 1979, 1986; Fisher, Murray, & Bundy, 1991) as well as rehabilitation, motor control, and information processing theories (cf. Bernstein, 1967; Brooks, 1986; Kelso, 1982; Keogh & Sugden, 1985; MacKay, 1987; Schmidt, 1988; Trombly, 1989, 1995b). For example, the process skill items Initiates, Continues, and Terminates and the motor skill items Calibrates and Bends were among those we generalized from what we know of the behavioral problems seen in persons with sensory integrative dysfunction (Fisher et al., 1991).

Because the aforementioned models of practice tend to focus on deficits within the mind-brain-body and not occupational performance (see Figure 2-2), we then videotaped and observed a wide range of ADL task performances of persons with a variety of diagnoses — developmental, cognitive, neurologic, orthopedic, psychiatric, and medical. Through this process we identified observable, goal-directed actions that we could observe across all of the ADL task performances that we had videotaped. Those actions that were not universal across ADL tasks (e.g., Sits/Stands — the action of sitting from a standing position or coming to a standing position from sitting), or were redundant or not routinely observed during ADL tasks performances, were eliminated in the early phases of the development of the AMPS. Finally, we verified that our data conformed to the assertions of the many-faceted Rasch model of the AMPS and that the ADL motor and ADL process skill items measured two unidimensional constructs. When we identified items or tasks that did not fit

the assertions of the many-faceted Rasch model of the AMPS, we either revised them or eliminated them from the AMPS (see Vol. 1, Chapter 7).

2.5.2 Assertions of the Many-faceted Rasch Model Used to Develop the AMPS

The many-faceted Rasch model used for the AMPS is based on the assertions that (a) a person is more likely to obtain a higher score on an easy skill item than on a hard skill item, (b) easy skill items are more likely to be easier for all persons than are hard skill items, (c) raters are more likely to award higher scores for easy skill items than for hard skill items, (d) lenient raters are more likely to award higher scores to all persons than are severe raters, (e) all persons are more likely to obtain higher scores on simple tasks than on more complex tasks, and (f) persons with higher ability are more likely to score higher overall than are persons with lower ability. When items, tasks, raters, or persons (subjects or clients) demonstrate response patterns across the AMPS skill items and tasks that do not conform to these assertions, they do not demonstrate acceptable goodness-of-fit to the many-faceted Rasch model of the AMPS (Fisher, 1993, 1994a, 1995a, 1997c; Linacre, 1993).

2.5.3 Developing an Item Bank — Equating the AMPS Tasks

Each client assessment is based on observing the person perform at least two ADL tasks that are of sufficient challenge to ensure reasonable (if not ideal) item targeting. Each set of tasks that comprises a client assessment can be considered a different test or “version” of the AMPS. All possible versions of the AMPS are contained in a large item bank.

Data from different tests taken by different candidates can be combined and analyzed together, so long as there is some network of commonalities (candidates and/or items) linking the tests. . . . Once a bank of items has been calibrated, inclusion of items from the bank into each new test automatically equates that test to the common metric of the bank, as so to all other tests derived from the bank. (Wright, 1993, p. 299)

Through a process of gathering data on thousands of linked AMPS task observations, we have constructed a large item bank for a functional assessment comprising two scales, an AMPS motor skill scale and an AMPS process skill scale. More specifically, each AMPS scale has a total of 83 tasks. Each task has associated with it the 16 common or universal motor items and the 20 common or universal process items. Hence, the AMPS can be considered an item bank that contains 1328 motor items and 1660 process items. Each client assessment, based on observing the client perform at least two AMPS tasks, comprises a subset of a minimum of 32 motor items and 40 process items available in the entire AMPS item bank.

The equating of AMPS tasks, linked by common skill items, makes it possible to compare the ability of a client who performed one set of tasks upon initial evaluation with the results of his or her performance on a different set of tasks upon reevaluation. In a like

manner, equating allows us to compare performance among several clients who each performed a different set of AMPS tasks.

2.5.4 Development of Linear Hierarchical Scales

The AMPS was developed to meet the need for unidimensional, linear scales that permit the simultaneous assessment of two universal sets of discrete performance skills and the interdependence of these motor and process skills in ADL task performance. The ADL motor and ADL process skill items and 83 ADL tasks, therefore, all had to be calibrated on two common linear scales (AMPS motor skill scale and AMPS process skill scale), based on the relative difficulty of the skill items and the relative challenge of the tasks.

As we also recognized a need to calibrate raters for their relative severities when scoring the skill items on each AMPS scale, they also had to be calibrated on the same common linear scale. This need to calibrate tasks, items, and raters on common linear scales required that we use a many-faceted Rasch model (Linacre, 1993) to develop the AMPS. By calibrating the severity of the raters, the challenge of the tasks, and the difficulty of the skill items on the same linear scales, we can obtain person ADL motor and ADL process ability measures that are adjusted for severity of the raters who score the ADL task performances and the challenge of the tasks actually performed. This process has been described elsewhere (Fisher, 1993, 1994a).

Ever since our first application of the FACETS many-faceted Rasch analysis computer program (Linacre, 1987-1994) to our data more than a decade ago, we have continually monitored our data to ensure that the AMPS tasks, the motor and process skill items, and the AMPS raters work together to define two unidimensional scales. Our criteria for unidimensionality have been based on goodness-of-fit to the many-faceted Rasch model (Fisher, 1993, 1994a, 1997c).

2.5.5 Advantages of Using the Rasch Model of Measurement

There were several reasons why we used a many-faceted Rasch model to evaluate and monitor our data to ensure our development of valid, reliable, and unidimensional measures. First, in education and psychology, there are some who are concerned that examinees might get the right answer because they guess. These people advocate for the use of more complex models that include a guessing parameter, but guessing is not an issue in performance evaluation (Teresi, Cross, & Golden, 1989). Second, the Rasch model is preferred to other models because of its simplicity and robustness under conditions of heterogeneous item discrimination even in small samples ($n = 25$) and short tests (15 items) (de Gruijter, 1986; van de Vijver, 1986). Third, Rasch analysis computer programs are the only latent trait analysis programs available for analyzing many-faceted rating scale data. Finally, the Rasch model is particularly well suited to our purpose of developing criterion-referenced

hierarchical scales. Scaling permits the development of a test that can be used to measure persons of low ability as well as persons of high ability on a single common scale. When persons of different ability levels can be measured using the same scale, they can be compared directly. In the development of the AMPS, we used Rasch analysis computer programs to calibrate, along a common equal-interval (linear) scale, easy skill items and easy tasks for persons of low ability and hard skill items and hard tasks for persons of high ability.

2.5.6 Converting Ordinal Counts into Linear Calibrations and Measures

Rasch analysis computer programs convert summed ordinal counts (item scores) into an equal-interval number line (linear continuum or scale). This conversion is accomplished through a logistic transformation of the proportion of persons obtaining a given item score (Andrich, 1988; Wright & Masters, 1982). In this process, the original counts (raw item scores) are analyzed “for the possibility of a single latent variable along which the intended measuring agents, the items [and tasks], can be calibrated and the intended objects of measurement, the subjects, can be measured” (Wright & Linacre, 1989, p. 858). With the AMPS, the *skill item difficulty* calibration is the estimated location of that skill item on the continuum of increasing ADL motor or ADL process ability. The *task challenge* calibration is the estimated location of that task on the *same* continuum of increasing ADL motor or ADL process ability. The *rater severity* calibration is the estimated location of that rater on the common scale. Finally, the *person ability measure* is the estimated location of that person on the continuum of increasing ability that has been defined by the skill item difficulties and the task challenges, but adjusted for the raters who scored the task performances. These derived calibrations and measures are expressed in equal-interval units of measurement based on the logarithm of the odds (log-odds probability units or *logits*) of obtaining a given skill item score when a person of a given ability is observed performing a given task. Because logits are equal-interval units, they are additive (Andrich, 1988; Wright & Masters, 1982).

2.5.7 Accounting for Rater Severity and Task Challenge

When we use Rasch analysis computer programs to analyze our data, we consider not only the difficulty of the skill items, the challenge of the tasks, and the ability of the person, but also the severity of the rater who scores the performance. Because we consider several facets simultaneously, we have used the many-faceted Rasch model (Linacre, 1993) and the FACETS Rasch analysis computer program (Linacre, 1987-1994) to develop the AMPS. The many-faceted Rasch model is an expansion of the simple Rasch model (Andrich, 1988; Rasch, 1960/1980; Wright & Masters, 1982; Wright & Stone, 1979). This model provides the frame of reference for examining and accounting for the severity of the rater, the challenge of the task, and the difficulty of the skill items by constructing a *single common*

variable on which each facet is measured. Many-faceted Rasch analysis yields person measures based on the simultaneous consideration of skill item difficulty, task challenge, and rater severity. Skill item difficulty, task challenge, rater severity, and person ability estimates (calibrations and measures) are computed in the same linear units (log-odds units or logits), on the same or *common measurement scale*.

This feature has very important practical implications. Different clients are rated by different raters. If a rater is more severe, the clients that are scored by that rater will appear to be less able than if the same clients were rated by a more lenient rater. By calibrating the severity of each rater, we can use the FACETS program to subtract out the personal bias of each rater that is due to his or her overall scoring severity. The result is *rater-free measurement*.

Similarly, each client evaluated performs a different combination of AMPS tasks. These tasks vary in the challenge that they offer to the client. If a client performs easy tasks, that client will obtain higher scores than if he or she performs hard tasks. The same situation occurs if two clients who have similar ability perform tasks that vary in task challenge. In order to be able to compare the abilities of different clients, or to determine if a client improved between two AMPS observations, we must subtract out the relative challenge of each task when we estimate the ADL motor and ADL process ability measures. Because we have used the FACETS program to calibrate the challenge of each AMPS task for the motor skill scale and the process skill scale, we are able to do just that.

The FACETS Rasch analysis computer program was the *first available method* that enabled us to design an ADL assessment that corrects person ability measures for differences among raters due to personal biases and perceptions, while simultaneously accounting for variation in the challenge of the tasks performed by the individual. Therefore, the resulting person ability measures are not biased by the severity of the particular rater who observed the performance, or by the challenge of the particular tasks the person performed (Lunz & Stahl, 1990; Lunz & Wright, 1989; Lunz, Wright, & Linacre, 1990).

2.5.8 Sample-free Measurement — Stability of Item and Task Calibrations

Our use of many-faceted Rasch analysis has several benefits. First, Rasch measurement is sample-free and test-free. *Sample-free measurement* means that it is possible to develop a common scale that functions independently of the individuals or populations tested. Unlike item difficulties that are based on sample means or *p*-values (proportion of the sample who passed an item), Rasch item difficulty and task challenge calibrations do not vary from sample to sample. The development of a common scale also requires that the skill items and tasks on the AMPS be developed to be free from bias due to variables extraneous to the unidimensional construct we wish to measure, in this case, ADL motor skills and ADL process skills. According to Teresi et al. (1989), a basic assertion of item bias examination is

that there is no theoretical reason for assuming that the goal-directed operations (ADL motor and ADL process skills) represent different constructs for different subgroups (e.g., gender, racial/ethnic, nationality).

Our goal has been to develop common AMPS motor and process skill scales that measure ADL motor and ADL process abilities and nothing else. This goal, unidimensionality, has required that we monitor the stability of the skill item and task calibrations for variations across subgroups. Skill items or tasks that did not remain stable had to be examined carefully to identify the source and extent of the disturbance in the measuring system. When they adversely affected the validity of the ability measures generated by the FACETS analysis, they were revised or omitted from the AMPS system.

More specifically, we have had to determine what effect specific diagnoses, gender, and ethnicity/culture have on the stability of the skill item and task calibrations in order to ensure that no subgroup is placed at an unfair disadvantage when evaluated with the AMPS. We have found that the skill item and task calibrations remain sufficiently stable across diagnostic, gender, and ethnic/cultural subgroups to yield stable ability estimates. At the same time, we have been able to identify interesting variations across diagnostic subgroups that have the potential to provide us with the basis for identifying diagnostically useful ability profiles. More information about these studies is summarized in Vol. 1, Chapter 7.

2.5.9 Test-free Measurement — Stability of Person Ability Measures Across Tasks

Test-free measurement means that it is possible to estimate a person's position along a common unidimensional continuum of increasing ADL ability independent of which version of the assessment a person takes. In the case of the AMPS, all people are scored on all skill items. However, test-free measurement makes it possible for us to vary the version of the test by asking persons of low ability only to perform easier tasks, and asking persons of high ability only to perform harder tasks. As a result, we are able to offer the person who is evaluated the opportunity to select from among a variety of tasks of varying challenge, at least two with which he or she is familiar and willingly chooses to perform. Since we know that the probability of competently performing a task increases as the challenge of the task decreases, we can estimate whether or not a person has the necessary ADL skills to perform tasks that are of greater or lesser challenge than those the person actually was observed performing. That is, if a person demonstrates through his or her performance the ability to perform competently a task that offers a high challenge, we can predict that the person has an *even greater likelihood to perform competently* a task offering a lesser challenge, *given the necessary motivation and opportunity to learn how to perform that task*. This assertion should remain true even if (a) the person is not currently familiar with the task; (b) the person does not choose to perform the task as part of his or her daily routine; or (c) the task is not relevant to the person's cultural, ethnic, or national origin.

2.5.10 Measurement Requirements of the Many-faceted Rasch Model

Valid sample-free and test-free measurement requires that the motor and process skill items, and the ADL tasks, be calibrated onto two common linear scales of increasing ADL ability (the AMPS motor skill scale and the AMPS process skill scale). When common calibration is achieved, a person's ADL motor or ADL process ability can be expressed as a function of the difficulty of a skill item, the challenge of a task, the severity of the rater, and the probability that a person of a given ability will pass that skill item when it is associated with the challenge of that task (Fisher, 1993, 1994a; Wright & Masters, 1982; Wright & Stone, 1979). We can verify that we have valid measurement by demonstrating that the data conform to the measurement requirements from which the many-faceted Rasch model is deduced.

