TEST MANUAL

FOR

EVERYDAY PROBLEMS TEST

FOR COGNITIVELY CHALLENGED ELDERLY

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List of Tables

Appendix A

Chapter I. Introduction

A. Description of the Measure

The Everyday Problems Test (EPT) for Cognitively Challenged Elderly assesses cognitively challenged older adults ability to solve tasks of daily living involving printed material. Test items represent seven domains of everyday activities in which competence is considered essential in order to live independently in our society: Medications, phone, finances, shopping, transportation, household, and meal preparation and nutrition. The subject is shown a stimulus material (e.g., drug label, itemized phone bill) associated with a task commonly encountered by the elderly and asked to solve two problems related to the stimulus material. The range of item difficulty is broad enough to assess both the diminishing competencies of the cognitively impaired (e.g., early dementia patients), and the intact low SES nondemented elderly, with an educational level below twelfth grade. The test was designed to be brief enough to be administered to cognitively impaired elderly with short attention spans and low tolerance for ambiguity.

The EPT for Cognitively Challenged Elderly provides an *objective assessment* of everyday competence in complex tasks of daily living. Functional competence has typically been assessed indirectly though subjects self-report or reports of family members, in instances of increasing disability. While valuable, self-ratings of competence to perform complex tasks of daily living have several limitations. Normal elderly tend to overestimate their level of functional competence, when compared with clinician s ratings of competence (Fillenbaum, 1978; Ford et al., 1988). Impaired elderly diagnosed as having an organic disorder have been found more likely to overestimate competence, whereas those with a functional disorder were more likely to underestimate performance (Kuriansky et al., 1976). The traditional self-ratings involve a 3- or 4-point rating scale, leading to restriction of range, and providing limited information on the range of variability in impairment.

The few instruments that have been developed, such as the PPG Instrumental Activities of Daily Living Scale (Lawton, 1972) and the Performance of Activities of Daily Living Scale (Kuriansky et al., 1976) are limited in scope in that they focus primarily on rudimentary skills related to self or institutional care, but neglect assessment of specific *higher-order cognitive competencies* required in everyday activities of community dwelling elderly.

B. The Construct of Everyday Competence.

Everyday cognitive competence is defined as the ability to perform cognitively complex tasks of daily living. Competence is integral to one s ability to function independently and effectively in our society. Loss of everyday competence is associated with greater health service utilization and institutionalization (Wolinski, Callahan, Fitzgerald, & Johnson, 1992), and is the cardinal diagnostic feature of dementia (American Psychiatric Association, 1987). Most low functioning elderly, and many in the early phases of dementia are community-dwelling, sometimes living alone, and attempting to perform cognitively demanding everyday tasks (e.g.,

driving, taking medications, managing financial affairs). Indeed, it is the person s inability to perform cognitively demanding everyday tasks that frequently motivates spouses and adult children to seek assessment and diagnoses.

Decline in everyday competence. The loss of everyday competence is likely to begin to occur relatively *early* in the process of age- or disease-related decline. In longitudinal studies of normative aging, abstract reasoning abilities, which have been shown to underlie everyday problem solving (Willis & Marsiske, 1991), exhibit relatively early patterns of decline, beginning, on average, in the mid-sixties, compared with later average decline in verbal abilities (Schaie, 1991). Abstract reasoning ability, in addition, shown a strong positive cohort trend, so that low functioning nondemented elderly are at double jeopardy due to cohort differences and relatively early onset of normative decline in those abilities most associated with everyday cognition (see Chapter V, Relation of EPT to mental abilities).

Dementia and everyday competence. Mental impairment typically appears earlier in the progression of dementia than severe physical or motor disabilities. Decline is often noted in first in *cognitively higher-order instrumental activities of daily living* , prior to decline in self-maintenance tasks (ADLs; Ashford, Hus, Becker, Kuman & Bekian, 1986; Reisberg, Ferris, DeLeon & Crook, 1982). Although mental impairment often appears first *cognitively complex* tasks, and loss of everyday competence is the hallmark of dementia, traditional clinical and neuropsychological measures have focused largely on *basic or molecular cognitive* processes of interest in diagnosis or in assessing the severity of clinical impairment (Folstein et al., 1975; Mattis, 1976). Judgments as the subject s functional competence in everyday contexts have often been derived from these measures. These judgments have played a significant role in legal proceedings, including guardianship of person and property.

There are limitations in use of clinical and neuropsychological instruments for making inferences regarding everyday competence (Lowenstein et al., 1989). Limitations in the range of functioning assessed by clinical measures have been noted both in very early and in late phases of the disease (Ashford et al., 1986; Vitaliano, Breen, Albert, Russo & Prinz, 1984). Test items often do not represent a sufficient range of difficulty to discriminate reliably cognitive deficits in early dementia patients, who may be functioning quite adequately in many areas, while a floor effect on items may be observed late in the disease progression. In addition, because many of these instruments were based on models of general cognition or brain function, they may fail to be sensitive measures of specific functional competencies and subskills required in daily living. Alternatively, low educated, low SES elderly or those suffering from problems other than dementia may exhibit low scores on traditional measures for reasons other than dementia (Wilson, Grant, Witsey, & Kerridge, 1973).

Chapter II.   Development of the Measure

A. Domains of Everyday Competence

In order to live independently in our society, the adult is expected to perform competently in seven domains of activities of daily living: Medications, phone, finances, shopping, transportation, household, and meal preparation and nutrition (Duke, 1978; Fillenbaum, 1985). The EPT for Cognitively Challenged Elderly includes problems associated with each of the seven activity domains.