The Rasch model asserts that there are three measurement requirements: equal discrimination, unidimensionality, and local independence. *Equal discrimination* means that the probability of a person receiving a given score depends only on the skill item-characteristic curves. Except for lateral displacement up or down the continuum of increasing ADL motor or ADL process ability, it is invariant with respect to, and is not changed by, the ability distribution of the sample. *Unidimensionality* means that the skill items define a unidimensional construct — the skill items measure one and only one variable (e.g., ADL motor skill). *Local independence* means that the skill items elicit independent replications of the same latent trait (e.g., ADL motor skill). That is, a person's score on each skill item, for each task performed, is an independent replication of our attempt to evaluate the effectiveness with which a person performs ADL tasks. When these requirements for measurement are met, the probability that a person obtains a given score for a given item is *only* a function of the ability of that person, the difficulty of that skill item, the severity of that rater, and the challenge of the task performed (Fisher, 1993; Lunz et al., 1990; Teresi et al., 1989; Wright & Linacre, 1988).

2.5.11 Rasch Measurement Statistics Used to Evaluate Validity and Reliability

Validity of the AMPS Scales

The extent to which the data meet the measurement requirements of the Rasch model (i.e., demonstrate goodness-of-fit) is evaluated by detailed skill item and task fit statistics that are calculated by the FACETS computer program. The mean square residuals, differences between observed and expected scores (i.e., the number of steps more or less than expected), provide a measure of the degree to which the skill items and tasks fit the Rasch model. These *mean square fit statistics* enable us to examine the extent to which easier skill items and tasks are easier for all persons. They also enable us to examine the extent to which persons of lower overall ability obtain lower scores and persons of higher ability obtain

higher scores on any skill item. The skill item and task mean square fit statistics are used to evaluate the internal validity of the AMPS scales. As the AMPS was developed, those skill items and tasks that fit the model were retained. Those that failed to fit the model were revised or eliminated.

Person Response Validity

We also can test person response validity by examining a similar set of detailed person mean square fit statistics. Person mean square fit statistics measure the extent to which the pattern of a person's item responses (scores) was as expected or predicted by the model.

That is, regardless of their ability, everyone should perform better on the easy [skill items and] tasks than on the hard [skill items and] tasks. The higher the mean square, the greater the tendency for the person to perform well on the difficult [skill items and] tasks and poorly on the easy ones. (Silverstein et al., 1989, p. 100)

Rasch measurement is a person-centered approach to measurement. If analysis of a person's performance across a set of items reveals that the person unexpectedly passed a hard item or unexpectedly failed an easy item, that person will be identified as having a response that fails to fit the model. When we demonstrate that the AMPS scales are valid (i.e., the skill items and tasks fit the model) and reliable (i.e., the calibrations have small enough errors of measurement), we have sufficient basis to be concerned about the validity of the responses of the person that "misfits." When a person misfit occurs, we examine his or her pattern of scores on *individual skill items* to determine the source and meaning of the disturbance. When consistent patterns of misfit occur across persons with similar disabilities, such misfits can become diagnostic indicators (Hambleton, 1989). Diagnostic indicators occur when skill item or task calibrations vary consistently across diagnostic subgroups.

Rater Reliability

Since we calibrate rater severity, the FACETS computer program also calculates rater mean square fit statistics. Examination of rater mean square statistics enables us to determine the extent to which individual raters assign skill item scores that are consistent with the expectations of the model. Both the proportion of a rater's assigned skill item scores that are unexpected (misfit), and the rater's mean square fit statistics, provide evidence of that rater's scoring consistency. Thus, these statistics can be used to evaluate both intra- and interrater reliability. A rater will misfit when, compared with all other raters, that rater assigns unexpectedly high scores on hard skill items or unexpectedly low scores on easy skill items. Raters also will misfit when they assign high scores to less able persons or low scores to more able persons.

Standard Error of Measurement

The FACETS Rasch analysis computer program reports the reliabilities of each skill item, task, and rater calibration and person measure in terms of standard errors (Linacre, 1993; Wright & Linacre, 1989). When considered from the perspective of person-centered measurement, the reporting of person by person standard errors of measurement has two advantages. First, rather than applying a single standard error of measurement to an entire sample, we are able to apply a specific standard error of measurement to each person (Hambleton, 1989). Second, knowledge of each person's error of measurement enables us to determine when that person has made significant gains, beyond chance, as a result of participation in intervention (Silverstein et al., 1989).

With the conceptual model serving as a guide, we developed the AMPS in response to the critical need for an innovative assessment that allows for variations among raters and for the individual's choice of specific tasks to perform. The AMPS also was developed to meet the need for unidimensional, linear scales that permit the simultaneous assessment of discrete ADL performance skills and the interdependence of these ADL motor and ADL process skills in occupational performance. Individuals who are evaluated have the opportunity to select from among a variety of ADL tasks of varying challenge, ones that they are familiar with and choose to perform. The client is rated on 16 motor and 20 process skill items. The skill items and ADL tasks are calibrated on the same linear scales (AMPS motor skill scale and AMPS process skill scale), based on the relative difficulty of the skill items and the relative challenge of the tasks. Because the items and tasks are calibrated on the same scales, they are referred to as *common linear scales*. Common linear scaling makes it possible to adjust the person ADL motor and ADL process skill measures for the difficulty of the tasks actually performed. As a result, it is possible to (a) determine where, on an abstract continuum of ability, people of varying abilities are located, even when they perform different tasks; and (b) compare the ability of a client who performs one set of tasks upon initial evaluation with the results of his or her performance on a different set of tasks after a period of intervention.

3. ADMINISTRATION AND SCORING PROCEDURES

by

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In this chapter, we will present the specific procedures to follow when administering the AMPS. To provide a context for the more detailed information that follows, we will first present the steps of an AMPS observation. Because having the appropriate space and resources is a prerequisite to performing an AMPS observation, we then will discuss how to commit space and make available the variety of tools and materials needed to routinely carry out AMPS observations. This will be followed by a discussion of how to determine if the AMPS would be appropriate for an individual client. Finally, we will address each of the steps involved in the actual administration of an individual AMPS observation.

3.1 Overview of the Steps of an AMPS Observation

Considered from the perspective of someone who has never before used the AMPS in practice, the steps involved in administering the AMPS are as follows:

- Committing to using the AMPS in practice;
- Committing space, tools, and materials for AMPS observations;
- Determining possible task options in the space available;
- Determining whether or not the AMPS is appropriate for a given client;
- Preparing for an AMPS interview;
 - Becoming familiar with the AMPS tasks;
 - Considering what tasks to offer a given client;
 - Targeting the task choice options to the ability of the client;
- Implementing an AMPS interview and collaboratively establishing the preliminary task contract;
- Setting up the test environment and finalizing the specific task contract;
- Summarizing the task contract and initiating the task observation;
- Observing the client perform at least two AMPS tasks and taking notes;
- Scoring the client's task performance;
- Entering the data into the AMPS computer-scoring software;
- Interpreting the results of the AMPS observation; and
- Planning intervention.

Once one commits to using the AMPS in practice and commits space, tools, and materials for implementing AMPS observations, the first two steps no longer apply. If the occupational therapy practitioner tests clients in a variety of environments, the second step may continue to apply.

3.2 Preparing for the AMPS Observation

3.2.1 Committing to Using the AMPS in Practice

The first step is to make a commitment to use the AMPS in practice. While each occupational therapy practitioner is responsible for making decisions about his or her own practice, including what evaluation tools to administer, we often feel pressure to conform to routine practices that have been established within the settings where we work. Unfortunately, we may feel this pressure when the routine practices conflict with our professional values related to the importance of focusing our evaluations and interventions on occupation.

In most settings, however, introducing the AMPS does not present any obstacles. Introducing the AMPS to settings where PADL or IADL task performances previously have not been evaluated may require approval from a supervisor. In some settings, PADL task performances are routinely assessed, but *little attention is given to IADL task performances.* In such instances, we may need to stress the importance of considering the full range of tasks that clients may want or need to perform. The process of introducing the AMPS into a practice setting may be facilitated by presenting an inservice on the AMPS, or by carrying out an AMPS observation and sharing with colleagues the information that can be gained from using the AMPS.

An important point to remember is that if we are expected to evaluate and intervene for problems of ADL or make predictions about a client's ability to live in the community (including recommendations related to discharge planning), we must *advocate for the space, tools, and materials needed.* For example, a request for funds to purchase a small refrigerator, a microwave oven, or a variety of small kitchen appliances (e.g., toaster, coffee maker) can be justified by stressing the unique role of occupational therapy and the importance of assessing and intervening in appropriate contexts.

3.2.2 Committing Space, Tools, and Materials for AMPS Observations

Once the decision to use the AMPS is made, consideration must be given to environments and objects (tools and materials) available for testing. The AMPS may be used

in both clinic and home environments.⁴ Whether the AMPS is used in clinic or home environments, space is rarely an issue as long as tools and materials are available or brought in by the examiner.

For example, *clinic* kitchens need to be stocked with a variety of nonperishable and semiperishable food supplies (e.g., spreads for toast and sandwiches, coffee and tea for beverages, instant soup or beverage mix, cans of tuna or soup, eggs, celery). Other nonperishable tools or materials that can be routinely stored in the occupational therapy clinic include plants and the needed supplies to repot them, laundry and housekeeping supplies, an iron and ironing board, and miscellaneous clothing that can be folded, washed, or ironed. If testing clients outdoors is an option, brooms, rakes, and other gardening supplies also can be stored in the clinic. Finally, perishable foods may need to be purchased and brought in the day of the AMPS evaluation. The tools and materials that should be available will be determined by the space that is available for storage, as well as the interests and needs of the clients who are being assessed. More details about testing in clinic environments are discussed below.

Having the opportunity to evaluate a client in his or her *home* provides the ideal context for an AMPS observation. The client's home will be equipped with the tools that he or she usually uses. We have found, however, that bringing a variety of nonperishable or semiperishable food supplies to the client's home can facilitate the process of engaging a client in an AMPS observation.

3.2.3 Determining Possible AMPS Task Options for Clinic Environments

Obviously, occupational therapy clinics with fully equipped kitchen spaces or ADL apartments are ideal environments for implementing AMPS observations when the AMPS cannot be administered in the client's own home. When a fully equipped kitchen or an ADL apartment is available, the number of AMPS task choices that can be offered is maximized. While such environments are preferred, they are not obligatory. As the space becomes less ideal, however, the number of possible task options decreases. For example, when there is no kitchen and no refrigerator or stove, most of the cooking tasks are no longer available options.

Yet, even though the number of available task options decreases, the AMPS still can be administered to most clients in almost any readily available space as long as the situation is appraised to determine "*what can be done in the space available*" and any needed tools or materials (e.g., laundry basket, broom, dustpan) are brought into the clinic. In the following sections, we will review the tasks that can be done in clinic spaces that are less than ideal.

⁴ In the AMPS manual, the term *clinic* is used to refer to any environment that is not the client's home environment. Hospital or clinical settings, classrooms, day treatment centers, unfamiliar houses, etc. are therefore considered to be "clinic" spaces.

AMPS Task Options in Rooms with Only Tables and Chairs

If the only space available is a room with tables and chairs (e.g., activity room, classroom), a review of the tasks listed in Vol. 2, Chapter 2, AMPS Task Descriptions will yield several task choice options. Most of them, however, are average or easier on the AMPS process task hierarchy (see Vol. 1, Chapter 7, Table 7-7). Folding laundry, ironing, polishing shoes, vacuuming, sweeping, instant beverage, cleaning windows, eating a meal, and putting on shoes and socks readily can be carried out in such settings. Performing other tasks, such as those that require a sink (for water), cupboards, and drawers, or cooking tasks that require a refrigerator would have to be inordinately contrived if the client were to perform them in a room that has only tables and chairs. ***Contriving AMPS task performances is not acceptable*** as it invalidates the results of the AMPS because the tasks are not performed in a standardized (and naturalistic) manner.

AMPS Task Options in Rooms with Tables, Chairs, Sinks, Cupboards, and Drawers

Having access to a sink, cupboards, and drawers expands the list of possible task choices, although the available task options remain average or easier on the AMPS process task hierarchy (see Vol. 1, Chapter 7, Table 7-7). In addition to the tasks listed above, repotting a plant, watering plants, mopping the floor, hand washing dishes, hand washing laundry, and setting a table become options in this environment. If there are cupboards, but no drawers, setting the table would not be an appropriate task option as there would be no natural place to store the knives, forks, and spoons. Again, because most of the food preparation tasks require a refrigerator, they would not be appropriate options in a room that has only tables, chairs, a sink, cupboards, and drawers.

AMPS Task Options in the Client's Nursing Home or Hospital Room

Clients in hospitals or nursing homes who must be evaluated in their own rooms can be observed making their beds. Many of the tasks suggested above also can be administered in client rooms. A basket of laundry and supplies for polishing shoes are easily carried from an occupational therapy clinic to the client's room in the hospital or nursing home. Brooms and vacuums used by the housekeeping staff often are available for use during an AMPS observation. Laundry can be handwashed in the client's bathroom. Finally, all of the PADL tasks were designed so that they could be observed in client rooms — at bedside or at a sink. While all of these tasks are average or easier on the AMPS process task hierarchy (see Vol. 1, Chapter 7, Table 7-7), this typically is not a problem as clients who must be seen in their rooms are generally more frail.

Outdoor AMPS Task Options at Hospitals or Nursing Homes

If the client is able to be assessed outside, weeding, raking, vacuuming the inside of an automobile, and sweeping outside become additional options. Nursing homes often have small garden areas that can be used for the weeding task. All hospitals and nursing homes have outdoor spaces that can be swept, and many may have leaves or grass to rake. By considering tasks that can be done outdoors, a few task options that are harder than average on the AMPS process task hierarchy become available options for more able clients (see Vol. 1, Chapter 7, Table 7-7).

3.2.4 Determining Possible AMPS Task Options for Home Environments

As we noted above, the home is the ideal context for administering the AMPS. The client should be able to perform any AMPS task that would be appropriate to his or her level of ability, needs, and interests. Bringing such food items as cans of soup, cans of tuna, bread, some eggs, celery, and onions can help overcome client resistance to participating in an AMPS observation caused by the client's concern about using his or her own food supplies. A telephone call a day or two ahead of the scheduled AMPS observation can help the examiner clarify what extra tools and materials may need to be brought into the client's home. Having these supplies can also make it possible to ensure that the client is offered task choices that provide an appropriate challenge. Do not forget that all of the outdoor tasks are appropriate options for those persons living in houses with yards, small garden areas, patios, garages, and so on.

3.2.5 Determining the Appropriateness of the AMPS for the Client

If the client has a need, an interest, or experience performing ADL tasks, there is a reason to consider administering the AMPS. The final determination of whether or not the AMPS is appropriate to the needs of the client, however, lies in gathering enough preliminary information about the client to conclude that an assessment of ADL ability is warranted. An ADL assessment is warranted when a client may be at risk or has identified difficulty performing daily life tasks. Most clients referred to occupational therapy fall into this category (see Vol. 1, Chapter 4 for a discussion and case example of gathering preliminary information about the client, a process we will refer to as *establishing the client-centered performance context*).

The AMPS can be used to assess almost any client. Clients with developmental, psychosocial, neurologic, cognitive, medical, or musculoskeletal conditions are all appropriate candidates. Similarly, clients of almost any age can be evaluated — children (at least 3 years of age), adolescents, adults, and older clients can be considered for assessment.

There are only *two restrictions* to the administration of the AMPS. First, the client *must be willing or have a need (including a need based on societal expectations) to perform*, even if only at a marginal level, simple ADL tasks. Clients who have no need or

desire to perform ADL tasks are not appropriate candidates for an AMPS evaluation. In our experience, however, few clients actually are limited by this restriction. A critical consideration here is that we are speaking about *clients who have been referred to occupational therapy*. We assume, therefore, that the client has goals related to some aspect of occupational performance. Clients with spouses or caregivers often need or want to perform at least some ADL tasks. While clients in nursing homes may be restricted in what tasks they are allowed to perform, many do wish to remain active or plan to return to their homes.

Second, because the *client must be familiar with the tasks* that he or she is observed performing, the client should have had experience with at least two of the tasks included in Vol. 2, Chapter 2, AMPS Task Descriptions. For this reason, very young children (under 3 years) are not appropriate candidates for an AMPS observation. The other clients that may fall into this category are low functioning clients with severe developmental disabilities. While developing or improving occupational performance may now be a goal of intervention, it can be difficult to evaluate a client who has had no prior experience performing any of the tasks listed in Vol. 2, Chapter 2, AMPS Task Descriptions. Since the administration of the AMPS requires that the client be familiar with the tasks that he or she is doing for the assessment, clients without experience must be *given the opportunity to practice and learn* simple AMPS tasks prior to initiating an AMPS observation. The case study of Erik, presented in Vol. 1, Chapter 6, demonstrates this process. Further information about testing low functioning clients also is presented in section 3.7.

3.3 Preparing for the AMPS Interview

Once an appropriate candidate for an AMPS observation has been selected, the next step is to prepare for the AMPS interview. The AMPS interview includes an orientation of the client to the assessment and determination of which *subset of tasks* included in Vol. 2, Chapter 2, AMPS Task Descriptions would be appropriate for the client being tested. The interview culminates with a *common understanding* or “contract” between the examiner and the client regarding what task the client plans to perform and what tools and materials the client intends to use. The interview should be as naturalistic as possible, conducted in the form of a conversation, to put the client at ease and to enhance cooperation. Therapeutic rapport between the client and the examiner, therefore, is essential.

3.3.1 Becoming Familiar with the AMPS Tasks

Before beginning the AMPS interview with the client, it is critical to prepare for the interview by reviewing the criteria for each task that may be a possible choice for a client. If an examiner is not familiar with the task criteria before entering into an AMPS interview,

three problems may occur. The first problem is that the examiner may negotiate a contract with a client that does not *match the criteria* used to standardize the task for the AMPS. Second, the examiner may allow the client to choose a task that cannot be performed in the *space* that is available. Third, the examiner or client may not have available all the *tools and materials* that are needed for the client to perform a chosen task.

For example, an examiner might think cleaning a bathroom (Task #J-7, Vol. 2, Chapter 2, AMPS Task Descriptions) is a task the client might need to do at home. Without considering all these details, the examiner could easily negotiate a contract where the client agrees to clean a bathroom with no bathtub or shower — this would be a task very different from the criteria specified in Vol. 2, Chapter 2, AMPS Task Descriptions.⁵

Not having a bathtub or shower would also mean that the space is not appropriate, just as it would be inappropriate to have a person set the table in a room where there are no cupboards and drawers to store the plates and silverware. Finally, the task criteria specify that the client is expected to clean the sink, mirror, toilet, bathtub or shower, and the floor. To perform this task, the client would need cleaning solutions for the toilet, bathtub or shower, sink, mirror, and floor. The client would also need rags or sponges, and possibly, paper towels for cleaning the various surfaces, as well as a mop, vacuum, or broom to clean the floor. Even if the bathroom has a bathtub or shower, if there is no vacuum, broom, or mop available, the client will not be able to clean the floor in the manner specified in Vol. 2, Chapter 2, AMPS Task Descriptions.

The following two resources are used to become familiar with the AMPS task criteria:

- *The AMPS task descriptions in Vol. 2, Chapter 2* (AMPS Task Descriptions). The task descriptions provide detailed information about each task (e.g., essential task, specific criteria, options, needed tools and materials).
- *The task notes in Vol. 2, Chapter 3* (AMPS Task Notes). The task notes describe the essential task and key constraints of the AMPS tasks. They are critical as a reference

⁵ Those tools and materials negotiated as part of the task contract are limited to those that the examiner is instructed to *ascertain* in the task descriptions in Vol. 2, Chapter 2, AMPS Task Descriptions. There is only *one exception* to this rule. For some tasks (e.g., washing dishes, cleaning the bathroom, cleaning windows), the examiner is to ascertain what cleaning supplies (e.g., soap, scrubbing devices, cleaning solutions) the client usually uses, but there is also a note in the task description in Vol. 2, Chapter 2, AMPS Task Descriptions indicating that this information is gathered so that the examiner can be sure that all needed tools and materials are available to the client. The presence of this note alerts the examiner to the fact that these items are not to be negotiated as part of the task contract (see also sections 3.4.4 and 3.5.2).

during the interview itself. These notes are used as reminders of details such as (a) how many spreads can be used on toast or sandwiches, (b) whether or not the toast is to be cut in half, (c) whether the egg task includes a beverage or brewed coffee or tea, or (d) whether or not the client is expected to move the furniture out of the way when sweeping or mopping the floor. (*Note. Vol. 2, Chapter 3, AMPS Task Notes is not intended to be used in isolation of Vol. 2, Chapter 2, AMPS Task Descriptions. Vol. 2, Chapter 3, AMPS Task Notes is a supplemental resource to be used during the AMPS interview.*)

3.3.2 Considering What Tasks to Offer

Having determined what task options can be performed in the environment(s) available, the next step is to consider concurrently (a) the *ability of the client*, (b) what *tasks the client is likely to be familiar with and has a need or desire to perform*, and (c) whether the *examiner has enough knowledge of the task* to be able to recognize deviations of performance that would not be considered appropriate or logical within the cultural group to which the client belongs. For example, an examiner who has never seen a client make *boiled coffee* would not know if he or she should penalize the client for performing the task using the following sequence: (a) putting ground coffee and water in a kettle, (b) placing the kettle on the stove, (c) heating it and bringing the coffee to a boil, (d) removing the kettle from the burner on the stove, (e) pouring some of the coffee into a cup, and then (f) pouring the coffee from the cup back into the kettle, repeating this last step two or three times. While this sequence of actions, especially pouring the coffee back and forth between the cup and the kettle, may seem very unusual to many examiners, it would be viewed as logical by anyone living in Northern Sweden. (*Note. Another example related to tuna salad sandwiches is discussed in section 3.11.6.*)

The following factors must be kept in mind, therefore, when preparing for the AMPS interview:

- The tasks offered should be ones that the *examiner knows how to do* (the examiner needs to be familiar with the variety of ways a task *logically* can be performed in order to know how to evaluate the client's performance).
- The tasks offered should be *relevant* to the client's living environment and culturally appropriate.
- The tasks offered should *present a challenge to the client*, but they should not be so difficult as to be therapeutically contraindicated; given a choice, more reliable measures are obtained when more challenging tasks are performed (see section 3.3.3).

3.3.3 Targeting the Task Choice Options to the Ability of the Client

In order to have a sensitive and valid assessment of the client's ability, it is imperative that the subset of AMPS tasks that are offered to the client include only tasks that are of an **appropriate challenge** to his or her level of ability. The following steps are used in the process of targeting the task choice options to the ability of the client:

1. **Omit from consideration** tasks (a) the examiner does not know how to do, (b) that are not relevant to the client, (c) that cannot be performed in the setting where the observation is to occur, and (d) for which the needed tools and materials are not available.
2. **Determine if the client is more or less able.** This is a preliminary, overall appraisal of the client's ability. It is generally able to be made based on information gathered from a chart review and an initial interview or a phone conversation with the client or a caregiver.
3. **If the client is more able**, enter into the AMPS interview with a list of tasks that are calibrated as harder on the AMPS process skill scale. **If the client is less able**, enter into the AMPS interview with a list of tasks that are calibrated as easier on the AMPS process skill scale. On the AMPS scales, **0.0 (zero) logits is the mean challenge for the tasks** included in the AMPS. Harder tasks are those at 0.0 logits or lower (negative values), and easier tasks are those above 0.0 logits (positive values) (see Vol. 1, Chapter 7, Table 7-7).
4. **Always use the AMPS process skill scale task hierarchy** to determine which tasks would offer an appropriate challenge to the client. The process skill scale hierarchy is used for the following reasons:
 - The AMPS tasks vary more in challenge on the AMPS process skill scale than they do on the AMPS motor skill scale (see Vol. 1, Chapter 7, Tables 7-6 and 7-7).
 - The AMPS process skill scale is a better predictor of (a) a client's overall level of ability to perform ADL tasks and (b) the client's ability to live safely and independently in the community. The process scale ADL ability measures reflect the client's ability to compensate for his or her problems, **whether those problems are more related to physical disabilities or due to cognitive or psychosocial disabilities.**
5. If the client is **minimally disabled** (e.g., someone who has compensated well for physical impairments and who has no cognitive deficits), or is an **older adult without identified problems** who lives independently in the community, only offer tasks that are calibrated at **0.0 logits or harder** on the AMPS process skill scale.
6. Remember that one of the **biggest sources of error** in the AMPS occurs when a **client performs tasks that are too easy**. The client does not choose from the list of 83 tasks

— the client chooses from a subset of three to five task choice options determined by the examiner. It is critical to *only include tasks in the subset that offer an appropriate challenge to the client.*

3.3.4 Considerations for Offering PADL Tasks

Because the PADL tasks tend to be among the easiest of the AMPS tasks, it is important that *the use of PADL tasks be restricted to those clients who are more frail or physically disabled, or who are very young children (generally those under 6 years of age).* When more able clients are allowed to perform IADL or PADL tasks that are too easy, greater error in estimating the client's ability measures is introduced. As a word of caution, therefore, we want to emphasize that *PADL tasks should not be offered as choices* to the client unless they offer an appropriate challenge.

3.4 Implementing the AMPS Interview and Establishing the Preliminary Task Contract

3.4.1 Overview of the Four Steps of the Interview

Once the AMPS task criteria in Vol. 2, Chapter 2, AMPS Task Descriptions and the task notes in Vol. 2, Chapter 3, AMPS Task Notes have been reviewed, and consideration given of what tasks might be appropriate for the client, the AMPS interview is initiated. An overview of the AMPS interview is shown in Table 3-1. The interview progresses in the following four, often overlapping, steps:

- **Step 1** — Introduce the idea of wanting to observe the client perform ADL tasks as part of an occupational therapy assessment. Building on what information is already known about the client, a brief introductory statement is usually all that is needed before proceeding to Step 2.
- **Step 2** — Gather more specific information by asking the client what type of tasks he or she routinely performs during the day, or if he or she ever prepares simple meals. Such questions also direct the client toward the type of tasks he or she will be observed performing.
- **Step 3** — Focus in on tasks the client has indicated he or she knows how to perform and that offer the client an appropriate challenge. Ignore those tasks that would not provide a sufficient challenge.
- **Step 4** — Ensure that the client usually performs the tasks in a manner that is consistent with how they are described in Vol. 2, Chapter 2, AMPS Task Descriptions. By Step 4, negotiation of the *task contract* has begun. The task contract is finalized when the environment is set up for the AMPS observation (Step 5, Table 3-2).

3.4.2 General Guidelines

Because the purpose of the interview is to determine which subset of tasks listed in Vol. 2, Chapter 2, AMPS Task Descriptions might be appropriate ones to present to the client as available choices, questions the examiner might ask include the following: **“What kinds of household chores do you do?”** **“Do you ever have to clean the kitchen floor or vacuum?”** **“What do you typically eat for breakfast (lunch)?”** **“Do you ever make it yourself?”** **“What do you put in your tuna sandwiches?”** **“Do you usually serve your sandwich on a plate?”**

Note that *none* of these questions asks the client *how* the task should be accomplished. The examiner should make every possible attempt to avoid asking questions in a manner that encourages the client to explain the specific, step-by-step procedures he or she uses to perform a task. When the examiner must ask a *“how” question* (e.g., to provide a context for subsequent questions), the examiner should immediately follow it with possible answers, either in the form of *“what” statements* or follow-up *“what” questions*. For example, the question **“How do you repot your plants?”** might be followed immediately with the additional questions **“What kind of soil do you use? Do you use stones or small rocks?”** Alternatively, if the examiner asks, **“How do you clean your kitchen floor?”** the question can be followed immediately by a possible answer, **“Do you use a mop?”** The crucial point is to avoid having the client describe in detail how he or she usually performs a task. Having a client describe how he or she performs a task requires that the client make explicit knowledge that usually is only implicit. It also is time consuming and interferes with cost-effective evaluation.

3.4.3 Progressing the Interview to Include PADL Tasks

If the client is a very young child, very frail or physically disabled, or confined to bed, the examiner may choose to proceed to ask questions related to routine PADL task performance. The examiner may also proceed to ask questions related to routine PADL task

Table 3-1 Summary of the AMPS Interview

Step	Objectives	Comments	Example Actions
1	Frame for the client the nature and purpose of the AMPS observation.	The AMPS is one part of an OT evaluation. How you begin depends on what you already know about the client (e.g., level of ability and degree of insight).	<p>“I would like to see you do some of the tasks you might need to do at home, such as simple housekeeping or meal preparation tasks.” “As part of your occupational therapy assessment, I would like to have an opportunity to observe you do some of the things that might be causing you difficulty.”</p> <p>Do not mention PADL tasks at this step unless you know that they are the only task choice options available and they offer an appropriate challenge.</p>
2	Begin to focus the client on the kinds of tasks you will be observing.	<p>The rater needs to predetermine what tasks can be done in <i>this</i> environment and what level tasks provide <i>this</i> client a challenge.</p> <p>Always begin with IADL tasks — only proceed to offer PADL tasks if suitable IADL tasks are not identified.</p>	<p>“What housekeeping tasks do you do?”</p> <p>“Do you fix your own lunch?”</p> <p>“Do you ever make yourself breakfast?”</p> <p>“Do you change the sheets on your bed?”</p> <p>If the client does not do IADL tasks, and if the PADL tasks would be appropriate (e.g., of an appropriate challenge), proceed to ask about PADL tasks:</p> <p>“Would you be willing to get dressed?”</p> <p>“I could also watch you doing your morning care — doing things like shaving, brushing your teeth, combing your hair, and washing your face.”</p>
3	Identify between three and five AMPS tasks that are familiar to the client and that will offer the client a good challenge.	<p>Ignore tasks mentioned by the client that cannot be done in <i>this</i> environment or that are too easy for <i>this</i> client — allowing clients to perform tasks that do not challenge the client will result in inflated test scores (test error).</p> <p>Remember, the PADL tasks are easy.</p>	<p>If the client is more able, do not pursue tasks that are too easy, such as Making bed, Beverage from the refrigerator, or the PADLs.</p> <p>Instead, focus the client on harder tasks that appear to be more appropriate:</p> <p>“Do you ever do chores outdoors such as raking the grass or leaves?”</p> <p>“Do you ever make salads?” “What do you put in your salads?”</p> <p>“Do you ever cook pasta?”</p>

(continued)

Table 3-1 (continued)

Step	Objectives	Comments	Example Actions
4	<p>Offer specific task choices to the client.</p> <p>Determine which task the client will perform first.</p>	<p>Before offering task choices, ensure that the person is willing to perform the tasks in a manner consistent with the task criteria in Vol. 2, Chapter 2, AMPS Task Descriptions.</p> <p>Verify if client uses “extra ingredients” you might neglect to mention (e.g., butter <i>and</i> mayonnaise on a sandwich; lettuce on a sandwich).</p> <p>Be sure not to ask the client how he or she performs the task; <i>focus on what</i> he or she uses.</p> <p>When a “<i>how</i>” question is needed, offer a possible “<i>what</i>” answer so that the client does not feel compelled to explain the procedures he or she uses.</p> <p>When it will facilitate the observation (and the client is willing to modify his or her usual methods) it is appropriate to guide the restructuring of the task to meet the criteria in Vol. 2, Chapter 2, AMPS Task Descriptions.</p>	<p>“Do you use a rake or do you use a leaf blower to remove the leaves from your yard?” “After you rake your leaves, would you usually put them someplace like in bags, in the garbage, or in a compost pile?”</p> <p>“When you make green salad, do you add other vegetables like tomatoes, cucumbers, green peppers?” “Do you make your salad in a large bowl and then serve it in individual dishes?” “Do you put the dressing on before serving it?” “What kind of dressing do you use, premixed or homemade?” “How many servings do you usually prepare?” “Do you have the ingredients you would need to make a salad?” “Would you be willing to make a green salad?”</p> <p>“How do you clean your kitchen floor, do you mop it?” “Do you usually vacuum or sweep it before you mop it?” “What do you use to mop it?” “Where do you put the water you use to rinse the mop?” “You indicated that you use the sink in the bathroom to rinse the mop.” “Do you ever use the kitchen sink or a bucket?” “It would be easier for me to observe you if you used the sink in here.” “Do you typically mop under the table?” “Would you please mop under the table today?”</p> <p>“You have indicated that you would be willing to rake the leaves; prepare a green salad; mop the floor; clean your bathroom; and prepare fried eggs, toast, and coffee. Today, I would like you to do two of these. Which two would you be willing to do today?”</p> <p>“Which of these tasks, raking the leaves or preparing a salad, would you like to do first?”</p>

Table 3-2 Setting Up the Environment and Reviewing the Task Contract

Step	Objectives	Comments	Example Actions
5	Negotiate the specific task contract, clarify the essential task, and set up the environment.	<p>Ensure all needed tools and materials are available, and that you and the client both know where they are located.</p> <p>Ensure alternative choices and all needed tools and materials are available.</p> <p>Ensure all factory-sealed packages are preopened.</p> <p>Provide the client an opportunity to practice setting up and operating unfamiliar equipment.</p> <p>Avoid “how” questions. Focus on “what.” Notice that we do not ask details about which knife, bowl, shirts, etc. the client will use.</p>	<p>“Here is a broom, a shovel, and two rakes. Where would you normally keep them?”</p> <p>“Would you keep them in the garage or in a shed?” “Please put them in the garage where you would usually keep them.” “Would you usually put the leaves in a compost pile or do you put them in large trash bags?” “I have some large bags. Please put them away where you normally keep them.” “Where would you put the bags of leaves when you are done?” “When you are done, go ahead and put the bags where you usually would put them.” “When you rake your lawn, would you usually rake an area this large?” “For this assessment, I only need you to rake an area about this size. Would that be okay with you?”</p> <p>“What vegetables do you have available to make a salad?” “Can you show me where they are?” “Which three or four of these would you like to use today?” “Why don’t you take that head of lettuce out of that tight wrapper and put it in a plastic bag before we begin.” “What dressings do you have?” “Which one will you use today?” “Is your oil and vinegar premixed?” “Could you premix it before we begin?” “What else might you need?” “Can you show me where you keep plates, bowls, knives, forks, spoons, vegetable peelers, etc.?” “Do you use a knife to cut vegetables?” “I need you to use a knife for this evaluation; would you be willing to use a knife instead of your food processor today?” “Do you add anything else to your salad, like salt and pepper?” “Please show me where you keep them.”</p> <p>“You have agreed to take off the shirt that you have on and to put on a different shirt. Which shirt would you like to put on?” “Do you have one or two other shirts that we could put here with this one?” “Where would you like to put the shirt that you have on after you take it off?” “I would like you to put it there today.”</p>

(continued)

Table 3-2 (continued)

Step	Objectives	Comments	Example Actions
6	Review the contract with the client and begin the observation.	<p>Be sure all task criteria are reviewed and the client does not begin before you review the contract. Review each contract just prior to the observation of that task. The task contract includes the essential task, the details of the task that were to be ascertained by the examiner, and the concept of restoration — leaving your workspace as you found it, etc.</p> <p><i>Do not review details about what bowls, utensils, etc. the person will use, nor ask about or review specific methods of doing a task.</i></p>	<p>“You have agreed to rake the leaves from this area that we have designated. You indicated that you usually would put your leaves in bags and leave the bags beside the tree. Go ahead and rake the leaves. When you are done, put everything back where you found it and place the leaves beside the tree. It would be better if we do not talk, but if you have any questions please feel free to ask. I will be taking some notes as you rake.”</p> <p>“You indicated that you were going to take off the shirt that you have on and put on this blue shirt. When you are done, go ahead and leave the shirt you have on here on the bed where you said you would put it. Let me know when you are done.”</p> <p>“You have said you are going to make a green salad for two people with tomatoes, cucumbers, and radishes. You are going to use oil and vinegar dressing. You indicated that you plan to make it in a large bowl and serve the salad in individual dishes. Be sure to put everything away and leave your workspace as you found it. You can put the dirty dishes in the sink; you do not have to wash them. Let me know when you are through. I will be watching you and taking some notes. I would prefer we do not talk, but if you have any questions please feel free to ask.”</p>

performance if the examiner's inquiry into the client's IADL task performance fails to yield suitable AMPS task options, but only if offering PADL tasks would provide the client with tasks of sufficient challenge.

When asking the client about PADL tasks, the format of the examiner's questions may be more direct, and thereby vary from those used to ask about IADL task performance. For example, the examiner might say **“You also could choose to get dressed. For this task you would need to take off your shirt and trousers, and your shoes and socks, and then put on a new shirt, another pair of trousers, and a clean pair of socks. You also would need to put your shoes back on. Would you be willing to do that?”** If the client is still wearing his or her sleepwear, the examiner might ask **“Would you be willing to get dressed?”** **“What clothes do you plan to wear?”** **“Which shoes do you want to put on?”** **“Do you usually wear nylons or socks?”** **“For this evaluation, I need you to wear nylons that do not come above the knees.”** **“Would you be willing to put on knee high nylons for me today?”** (see also Table 3-1, Step 4).

3.4.4 Asking About Tools and Materials

As the examiner progresses with the interview, it is imperative that he or she asks *what tools and materials* the client usually uses in order to (a) verify that they are consistent with the task criteria listed in Vol. 2, Chapter 2, AMPS Task Descriptions, and (b) obtain a list of what tools and materials will need to be available if the client is to perform the task in his or her usual manner. For example, when interviewing a client about Task #J-1, Sweeping the floor, the examiner must ask about what type of broom the client usually uses, if the client typically uses a dust pan, and where the client disposes of the dirt in the dust pan after it has been swept up from the floor.

In most cases, determining what tools the client usually uses does *not* mean that the examiner establishes *exactly what* tools are used. For example, if the examiner determines that the client usually uses a small paring knife to cut vegetables or a bowl to mix tuna salad, the examiner only should verify that appropriate knives or bowls are available. If the client voluntarily indicates which knife or bowl he or she intends to use, the examiner should respond with a comment such as, **“The knives are here in the drawer. Please leave that knife here in the drawer with the other knives until you are ready to begin making your sandwich.”** Or, **“Use whatever bowl you prefer.”**

More importantly, the examiner must recognize that *the client is not scored* on whether or not he or she actually uses the bowl or knife he or she indicated he or she intended to use. The client always is scored based on the logical selection of tools and not on whether or not the client selects or uses the specific tool he or she stated he or she would use.

There is an important exception to this rule. When the task descriptions in Vol. 2, Chapter 2, AMPS Task Descriptions instruct the examiner to *ascertain* what items or what

ingredients the client plans to use (e.g., “Ascertain what type of bread and what type of spreads the client intends to use to prepare the sandwich”), ***the client is scored*** on whether or not he or she actually used the items or ingredients the examiner was to ascertain. Those things that are to be ascertained are part of the specific task contract. In some tasks, however, there may be a note that “This information is gathered so that the examiner. . . .” When this note is included in the task description in Vol. 2, Chapter 2, AMPS Task Descriptions, the primary rule applies — the client is not scored on whether or not he or she actually uses the items that were referred to in the note.

As the examiner interviews the client, it also is important that the examiner verify whether the client adds ingredients to ***food items that the client might neglect to mention***. For example, a client may say he or she uses mustard on a ham sandwich, but not mention butter or margarine unless prompted to do so. Similarly, the examiner must ***ensure that all tools and materials the client might need are available***. Such items as a can opener to open a can of tuna for a sandwich, or an electric kettle to heat water, may be critical — the task cannot be performed if they are not available.

As the interview proceeds, the examiner gradually eliminates tasks that (a) are unfamiliar or not relevant to the client, (b) the client performs in a manner that deviates from the standardized task criteria, (c) for some reason are not practical, or (d) do not provide sufficient challenge for reliable measurement. The examiner, thereby, reduces the list of tasks to ***the few that are actually presented*** to the client.

3.4.5 Ensuring the Client Understands the Task Criteria

It is important that the client understand, ***before choosing and entering into the actual task performance***, the exact nature of the tasks that are offered as possible choices. This requires that the examiner do the following:

- Clearly ***explain the task criteria*** when the task choices are offered to the client (e.g., if Task #D-2, Scrambled or fried eggs, toast, and boiled/brewed coffee or tea, is offered as a possible choice, the client must understand that this task requires the use of two slices of presliced bread, one spread, and one or two eggs, and that the eggs are to be scrambled or fried in a frying pan).
- Stress that the examiner wants the client to ***perform the selected tasks in his or her usual manner***, using the tools and materials and the methods he or she usually uses. It may be helpful to indicate that the examiner is aware that everyone does things a little differently, and that it does not matter what method the client uses (***as long as the task criteria are met***).
- ***Do not allow the client to perform tasks in a manner different from that specified in Vol. 2, Chapter 2, AMPS Task Descriptions***; doing so invalidates that client’s AMPS

observation. Most of the task choices allow for some degree of variability. However, if the client indicates a preference (before beginning the task) to perform a task in a manner other than that specified, the examiner should encourage the client either to select another task, or to perform the task according to the criteria specified in the manual. For example, if the client has chosen to make a tuna salad sandwich, yet indicates that he or she “always uses crackers instead of bread,” the examiner should extend the interview to determine if the client would be willing to use bread instead of crackers. If the client persists in wanting to use crackers instead of bread, another task from the list should be chosen.

3.4.6 Establishing the Preliminary Task Contract

Once the examiner has progressed far enough with the AMPS interview to determine what tasks would be appropriate for the client, he or she is ready to offer the final task choices and begin to establish the contract (Step 4, Table 3-1). At this point, the examiner will have a good idea about what tools and materials the person usually uses for the tasks that will be offered as task choice options. For example, the examiner might have determined that the client does make tuna sandwiches with mayonnaise, adds some type of chopped vegetable, and serves the sandwich on a plate. The examiner likely has not yet ascertained the specific details (e.g., what type of vegetable, what type of bread) the person would choose to use if he or she chooses to make a tuna sandwich. At the point of setting the *preliminary task contract*, therefore, the examiner only elicits from the client *which two (or more) tasks from among the appropriate options the client will choose to perform* for the AMPS observation.

3.5 Setting Up the Test Environment and Finalizing the Specific Task Contract

There are two aspects of setting up the environment that are critical to a successful AMPS observation. The first is ensuring that the environment is as naturalistic and familiar as possible. The second is ensuring that, as the client sets up the environment, he or she makes final decisions about what specific tools and materials he or she will use to perform each AMPS task.

3.5.1 Ensuring the Test Environment is as Naturalistic and Familiar as Possible

The client should be tested in a distraction-free and familiar environment that is relevant to the task being performed. If the client cannot be tested in the actual environment in which he or she typically performs the task, every attempt should be made to create a testing environment that approximates those environmental conditions with which the client

is familiar. During the set-up of the environment the examiner must be sure to do the following to ensure the environment is as natural as possible:

- Ensure the client stores tools and materials in *appropriate places* (e.g., milk in the refrigerator rather than in a cupboard, silverware in drawers rather than out on the counter). Tools and materials that usually are stored inside cupboards and drawers (e.g., dishes, silverware, jars) should *not* be placed on counters. Materials commonly stored on counters or tables (e.g., dishwashing soap, sugar bowl) may be stored in their usual locations.
- Ensure that there are *extra tools or materials* not actually needed for the task observation in the task environment. Natural task environments commonly have tools and materials that are not relevant to the task one is performing. During an AMPS observation, therefore, we ensure that extra tools and materials are present in the task environment so that the client has to select appropriate tools and materials from among a variety of logical and illogical options. Both logical and illogical options should be available.
 - *Logical items* are those that have the potential to be *salient distractors*. Examples of these include the following: (a) having large and small bowls, white and wheat bread, large and small knives, and mayonnaise and mustard when the person intends to make a tuna salad sandwich with wheat bread and mayonnaise; (b) having a broom and a vacuum when the person intends to vacuum the floor; or (c) having extra silverware, extra dishes, or extra cleaning supplies beyond those the client would be expected to choose and use.
 - *Illogical items* are those that would be very unusual for a person to choose when performing a specific task (e.g., having baking pans and an electric mixer in the kitchen cupboards when the person intends to make a meat sandwich; having milk and orange juice in the refrigerator when the person intends to make a jam sandwich).
- Ensure that some of the extra tools and materials include logical alternatives to the items that become a part of the essential task contract (e.g., choices of bread, choices of spreads to put on the bread, choices of vegetable to add to a tossed salad).
- *Avoid contrived situations* (e.g., be sure the dishes to be washed are dirty; do not pretend a cupboard is a refrigerator).
- Have the *client set-up a clinic environment in a manner that approximates as closely as possible the client's current or anticipated home environment*. This is often the most difficult goal to achieve, and in many cases, it may not be possible. For example, we need to acknowledge that there is no way that we can reconfigure the arrangement of cupboards, refrigerator, and stove in a large L-shaped clinic kitchen to approximate a

small apartment kitchen. Nevertheless, the examiner can ensure that the client place dishes, silverware, and other tools and materials in places that are similar in type and location to where the person stores them at home. For example, dishes can be moved to the cupboard to the right of the sink if that is where the client would store them at home. If the broom and dust pan are usually stored in a closet, avoid having the client store them beside the refrigerator. We also need to acknowledge that some clients prefer to leave tools and materials where they are already stored in the clinical environment.

- Verify that *all needed tools and materials are readily available and that the client knows where to find them*. This process is different in home and clinic settings, as follows:
 - *Home* — the examiner asks the client to show the examiner where all needed tools and materials are stored (Step 5, Table 3-2).
 - *Clinic or other unfamiliar setting* — the examiner ensures that the client knows where the tools and materials can be found. The preferred option is to have the client put them in locations that approximate where the client would usually store them. Having the client place the tools and materials him- or herself helps to ensure that the client knows where they can be located. When tools and materials already are stored in the clinic kitchen, the examiner can either (a) verify that the client knows where they are located by asking the client to show the examiner where they are, or (b) show the client where they are located and verify that their location is acceptable to the client. If either of these latter two options are used, the examiner needs to *take extra precautions to ensure that the client has been fully familiarized with the setting*.

3.5.2 Finalizing the Specific Task Contract During Set-up of the Environment

As the client sets up the environment and the examiner ensures that it is familiar to the client, the examiner also finalizes the specific task contract. For example, consider Ken who agreed to make a tuna salad sandwich. The examiner said, “**Ken, I have two types of bread here, wheat and white. Which would you like to use?**” Ken responded that he would like to use wheat bread. The examiner then said, “**Okay, go ahead and put both loaves of bread where you would typically keep them at home.**” In this process, Ken simultaneously (a) decided where the bread will be stored, (b) became familiar with the place where he stored the bread, and (c) chose the specific type of bread he will use. Choosing what type of bread to use was one aspect of the task contract the examiner needed to *ascertain* (via negotiation with Ken) as indicated in the task description of Task #F-3, Tuna salad sandwich, in Vol. 2, Chapter 2, AMPS Task Descriptions.

The examiner repeated the same procedure when she ascertained what vegetable option Ken would use by saying, “**Ken, I have some onions and some celery. Which would you**

like to use?” Ken said that he would like to use onions. The examiner then told Ken, **“Okay, go ahead and put both the onion and the celery where you would typically keep them at home.”** Ken opened the refrigerator door and placed the vegetables in the vegetable bin, thus familiarizing himself with the location of the vegetables as well as the experience of opening and closing the refrigerator door. Relative to the task contract, the examiner ascertained that Ken would use onions.

The examiner used similar procedures to familiarize Ken with other aspects of the environment and to ascertain whether Ken would use mayonnaise or some other type of spread. When discussing the task and having Ken set up the environment, the examiner also had to be sure that Ken understood the *essential task*. This meant that she ensured that Ken understood that he was to cut the tuna sandwich in half and serve it on a plate at the counter or table. Cutting the sandwich in half and serving it on a plate are also part of the task contract.

At one point during the set up, the examiner said to Ken, **“You will also need a plate for your sandwich. There are both large and small plates here in this cupboard. Open the cupboard and take a look.”** When Ken opened the cupboard, he indicated that he would use one of the small plates. The examiner had not asked him which plate he would use. The size of plate is *not* part of the task contract, even though Ken prespecified he would use a small plate. When he later chose a large plate to serve his sandwich, the examiner did not lower his score for Chooses or Heeds because he chose a different plate than he said he would. She did score Chooses and Heeds lower when he chose celery instead of onions as the type of vegetable *is* part of the task contract.

Step 5, Table 3-2, illustrates other examples of finalizing the specific contract. The outcome of finalizing the specific contract is agreement between the examiner and the client about each of the task details listed in Vol. 2, Chapter 2, AMPS Task Descriptions. These details are derived from the description of the *essential task* and those items that are *ascertained* by the examiner prior to beginning the task observation.

3.6 Summarizing the Contract and Initiating the Task Observation

Just prior to initiating the actual observation, the task contract is reviewed for the client. Examples are shown in Table 3-2, Step 6. The examiner may also reassure the client that the examiner just wants to watch the client do the task the client selected, telling the client, **“Just do the task the way you usually do it.”**

When summarizing the contract, it is important to be brief, but clear. Elements that *should* and *should not* be included in the summary include the following:

- **Do** include the steps of the *essential task* (e.g., “Ken, you have agreed to make a tuna salad sandwich with mayonnaise and onion on wheat bread. Cut the sandwich in half and serve it on a plate.”)
- **Do** include the specific *details that the examiner is to ascertain* prior to beginning, as instructed in Vol. 2, Chapter 2, AMPS Task Descriptions. For example, when the examiner had Ken set up the environment, she ascertained what type of spread (mayonnaise), what type of vegetable (onion), and what type of bread (wheat bread) Ken would use to make his sandwich.
- **Do** include a brief comment about *restoration* (e.g., “When you are done, put your dirty dishes in the sink. You do not have to wash the dishes. Wipe up any spills and leave your workspace as you found it.”)
- **Do not** include *details as to specific tools and materials* the person will use. For cooking tasks, these specific tools and materials include bowls, plates, knives, spoons, etc. For cleaning tasks, they include specific cleaning supplies and scrubbing devices. Similar criteria can be applied to most of the other AMPS tasks.
- **Do**, when the examiner feels that it is indicated, let the client know that (a) it is better if the examiner and the client do not talk during the AMPS observation, (b) the client may ask questions, or (c) the examiner will be taking notes.
- **Do not** include statements that indicate *how* the person should do the task or that give the client cues as to how a task should be completed. Statements such as, “**Do it the way you usually do it,**” “**Serve it on an appropriate dish,**” and “**Leave your workspace clean. You do not have to wash the dishes,**” are used because they do not tell the client *how* to do the task. Responses such as “Put the tuna in a bowl, and then add the mayonnaise,” “Mix the mayonnaise into the tuna,” or “Put the dishes in the sink,” inform the client *how* to do it and should be avoided. The only exception occurs when the examiner must provide this information to ensure that the client understands the task expectations.

3.7 Special Considerations in Administering the AMPS

Sometimes certain clients will warrant special considerations in the administration of the AMPS. Examples of these special considerations, including those for children, clients with mild to moderate cognitive limitations, and clients with severe cognitive or language impairments, are discussed below. Special considerations may also apply for setting up the environment for persons who have severe physical or cognitive disabilities.

3.7.1 Considerations for Testing Children

While concern may be expressed regarding the appropriateness of the AMPS tasks for children, it is helpful if the examiner remains aware that during an AMPS observation, the client is expected and encouraged to perform the task in his or her usual manner. When testing children, therefore, it is essential for the examiner to be familiar with how children perform tasks, and to then allow them to perform the tasks in their usual ways.

For example, when making a sandwich, a child may need to retrieve a plate from a high cupboard shelf. We have observed that children may do this by one of several ways. Some children pull a chair or stool near the counter and climb up onto it to reach the plate. Others jump up onto an adjacent counter and retrieve the plate while kneeling on the counter. Unless there is observable risk (e.g., falling, dropping the plate), or jumping onto the counter is unacceptable to the child's family, the child would not be scored down for climbing onto the counter. Instead, the child is scored based on the effectiveness of his or her goal-directed ADL motor or ADL process skills.

This situation, however, serves to illustrate the importance of the examiner's talking with the child's family before or during the AMPS interview. Just as with clients with cognitive limitations, children will need family members to provide necessary information about what tasks the child does and what help he or she usually receives (see section 3.7.2).

3.7.2 Considerations for Interviewing Young Children and Clients with Mild to Moderate Cognitive Limitations

When interviewing young children or clients with cognitive impairments, such as persons with mental retardation or dementia, the interview questions may need to be *more concrete*, yet without indicating to the client *how* the task is to be performed. Additionally, the questions may need to be asked using only a few high-content words when interviewing those clients with receptive language difficulties. Because clients may offer short, simply phrased answers, the examiner may be required to clarify the intended meaning at each step of the interview. For example, the examiner might initially ask an open-ended question, such as **“What jobs or chores do you do at home?”** If the client responds with an unrelated or noncommittal phrase (e.g., “I don't know,” or the client shrugs his shoulders), the examiner may ask specific questions such as, **“Do you make your own lunch?” “What do you make?” “What kind of sandwich?”**

Children as well as individuals with mental retardation, especially those who are community-living with family members, may need to have the questions phrased in terms of how they help someone else perform a task. For example, **“Do you help your mom (caregiver) at home?” “Do you help in the kitchen?” “What do you do?” “Do you make your lunch?” “What do you make?”** Through this process, the examiner should determine what the client does for him- or herself and with what tasks he or she needs assistance. In most cases, tasks that can be *performed* without assistance, with or without

task breakdown, are offered as choices. Situations where assistance (examiner intervention) is needed before the task observation is initiated are discussed in section 3.7.5. Scoring clients who need such assistance during the task observation is discussed in section 3.11.5.

When interviewing children and clients with cognitive impairments, it may be critical to have the parent or caregiver present during the interview. The following scenario demonstrates how misunderstandings can occur between the examiner and the client if someone more familiar with the client is not present:

- When the examiner interviewed 6 1/2 year old Katie, she began by asking Katie what tasks she does at home (Step 1). The examiner then focused the interview by asking Katie, “Do you make your bed?” “Do you ever make yourself sandwiches or get yourself your own drink?” (Step 2). Katie quickly got into the flow of the interview, and volunteered that she also makes salads. The examiner, a bit surprised to hear this, nevertheless proceeded to clarify further by asking Katie, “What do you put in your salads? Do you add cut up vegetables?” (Step 4). Katie verified that she indeed puts carrots, celery, and radishes in her salads. Aware that Katie likely received help from her parents, the examiner then asked her, “Do your parents ever help you? Do they help you cut up the vegetables?” To the examiner’s surprise, Katie replied, “No, I do it all by myself.” It was at this point that Katie’s mother intervened and informed the examiner that Katie makes salads with lettuce and vegetables that they buy from the grocery store precut and sealed in plastic bags. All Katie has to do is open the bags and dump the contents into a bowl.

The examiner also should keep in mind that certain words or phrases may connote different meanings to clients with mental retardation. For example, substituting “jobs” for “chores” may lead such clients to think of workshop activities rather than domestic tasks performed at home. Asking the client if he or she “cooks” may connote to the client only those meal preparation tasks that include the use of the stove or oven (which may not be allowed at home) when, indeed, the client may routinely prepare (with or without supervision) uncooked snacks or simple meals. Thus, the examiner is challenged to ask precise and clarifying questions, given the ability and experience of the client, in order to determine which subset of tasks in Vol. 2, Chapter 2, AMPS Task Descriptions may be offered to the client.

3.7.3 Considerations for Establishing the Contract and Testing Clients with Severe Cognitive or Language Impairments

Some clients with severe cognitive or language impairments associated with mental retardation, brain injury, dementia, etc. may not be able to enter into the usual interview and

contract-setting process we have described above. We have found, however, that clients who are unable to verbally negotiate a contract or follow verbal directions can still be evaluated. Essentially, the contract is established by giving them an opportunity to learn and practice the specified task. That is, the contract is established by having the person perform the task a few times *until it is clear that the client understands what is expected* (even if the person does not *consistently* follow through and complete the specified task). The score is then *tentatively interpreted* in terms of how well the person is likely to do performing other tasks after he or she has had a similar opportunity to learn and practice them.

In other words, it is acceptable to defer administering the AMPS until *after* offering the client a few training and practice sessions, and then initiating the formal assessment strategies previously described. In this way, the AMPS is used to assess directly the client's actual competencies and to identify his or her *potential for change or learning*.

3.7.4 Considerations for Establishing the Contract and Testing Clients Who Have Never Performed AMPS Tasks

A major purpose of the AMPS is to determine a person's capacity to perform ADL tasks that are relevant to his or her life. If a person has *never had the opportunity to learn* how to perform ADL tasks (in a manner similar to that described above in section 3.7.3), he or she can be given an opportunity to learn and practice relevant ADL tasks before implementing an AMPS observation. As is done for the person with cognitive impairments that interfere with the usual negotiation of a contract, the client is provided training on one or two tasks and then assessed on these tasks using the AMPS. The person's ability measure is then interpreted as an estimate of the person's *ability or performance after having had training or the opportunity to learn new tasks*. As with all ability measures, probable performance on other tasks of varying challenge can be predicted, and, in this case, also is interpreted as ability or potential performance after receiving similar training or having the opportunity to learn other new tasks. The case study of Eric in Vol. 1, Chapter 6 illustrates this process.

3.7.5 Considerations for Setting Up the Environment for Persons with Physical or Cognitive Disabilities

Some clients have physical or cognitive limitations that may impact the set-up of the environment. The following are guidelines for special considerations for clients whose severity of disabilities indicate modification to the usual procedures for setting up the environment:

- Clients with *restrictions in reach* (e.g., persons who use wheelchairs) may store items inside cupboards and drawers that are accessible. For example, if the plates and bowls are usually stored in upper cupboards that are not accessible to a person in a wheelchair,

the client may choose to store them in lower cupboards that are within his or her reach. An important point is that the dishes are still stored in cupboards.

- Clients with severe *physical limitations* may be restricted by available task options, and the most appropriate task choices *can only be performed if the examiner modifies the initial task set-up* before beginning the task observation. For example, Larry is able to repot plants, but because of his physical limitations, he is unable to access water from the sink for watering the plant. In this instance, it is appropriate for the examiner to fill a watering can with water and place it near the workspace. This form of examiner intervention occurs *before initiating* the task observation.
- Clients with severe *cognitive limitations* may also be assessed with set-up prior to beginning the task observation, as illustrated by Olivia who is presented in Vol. 1, Chapter 6. When Olivia was first evaluated, the occupational therapist determined that Olivia was markedly inefficient searching for and locating objects. As an intervention strategy, the occupational therapist taught Olivia's sister how to set up the environment by placing needed materials on the counter so that they would be visible. As in the previous example, the need for examiner intervention before initiating the task observation is *considered in the final scoring*. Scoring under these circumstances is discussed in section 3.11.5.

3.8 Examiner–Client Interactions During Testing

Throughout testing, the examiner should avoid conversation or other behavior that would distract the client. However, in order to keep the assessment as naturalistic as possible, the examiner should interact with the client when appropriate or when spoken to, and should not discourage the client from conversing, as long as it does not have an impact on the task progression. The examiner should also inform the client that, if needed, he or she may ask questions during the task observation (see Table 3-3).

The following guidelines provide examples for appropriate interaction. Generally, *initial responses should be vague or neutral in content*. It is very important that the examiner avoid *cues that provide feedback* to the client regarding his or her performance. Additional guidelines are given in Table 3-3.

1. If the client asks a *procedural question*: “What do I do now?” or “How do I open the can of tuna?,” the examiner should respond in a nonspecific manner: **“Do it the way you usually do it.”** If the client has been trying to do something and is experiencing difficulty, the examiner should provide assistance. Intervention also is provided when task breakdown is imminent (see also #3 below).

2. If the client asks an *information question*: “Where is the butter?,” the examiner should respond vaguely by shrugging his or her shoulders or by saying, “**See if you can find it.**” If the client is looking, and continues to have difficulty, the examiner should intervene and help the client. Again, intervention also is provided when task breakdown is imminent (see also #3 below). If the examiner inadvertently forgot to inform the client of where an item was located, the examiner should provide the client with the missing information and not penalize the client when scoring the client’s task performance.
3. If the client tries to complete an action or step, encounters difficulty, and then *asks for appropriate help*, the examiner should intervene and provide the help requested, and then score the client accordingly. That is, for *that* particular situation, Accommodates = 4, but the ADL skill(s) for which the examiner intervened would be scored 1.
4. If the client *asks for verification*: “Should I go ahead and cut up the carrots now?” “Am I doing this right?” or “Is this salad bowl big enough?,” the examiner should respond with a neutral response such as “**Do it the way you usually do it**” or “**Is that the one you usually use?**”
5. If the client is performing a task where he or she needs to *wait for something to finish* (e.g., coffee to brew, brownies to bake, pasta to cook) (i.e., a “*wait-time task*”), the client may choose to perform other activities during that time (e.g., open the mail, read a magazine). In general, these are natural ways people fill time while waiting. The examiner, therefore, should *not* intervene or score the client down for such actions unless there is an observable disruption of the task performance. For example, if the client becomes engaged in reading a magazine and does not check the brownies before they begin to burn, the examiner should intervene and the client should be scored down. If the client wishes to engage in a conversation with the examiner, the examiner should discourage such interaction, specifying that the examiner does not want to distract the client.

Table 3-3 Prompting/Cuing and Examiner Intervention During the AMPS Observation

Context	Initial Client Behavior	Initial Examiner Response	Client Problem Persists	Examiner Intervention
1. General atmosphere during AMPS evaluation	Client attempts to engage examiner in general conversation (e.g., “Are you from around here?” “Do you have any children?”)	Avoid conversation or other behavior that would distract the client. Let the client know you would prefer not to talk (e.g., “I would prefer it if we do not talk while you are working. We can talk later.”)		
2. If client asks a question		Initial interaction should be vague or neutral. Avoid telling client how to do something or where tools and materials are located.		If it is clear that damage or danger is imminent, or there is risk of task breakdown, examiner should intervene and score accordingly.
<i>SPECIFIC EXAMPLES:</i>				
Procedural questions	“What do I do next?”	“Do it the way you usually do it.”	“I can’t remember what to do next.”	“Why don’t you make the toast.”
	“How do I open this can?”	“Do it the way you think is best.”	“I don’t know how to open it.”	“Why don’t you try the can opener in the drawer.”
	“Am I supposed to add a tomato?”	“Do it the way you said you were going to do it.”	“I don’t remember what I said I would add.”	“I think you said you would add a tomato.”
(continued)				

Table 3-3 (continued)

Context	Initial Client Behavior	Initial Examiner Response	Client Problem Persists	Examiner Intervention
Information questions	“Where is the vacuum?”	“Where do you usually keep it?”	“I can’t remember where I put the vacuum.”	“Why don’t you look in the bedroom closet.”
	“Is there an outlet in this room?”	“See if you can find it.”	“There is no outlet in this room.”	“I think there is one right over here.”
	Prior to trying the action:		After trying action and there is clear evidence of difficulty:	
Requests for assistance	“Will you help me carry the vacuum?”	“See if you can do it.”	“Will you help me carry this vacuum?”	Provide whatever assistance seems indicated (i.e., intervene).
	“Will you please open this jar?”	“I would like to see you do it.”	“Will you please open this jar?”	Provide whatever assistance is indicated (i.e., intervene).
Verification Questions	“Should I put the carrots in now?”	“Do it the way you usually do it.”	“Hmm . . .” (long pause)	“Why don’t you go ahead and put the carrots in now?”
	“Am I doing this right?”	“There’s no right or wrong way to do it.”	“Stop. I ruined it.”	“Its fine. Go ahead and continue.”
	“Is this bowl big enough?”	“Is that the one you usually use?”	“I don’t have the bowl I usually use.”	“Why don’t you use one of these?”
	“Is this the right knife?”	“Use what you would usually use.”	“I think this carving knife will be okay.”	“It would be better if you used a butter knife.”
	“Wait time tasks”	Begins to read a magazine or open mail	None	
	Engages examiner in conversation	“I think it would be better if we not talk. I do not want to distract you.”		

3.9 Note-taking Strategies

The examiner's use of good note-taking strategies is critical to valid and reliable scoring of the AMPS. Because it is not possible to remember all the details included in the scoring criteria in Vol. 2, Chapter 4, AMPS Skill Items, the examiner should never attempt to score the client while observing his or her task performances. Rather, the examiner must make notes of what he or she *observes* as the client performs each AMPS task so that the examiner can refer to them later during scoring. In these notes, the examiner must always *record the action observed*, not his or her interpretation of what was observed.

We suggest a combination of *three note-taking techniques* that will enable the examiner to record the information needed in order to score two or more task performances after completing an AMPS observation. The first method involves developing and using a set of short, key phrases that describe the behaviors observed. The second and third methods help the examiner keep track of the tools and materials used as well as the spatial-temporal organization of the client's task performances — actions in time. In most cases, the examiner will use a combination of all three note-taking methods.

3.9.1 Short, Key Phrases

We have found that a few *short, key phrases* are often sufficient to enable the examiner, after completing the AMPS observation, to match the behavior the examiner observed with the appropriate scoring example in Vol. 2, Chapter 4, AMPS Skill Items. While we always score the quality of the client's *goal-directed actions* (e.g., grip slipped when grasping the jar, fumbled the lid of the jar when picking it up), efficient note-taking requires that we record only short, key phrases that will be sufficient to remind us of *what we observed* (e.g., grip slip, fumbles lid). An example of some of the short phrases we use are shown in Table 3-4. Also shown in Table 3-4 is the actual goal-directed action observed and the ADL skill item score given by the examiner.

3.9.2 Recording Object Use and Spatial-temporal Organization of the Task

Performance

Taking clear notes that record the objects the client chooses and uses, as well as the sequence of the client's actions as they progress over time (*actions in time*), is a critical component of note-taking during an AMPS observation. Generally, the best approach is to *record the step-by-step sequence* of the client's actions *as they are observed* since the examiner has no way of knowing what he or she will observe until after the client performs the task actions. This method enables the examiner to keep track of both (a) the tools and materials the client used, and (b) the spatial-temporal organization of the client's task performance.

Table 3-4 Short Key Phrases Used During Note-taking, Goal-directed Action Observed, and Score Assigned

Phrase	Goal-directed action observed	Score
Grip slip	Grip slip on jar	Grips = 2
Fumbles lid?	Possibly fumbled lid when picking it up	Manipulates = 3
Effort reaching	Increased effort reaching jar from shelf	Reaches = 2
Stiff bends	Stiffness of trunk when reaching for jar	Bends = 2
Props, why?	Propped hand on counter, but not sure why	Stabilizes = 3
Where's cutting board?	Asked, "Where is the cutting board?"	Inquires = 2
Crowded	Crowding of workspace	Organizes = 2
Hesitates, butter	Hesitates to start spreading butter	Initiates = 2
Start-stop-start	Starts to spread, stops, starts spreading again	Continues = 2
Bangs hand on jar	Bangs hand on jar when reaching for knife	Navigates = 2
Gather 1X	Gathers one object at a time	Gathers = 2
Water on off	Repeatedly turned water on and off	Adjusts = 2
Slow?	Overall pace of actions possibly slow	Paces = 3
Drawer open	Left drawer open; delayed closing it	Notices/Responds = 2
Drawer open, never close	Left drawer open; never closed drawer	Notices/Responds = 1

For example, the notes in Table 3-5 enabled the examiner to score **Chooses** = 4 (based on gathering the preselected ingredients), **Uses** = 4 (based on using a "knife as a knife," etc.), **Gathers** = 2 (based on gathering only one item each time and to nonadjacent workplaces), **Organizes** = 2 (based on gathering items into nonadjacent workspaces), **Continues** = 2 or 1 (based on beginning to cut the lettuce, stopping to cut the radishes and tomato and then returning to the lettuce; a score of 2 vs. 1 depends on the length of the delay), **Terminates** = 2 (based on tearing far too much lettuce), and **Sequences** = 2 or 3 (based on the examiner's judgment of the logic of the ordering of the steps: cutting lettuce before getting bowl, adding radishes and tomato before finishing lettuce). These notes also can be used to score the Adaptation skill items.

Table 3-5 Recording Object Use and Spatial-temporal Organization of the Task Performance

-
- Open refrigerator
 - Lettuce → counter
 - Tomato → table
 - Knife → counter
 - Cut lettuce
 - Bowl → table
 - Lettuce → table
 - Knife → table
 - Radishes → counter
 - Radishes → table
 - Cut radishes → bowl
 - Cut tomato → bowl
 - Cut radishes → bowl
 - Tear, tear, tear lettuce → bowl
-

The examiner can also *draw a floor plan* to supplement the previous note-taking strategy for recording the spatial-temporal organization of the client's AMPS task performance. More specifically, if the key work areas are numbered, the examiner can more readily record the client's actions in time. Using the example in Table 3-5, the examiner might draw the kitchen and number the refrigerator 1, counter by the sink 2, table 3, and so on. Then, the examiner could record the gathering of the lettuce, tomato, and radishes, as follows:

- Lettuce 1 → 2 → 3
- Tomato 1 → 3
- Radishes 1 → 2 → 3

The examiner also can draw a line directly on the floor plan to track the client's movements from the refrigerator (lettuce), to the counter, to the refrigerator (tomato), to the table, to the counter (knife), to the table (bowl), and so on.

3.10 Terminating the AMPS Observation

Observations may be either client terminated or examiner terminated. Client termination is most common. Typically, the client determines when he or she is finished and gives some indication of that fact. That is, most clients will gesture or say that they are finished. Occasionally, however, the client will just stop the ongoing performance process without completing the task.

If it is not clear to the examiner whether or not the client is finished, the examiner may ask, “**Are you finished?**” The examiner should remain aware that asking the client if he or she is finished may suggest to the client that the examiner feels that there *is* something more to be done. As noted in section 3.11.4, there is a special scoring rule for Restores should the client proceed to *initiate* restoration of the workspace after being asked if he or she has finished. That is, *the client is scored based on the need for intervention*.

In most instances, examiner termination is used only when there is *imminent risk* of damage or danger to the client or to the environment, or the client’s task *performance persists beyond acceptable limits* or to the point of *unacceptable delay*. The examiner should not terminate the ongoing performance process under any other circumstances.

Generally, total task performance breakdown is not sufficient reason to terminate the observation, for the client will spontaneously terminate the task him- or herself. Situations in which the examiner may be tempted to terminate the observation, but should not do so, include those where the client’s performance is markedly disrupted or the outcomes are unacceptable, but (a) there is no risk of damage or danger to the client or the environment, or (b) the amount of time the client is taking is not unacceptable. Further details are presented in Table 3-6.

3.11 Scoring the AMPS

3.11.1 AMPS Rating Scale

The rating scale for the AMPS skill items is based on the following criteria, which is further clarified in the matrix shown in Table 3-7:

4 = Competent performance that *supports* the action progression and yields good outcomes. There is no doubt in the examiner’s mind but that the client’s performance is competent.

Table 3-6 Terminating the Observation

Client Behavior and Existing Conditions	Examiner Response
Client says, "I'm finished," but restoration is not complete.	"Okay, fine." Do <i>not</i> point out that restoration is incomplete. (Score accordingly.)
Client self-terminates task performance before essential goal is realized (e.g., client makes coffee, but does not prepare the toast).	Score accordingly.
Client stops task performance, but the examiner is not sure if the client is done.	"Are you through?" (Score accordingly, based on what actions were observed both before and after intervention.)
Client's performance deteriorates and task breakdown occurs before task is complete.	Let performance come to natural conclusion and score accordingly. Examiner might comment, "That's fine."
Client's performance deteriorates to point of unacceptable delay.	"I think you can stop now." (Score accordingly.)
Client is in obvious distress or at risk of injury.	"I think you better stop now." (Score accordingly.)
Client performance persists beyond acceptable limits (client begins to make several sandwiches or to vacuum additional rooms beyond what was specified in the contract).	"You can stop now." (Score accordingly.)

- 3 = Questionable performance that *places the action progression at risk* and yields uncertain outcomes that cause the examiner to question the adequacy of performance. Usually, the examiner has a sense of uncertainty regarding the client’s ability or the impact of the action on the task performance.
- 2 = Ineffective performance that *disrupts* or interferes with the action progression and yields undesirable outcomes (i.e., performance that clearly affects progression, even when the effect on the progression or the end-product is mild or subtle). The examiner may observe performance that suggests the potential for future unsafe practice.
- 1 = Markedly deficient performance that *impedes* the action progression and yields unacceptable outcomes (i.e., performance that has a marked impact on the progression or the outcomes). The examiner observes an unacceptable delay, an unacceptable level of difficulty, an imminent risk of damage or danger, or breakdown of task progression, or the examiner needs to intervene.

Table 3-7 AMPS Skill Item Rating Scale Criteria

Score	Quality of performance	Impact on action or task progression	Outcome yielded
4	Competent	Supports Facilitates	Good No evidence of problem
3	Questionable	Possibly interferes Places at risk	Uncertain Possible problem
2	Ineffective	Disrupts Interferes Interrupts	Undesirable use of time Undesirable amount of effort Potential for unsafe performance
1	Markedly deficient	Results in unacceptable outcome Impedes Blocks Obstructs Brings about imminent damage or danger	Unacceptable use of time Unacceptable amount of effort Task breakdown Imminent safety risk Need for assistance

3.11.2 Task Component Definitions Considered in Scoring

Motor and process skills are evaluated through observation of a client performing a specific task, such as repotting a plant or making a sandwich. Tasks are conceptualized as consisting of universal taxonomies of observable operations (the ADL motor and ADL

process skill items) that interact to support actions that combine to form steps, and steps that combine to form tasks. More specifically, tasks, steps, and actions are defined as follows:

- **Task:** a *series of steps* that, when completed, result in reaching the goal and completing the “essential task” as specified in Vol. 2, Chapter 2, AMPS Task Descriptions. The task is typically “named” by a listing of the essential performance elements of the task (see Vol. 2, Chapter 3, AMPS Task Notes).
- **Step:** a *series of goal-directed actions* that, when completed, result in performance of a recognizable end-product that can also be recognized as part of the essential task (e.g., water a plant as part of the task of repotting the plant, butter a slice of bread as part of the task of making a sandwich, cut up onions as part of the task of making a salad, fold a shirt as part of the task of folding laundry). Steps are usually named by the goal (end-product) of the series of actions (e.g., water plant, butter bread, cut onions, fold shirt).
- **Action:** the *individual goal-directed actions* that represent units of steps (e.g., **grasping** handle of watering can, **lifting** watering can, **pouring** the water onto the plant, **spreading** butter; **cutting** an onion; **folding** a shirt). An *action sequence* is an action that is repeated over and over in series, as when one slices a carrot into several pieces. Each action (or action sequence) is named by both the action and the object that has been acted upon (e.g., **grasping** the *handle*, **lifting** the *watering can*).

Reliable scoring of several of the process skill items requires that the examiner be aware of how these task components are defined and apply to the following process skill items:

- Initiates: hesitates to start single *action* or *step*
- Continues: pauses during single *action* or *step*
- Sequences: logical ordering of *steps* of the task
- Terminates: completes single *action* or *step* at appropriate time
- Heeds: meets goal of *task*

A common point of confusion in scoring occurs when the name of the task (e.g., Task #L-1, Folding a basket of laundry) and an action or series of actions (e.g., folding) **have the same word root** (e.g., fold). When this occurs, it is often the case that terminating an action too soon (or too late) **also results in** the client not completing the specified task (terminating the task too soon). When this situation occurs, terminating the action or series of actions too soon or too late is scored under the process skill Terminates, and not completing the specified task is scored under the process skill Heeds. Additional examples of when there may be an overlap between Terminates and Heeds are as follows:

- Not scrubbing dishes long enough (Terminates) results in the dishes not being washed clean of food residue (Heeds).
- Not smoothing the wrinkles in the laundry (Terminates) results in the laundry not being fully folded (Heeds).
- Stopping ironing before the right sleeve has been ironed (Terminates) results in the shirt not being fully ironed (Heeds).
- Vacuuming and vacuuming (Terminates) results in the client vacuuming two rooms instead of just one (or the need for the examiner to intervene) (Heeds).

These instances where terminating the action (or series of actions) and terminating the task overlap are to be contrasted to the more common situation where the action and the task **do not have the same word root**. When the actions do not have the same root word, the client may be scored down on Terminates, but not Heeds, or Heeds, but not Terminates. Compare the following examples:

- If a client terminates the action of peeling a carrot prematurely, that behavior (terminating a step) is scored under the skill item **Terminates, but not Heeds**.
- If the client does not complete the task of making a salad (e.g., does not put the carrot in the salad or does not serve the salad), those behaviors (terminating the task too early) are scored under the skill item **Heeds, but not Terminates**.

3.11.3 General Scoring Considerations

Scoring the AMPS is accomplished in two phases.

- **Taking notes** during the observation of the client's performance and recording what was observed (strategies for taking notes were discussed in section 3.9).
- **Scoring** the client's performance on the 16 motor and 20 process skill items. This phase requires that the skill item definitions and scoring examples (see Vol. 2, Chapter 4, AMPS Skill Items) and the rating scale criteria (see section 3.11.1) be readily available and referred to by the examiner as he or she completes the scoring.

As the examiner scores the client's performance, **care must be taken to match the observed behavior to an example included in Vol. 2, Chapter 4, AMPS Skill Items**. Doing so will help the examiner to avoid scoring an observed behavior under a skill item that is not intended to reflect that behavior. For example, in the preceding section, we pointed out that certain skill items pertain to specific components of task performance. The skill item **Terminates** pertains to actions or steps; whereas, the skill item **Heeds** pertains to the task. Hence, if a client terminates the action of peeling a carrot prematurely, that behavior

(terminating a step) is scored under the skill item Terminates. In contrast, if the client does not complete the task of making a salad, that behavior (terminating the task too early) is scored under the skill item Heeds.

To assist the examiner in scoring the observed behavior under the correct skill item(s), we have included a *Note* at the end of the skill item definitions in Vol. 2, Chapter 4, AMPS Skill Items. In addition, we have included a list in *Vol. 2, Chapter 5* (General Rules for Scoring AMPS Skill Items and Skill Items Often Confused) of the AMPS skill items that are most often confused. The examiner is encouraged to refer to these notes and Vol. 2, Chapter 5 (General Rules for Scoring AMPS Skill Items and Skill Items Often Confused) during the scoring of the AMPS in order to ensure valid and reliable scoring.

As the examiner scores, he or she must keep in mind that the AMPS is a *riterion-referenced* (not a norm-referenced) assessment. Therefore, the client is scored based on the observation of ADL motor or ADL process skill actions that indicated the presence of increased effort, decreased efficiency, decreased safety, or decreased independence. Both the individual skill items and the task performance is considered.

The criterion of reference against which the client is to be scored is competence. Competence is defined as the absence of observable impact on the goal-directed action (skill item) being performed. Therefore, even if it is common for healthy, well adults to demonstrate increased effort or decreased efficiency when performing a goal-directed action in the context of an ADL task performance, under no circumstances is the client's performance to be scored relative to the normative performance of any subgroup (e.g., well adults, clients at high risk for or with known motor and process skill deficits) — *we never* score a client, saying (implicitly or explicitly), “He did pretty good when I compare him to other persons who have had a stroke,” or “Most well people do that, so I gave her a score of 4.”

Finally, when assigning ratings, the examiner must remember that each rating focuses on the action defined by the skill item being rated and not on overall task performance. Further, when making the rating, the examiner should take into consideration (a) the quality of the performance within the context of each skill item, (b) its influence on the progress of task performance and other skill items, and (c) the outcome it yielded. These outcomes may be the intended results of the action, the step, or the task as a whole (i.e., how well the step/task was completed; the quality of the end-product; or some unintended result such as disruption, danger, or damage that actually occurred, or potentially could have occurred, because of the person's performance).

The following guidelines will assist the examiner in correctly using the scoring examples in Vol. 2, Chapter 4, AMPS Skill Items:

- Be sure to ***match the behavior observed*** with a scoring example in Vol. 2, Chapter 4, AMPS Skill Items.
- Do ***not create your own definition*** of the skill items (e.g., do not assume Attends pertains to attending to the goal of the task when Attends pertains to distractibility and the concept of having one's attention directed away from the task; it is Heeds that pertains to goal-directed performance).
- Begin by reading the ***key concepts*** and the ***global skill item definition*** to determine if the behavior observed matches the definition of the skill item. If it does not, look for a match among the other skill items.
- Be sure to ***read the Note*** (located after the rating scale criteria for each skill item) so as to be sure whether the behavior observed should be scored under this skill item, under another skill item, or both.
- Follow by reading the ***scoring examples for a score of 2*** to verify that they match, in concept, the behavior observed. If they seem to match, read the ***scoring examples for a score of 1*** to be sure that the behavior observed is not more appropriately scored 1 instead of 2.
- Do ***substitute words in the scoring examples*** (as long as the core meaning is not changed) to create a new scoring example that matches the behavior observed. Remember that it is impossible to provide examples of all the behaviors that an examiner might observe. Examples of how the examiner might substitute words are as follows:
 - Example 2.2 in the manual for Searches/Locates — “search a closet a second time to find the broom . . .” — might be changed to “search a cupboard a second time to find the plate.”
 - Example 2.3 in the manual for Positions — “position the body or wheelchair too far from the workspace, interfering with reaching or gathering task tools or materials” — might be changed to “position the body too far from the table, resulting in awkward body position when reaching for a glass.”

3.11.4 General Rules for Scoring Skill Items

Some of the AMPS task descriptions in Vol. 2, Chapter 2, AMPS Task Descriptions have ***task-specific special rules*** for scoring certain skill items. In addition, the following ***general rules*** will assist raters in reliably scoring the AMPS:

1. ***When in doubt between two scores, give the lower score.*** The examiner should keep in mind that two observation periods of 10 to 20 minutes each are limited samples of a client's performance. The examiner, therefore, should score critically. Even if overall performance on a given motor or process skill item is higher, base the score on the most

problematic performance observed. The goal of the assessment is to target problems for intervention in the context of the overall ability of the individual. Implications for therapy will be more easily identified if the examiner scores the assessment strictly.

2. ***No opportunity to observe a skill item should not be confused with failure to observe problems in skill item performance.*** The examiner should attempt, therefore, to rate all motor and process skill items according to the quality of performance actually observed. The motor skill item ***Transports*** is the ***only*** skill item where there may be no opportunity to observe the component action. If this situation arises, Transports is not scored.
3. For some tasks, there is a ***special rule in Vol. 2, Chapter 2, AMPS Task Descriptions*** not to score the process skill item ***Restores***; otherwise Restores is scored.
4. For some skill items, there are ***special notes*** or ***scoring examples in Vol. 2, Chapter 4, AMPS Skill Items*** that address special circumstances that may arise. For example, if the client comes to the observation session in a wheelchair and remains seated throughout the observation, the examiner does not have the opportunity to observe the motor skill item ***Walks***. As noted in Vol. 2, Chapter 4, AMPS Skill Items, the examiner rates the motor skill item Walks as ineffective (score = 2) based on the assumption that the client has a walking skill deficit.
5. When a client ***attempts an action, but is unable to carry out the action***, that skill item is scored as markedly deficient (score = 1). For instance, an individual who is observed attempting to stand and walk, but who is at imminent risk of a fall upon doing so, is scored by the examiner as markedly deficient on the motor skill item Walks.
6. The motor skill item ***Coordinates*** is scored based on whether or not the client effectively uses two body parts to stabilize objects during actions that require the use of two body parts. For example, an individual with a paretic upper limb as a result of a stroke may be ***unable to perform bilateral actions using two hands***. This individual may be able to effectively stabilize objects using other body parts (e.g., between the knees, under the chin). If, however, the person ***does not attempt to use any other body parts***, Coordinates is scored as competent, questionable, ineffective, or markedly deficient, depending on the impact of not using two body parts during the task performance. ***This rule is an exception to the overarching rule*** for scoring AMPS motor skill items. The overarching rule specifies that the person must attempt to use one's paretic limb before the quality of the motor skill of that limb can be scored.
7. The client is not expected to use ***optimal energy-efficient methods***; performing a task efficiently does not require that the person use work simplification techniques.
8. The client's performance is ***not*** scored based on what the examiner thinks the client ***could have done, should have done, or might have done.***

9. Should the client perform *logical and otherwise appropriate steps* beyond the specified task (e.g., set the table, wash the dishes), **do not score performance on any steps performed beyond those specified as required for the task**. Statements made by the examiner when summarizing the task contract such as, “**You do not have to set the table**” or “**You do not have to wash the dishes**” leave open the option for the client to perform those added, but logical, components of the task specified. (*Note*. The client *is* scored on irrelevant or inappropriate performance when it changes the *essential aspect of the specified task*, e.g., serving a tuna sandwich with a glass of milk instead of just the tuna sandwich.)
10. **Not plugging in an appliance is scored under the process skill items Uses, Notices/Responds, and Adjusts**. For example, an iron that is not plugged in is not able to be used as an iron. The client had not noticed/responded to the iron not getting hot. Finally, the client did not turn on (plug in) the iron. The final score for these items is based on the final outcome (e.g., the plugging in was delayed vs. the iron was never plugged in).
11. As discussed in section 3.10, if *asking the client if he or she is finished* results in the client *initiating restoration* of the workspace, the client is scored based on the need for intervention (score = 1 on Initiates and Restores). There is one exception to this rule. If the client *already had initiated restoration* before he or she was cued, Restores would be scored as ineffective (score = 2) if the *majority* of the restoration was completed before the client was cued; Initiates would not be considered a problem as restoration was initiated.
12. In general, **the score for Accommodates should be as low as the lowest rating given on the other motor or process skill items**. There are two major exceptions to this rule. First, if a client was given a score of 1 on Restores because he or she did not complete restoration, but the client’s overall performance was such that he or she was given scores of 2 or higher on all other motor and process skill items, the score for Restores is not considered when determining the score for Accommodates. (*Note*. If the client *also* was given a score of 1 on Initiates because he or she *did not initiate restoration*, the score for Initiates also is not considered when determining the score for Accommodates.) Second, if the client’s lowest scores reflected problems more appropriately scored under the process skill item Adjusts (e.g., not plugging in an appliance, not turning a burner off), Accommodates may be higher than the client’s lowest scores.
13. **The score for Benefits can never be lower than the lower of the two scores given for Accommodates and Adjusts**. If a person receives a score of 1 or 2 on Benefits, this would mean that either the person’s accommodating skill or adjusting skill is also markedly deficient or ineffective (score = 1 or 2, respectively). A markedly deficient or

ineffective performance that occurs only once is reflected in lowered scores on Accommodates or Adjusts. Only when the problem persists or recurs is the score for Benefits also lowered.

3.11.5 Scoring Clients Who Need Assistance Before or During the Task Performance

When the AMPS is used to evaluate clients who need assistance, the examiner must carefully consider all skill items that are impacted by the provision of this assistance. For example, in most cases, the need for assistance reflects unacceptable effort, task breakdown, or an imminent risk for a fall. Such assistance is a form of examiner intervention. Therefore, all skill items that are *directly related* to the provision of assistance are scored as markedly deficient (score = 1).

Similar scoring considerations apply to *examiner or caregiver intervention that occurs before initiating the task observation* and that is required to accommodate for the client's physical or cognitive limitations (see section 3.7.5). That is, all skill item problems that result in the need for intervention related to task set-up should be scored based on the need for assistance (score = 1). For example, Larry is in a wheelchair and he is unable to reach the faucet (tap) or transport a watering can filled with water. Based on the need for the examiner to fill the watering can with water and place it near the workspace, Larry is scored markedly deficient (score = 1) on the motor skill items Reaches and Transports.

Another example is provided by Olivia (see Vol. 1, Chapter 6). The occupational therapist had taught Olivia's sister to place needed objects on the counter, within sight, so that Olivia could more easily find them. In Olivia's case, the relevant skill items were Searches/Locates and Chooses, so she was scored markedly deficient (score = 1) on these two skill items. Although her sister gathered the items to the counter, Olivia's problem was not with gathering. Therefore, Gathers is scored based on Olivia's ability to gather the items searched for, located, and chosen by her sister. As discussed in section 3.7.5, such environmental modifications related to initial task set-up only are implemented by the examiner when a client's physical or cognitive limitations severely restrict available task options or when set-up is a form of assistance (intervention) that is provided before the task performance was initiated.

3.11.6 Influence of Examiner Values

A common problem that results in low reliability is the judging of the client's performance based on the examiner's own values related to how one should perform the task being observed. Therefore, the examiner needs to be aware of the normal range of approaches or tools used to complete a given task and to score the client accordingly. This knowledge is obtained, in part, through experience observing a number of individuals from similar cultural backgrounds, with and without disabilities, perform the same tasks. Overall,

it is helpful if the examiner remembers that the client is rated on the *effectiveness of the performance* rather than on the exact method or tool that is used.

For example, people from Japan often make tuna sandwiches, a task more commonly identified with North America. When we observed people from Japan make tuna sandwiches, we observed a number of behaviors that might be viewed as unusual in North America (Goto et al., 1996). For example, several subjects rinsed the onion under running water before cutting it, and then *repeatedly rinsed* the knife and the onion pieces as they continued to chop up the onion. These subjects also tended to put *a lot more* onion in their sandwiches than do North Americans. Finally, many of the subjects used *chopsticks* to mix the tuna with the mayonnaise and onion. All of these behaviors would be expected within Japanese culture. Had we not been aware of this, we might have scored these subjects down on such skill items as Continues, Terminates, and Uses. However, when a person selects a tool not well-suited to the demands of the task, his or her score should be lowered on relevant AMPS skill items (e.g., Uses: uses chopsticks to turn over soggy, fragile French toast in a frying pan). (*Note.* Another example related to preparing boiled coffee is discussed in section 3.3.2.)

3.11.7 Interaction Between Motor, Process, and Social-interaction Skills on Task Performance

Finally, it is important to keep in mind that performance skills include motor skills, process skills, and social-interaction skills. The examiner, therefore, should score *motor* skills in relation to the appropriate *motor* skill items, and *process* skills according to the appropriate *process* skill items. The client should not be penalized because of poor social-interaction skills. In the latter case, this means that the client is not rated on how he or she inquires, only if he or she inquired in a manner that was effective. Also, when scoring particular motor and process skill items, consider the construct to which that skill pertains. For example, when a client is having difficulty opening a bread bag because he or she is not stabilizing the bag, the examiner must differentiate between the client's ability to recognize the need to stabilize (Handles — delay in holding or stabilizing an object), and the client's physical ability to stabilize the bag (Coordinates — increased effort or “grip slip” when using two body parts to stabilize an object).

3.12 Recording Demographic Data on the AMPS Scoring Form

The first section of the AMPS Scoring Form (see Vol. 2, Appendix D) is designed to gather pertinent data related to the client and the evaluation process that are needed for the AMPS computer-scoring software. This section should be completed before scoring the client's performance. Requested data include (a) the client's name; (b) the examiner who is

completing the observation and rating; (c) the client's ID; and (d) the client's age, ethnic origin, and gender. The client's major (primary) diagnosis also must be entered, and this is discussed in more detail below. Likewise, information about the task the client performed, the quality of his or her performance, and the client's overall functional level are to be filled in, and details about how to do this are discussed below.

3.12.1 Entering the Client's Diagnosis

The diagnosis(es) of the client will be needed for the AMPS computer-scoring software. *Each diagnostic category has been preassigned a specific computer code.* Therefore, it is important that the information entered be as accurate as possible. Moreover, since different methods and diagnostic labels are used in different regions of the world, we have had to adopt a universal scheme that can be used internationally. The coding scheme used in the AMPS computer-scoring software is included in Vol. 2, Appendix A, AMPS Diagnostic Categories.

As the examiner enters the client's data into the computer-scoring software, the examiner will be asked to enter the client's *major diagnosis*. The diagnosis entered as the major diagnosis should be the one that has the greatest impact on the client's *occupational performance* — usually the reason for the referral to occupational therapy. The diagnostic system we have developed requires that the examiner first select the *Diagnosis, Major: Group* (e.g., NEUROLOGIC - STROKE, ORTHOPEDIC/MUSCULOSKELETAL). Then the examiner is asked to enter the *Specific diagnosis* (e.g., Right-sided hemispheric stroke, Rheumatoid arthritis). In some instances, the examiner also will be asked to specify the specific *Sub-type*. For example, if the client's major diagnosis is multi-infarct dementia, the examiner should select

Diagnosis

Major:

Group COGNITIVE/MEMORY

Specific Dementia

Sub-type Multi-infarct or vascular dementia

The examiner should refer to Vol. 2, Appendix A when entering the client's diagnosis(es) into the computer. If the client has secondary or tertiary diagnosis(es) that also impact occupational performance, those should be entered into the computer, using the same guidelines as used to enter the major diagnosis.

The following are some guidelines to assist the examiner in entering the clients' diagnoses correctly:

- ***Only enter diagnoses that are clinically relevant.*** Diagnoses that have no effect on a client's daily life task performance, and are not apparent clinically, should not be considered (e.g., common hypertension, medically-controlled asthma, decreased visual acuity that is corrected by the use of glasses).
- ***Assign a diagnosis to a person who has not been given a specific diagnosis, but who clinically demonstrates symptoms suggestive of problems*** (e.g., memory loss, musculoskeletal problems, learning disability) that are affecting occupational performance. The examiner should use his or her best judgment as to the underlying problem that should be entered as the diagnosis.
- ***Assign the diagnosis of Well to clients who have no apparent problems*** and who have no prior significant recent histories of medical, psychiatric, physical, or cognitive conditions.
- ***Assign diagnoses to persons with significant histories of neuromuscular, biomechanical, cognitive, or psychosocial conditions***, even when the person is no longer demonstrating symptoms suggestive of problems. For example, if a person has had a right-sided hemispheric stroke, but his or her symptoms have resolved, that person should be assigned the diagnosis of right-sided hemispheric stroke.

3.12.2 Entering Information About the Task Performance

The date of the AMPS observation (Date of Evaluation) should be recorded on the score form. If the client is observed performing the tasks he or she performs on different days, use the same date if you intend to consider both tasks as a single assessment. Remember that an AMPS observation should be based on at least two AMPS task performances.

Since the client is observed performing more than one task during the AMPS observation, the order in which each task was performed should be indicated. This indication is accomplished by checking the number which represents the order of the task performance (e.g., first, second). Also record the number and title of the task which the client chose for the evaluation (e.g., Task #A-1, Beverage from the refrigerator). Finally, if during the course of the task performance, the client used mobility aids (e.g., wheelchair, workchair with wheels, cane, walker) for mobility, this should be indicated in the appropriate section.

3.12.3 Rating the Quality of the Client's AMPS Task Performance and Overall Functional Level

The examiner is asked to rate the *quality* of the person's performance of *each task performed for the AMPS observation* in terms of effort, efficiency, safety and independence using the 6-point rating scales presented in Vol. 1, Chapter 5, section 5.2. Finally, the examiner is asked to rate the subject's *overall ability to live in the community*. This

judgment should be based on all information available to the examiner and should not be based solely on the client's AMPS task performance. When testing *well children*, consideration is given to how much assistance they receive from parents and others. The specific guidelines for rating the client's overall functional level are presented in Vol. 2, Appendix C, Functional Level Rating Criteria.

3.13 Computer Scoring

Because of the complexity of converting a client's raw scores for two or more tasks into linear ability measures, while simultaneously adjusting those ability measures for the challenge of the tasks the client performed and the severity of the examiner who scored the client's performance, the AMPS must be computer-scored. Specific details regarding the installation and use of the AMPS computer-scoring software are included in the software manual that is provided with the software. The AMPS computer-scoring software may be used to generate several reports, including the following:

1. **Summary Report:** An evaluation summary report that summarizes the results of the AMPS observation.
2. **Raw Score Report:** A table of the client's raw scores that can be used to verify the accuracy of data entry and to compare raw scores across tasks.
3. **Graphic Report:** A visual representation of the client's ability measures plotted on the AMPS motor and process skill scales in reference to the cut-off measures indicative of evidence of problems that impact on performance. The client's ADL motor and ADL process ability measures for each requested evaluation are reported at the bottom of this report.
4. **Notes:** This report can be used by the examiner to prepare progress notes or other written reports to supplement the Summary Report. The title of the report generated with this component of the program is specified by the examiner.

Information about the use of these reports in planning intervention is presented in the case studies reported in Vol. 1, Chapter 6.