B.   Item Development and Item Selection

An initial item pool of 212 test items was developed. A pair of items was developed for each of 106 printed stimuli (e.g., prescription drug label, bus schedule, tax form). The 106 item pairs were developed to represent the seven domains of activities of daily living described above: Food Preparation, Medication and health behaviors, Telephone Use, Shopping and Consumer Behavior, Financial Management, Housekeeping and Laundry ability , and Transportation ability. Approximately equal number of items (N = 15 item pairs) were developed for each of the seven domains.

1. Item selection. The 106 item pairs were administered to two samples of nondemented older adults, living independently in the community. The combined sample (N = 201) constituted a representative sample of older adults, stratified by age and education (U.S. Census, 1989; see Chapter IV for sample description).

2. Item reduction. The objective was to develop a measure of everyday competence with a broad enough range of difficulty to assess the diminishing competence of cognitively impaired elderly, yet also the competence of low functioning nondemented elderly. 32 items were selected with 8 items answered correctly by approximately 90%, 80%, 70%, and 60%, respectively, of the combined sample. A number of criteria were considered in item selection: 1) Item-total correlations, while maintaining an acceptable level of alpha; 2) Item difficulty and item discrimination values derived from one- and two-parameter models in item analyses (Rasch, 1960; TESTAT, 1990); 3) Representation of all seven domains of activities of daily living; and 4) Face validity. Experts from three professional areas (Physical and Occupational Therapists, Senior Center Directors, and Senior Housing Managers), as well as a panel of older adults, examined the initial set of 106 printed stimuli and rated them for importance for everyday independent living (see Diehl, Willis & Schaie, 1990, for a complete description of these ratings). Item statistics, including Cronbach s alpha, item-total correlations, and the proportion of subjects answering each item correctly for the total sample and for the low educated subgroup (≤ 12 years education) are reported in Chapter VI.

C. Test-retest Reliability

Two months after the first assessment, 85 nondemented subjects were retested. The test-retest reliability for the total sample was $r = .94$, with Spearman-Brown correction. The test-retest reliability for low educated subjects was $r = .93$, with Spearman-Brown correction.

D. Item Analyses

Item analyses were conducted, involving one- and two-parameter models, using TESTAT (SYSTAT, 1990). Item difficulty and person ability scores were computed for the total sample (N = 201) and for the low educated subgroup (N = 87), for both the one- and two-parameter models, and are reported in Appendix A. Item discrimination indices were computed for the two-parameter model (see Appendix A). Given that the measure was designed for cognitively challenged elderly, it was desired that the measure be relatively easy for a representative sample of elderly. Item difficulty indices indicate items were relatively easy for the total sample (M = -1.70; SD = 1.12), but somewhat more difficult for the low educated subgroup (M = -1.29; SD = 1.10). Discrimination indices were acceptable for the total sample (M = .816) and higher, as desired, for the low educated subgroup (M = .906).

The fit of one- and two parameter models was examined for the total sample (N = 201) and the low educated group (N = 87). For the total sample, there was no significant difference (Δ = 37.68; df = 32; p < .20) for the one- (χ = 2232.10) and the two-parameter (χ = 2194.42) models. Similarly, for the low educated subgroup there was not a significant difference (Δ = 23.29; df = 32; p < .20) for the one- (χ = 1149.77) and two-parameter models (χ = 1126.48).

E. Readability Level of the Measure

The readability level of the measure, assessed by a reading specialist at the Penn State Adult Literacy Institute is at the 8th grade level, well below the median educational level of the average older adult. It is important to distinguish this measure from traditional literacy measures. The EPT is not similar to most literacy measures, in that most measures assess prose literacy, while the EPT was specifically developed to assess document literacy (involving nonprose material, such as charts, forms, directions, etc.) on age-relevant topics. The distinction between prose and document literacy is critical. Although documents literacy is the least studied form of literacy, adults spend more time reading documents than any other type of material both in the home and workplace (Burch & Grudnitski, 1986; Guthrie, Seifert & Kirsch, 1986). The implications of low documents literacy, particularly in low functioning elderly, is illustrated by the findings that 24% of elderly failed to understand a prescription label (Murray, Darnell, Weinberger & Murtz, 1986) and 33% of adults could not comprehend a medicare form (Robeck & Wilson, 1974). Since document literacy is often erroneously equated with prose literacy, it is incorrectly assumed that verbal ability is one of the most salient correlates of performance. However, research with young adults (Guthrie, 1989), as well as our research with normal elderly, indicate that abstract reasoning (involving working memory) is more salient than verbal ability in accounting for variability in document literacy (Willis, Jay, Diehl & Marsiske, 1991). Since ability to solve tasks involving abstract reasoning and working memory are likely to drop out in dementia patients (unless they are aphasics) prior to their ability to solve verbal tasks (e.g., naming), document literacy as represented by the EPT is of particular interest in the study of dementia (Ashford, Kolm, Colliver, Bekian & Hsu, 1989).

Chapter III: Administration of the EPT for Cognitive Challenged Elderly

A. Use and Users

1. _Research setting_. This measure has been designed primarily as a research instrument. The instrument should be useful in addressing such research questions as: Differences in performance level among various cognitively challenged and impaired groups; Age- or disease-related change in performance; Risk factors associated with performance and change in performance level; Relationship to other cognitive and clinical measures currently in use with the elderly.

2. _Clinical setting_. Although this measure has had more extensive test development than many instruments frequently used with the elderly, the authors believe further test development and larger sampling of various cognitively challenged populations prior to its employment in clinical settings in decisions regarding individual patients.

B. Assessment Procedure

1. _General Instructions_. At the beginning of the test, a brief description is given to the subject, in order to orient him/her to the task. This description is found on the Scoring Sheet. For each item, the stimulus material is placed in front of the subject. The examiner introduces the material (e.g., " This is a medicine bottle label"), and asks the subject two questions. The items are presented in order, allowing up to 60 seconds for a response.

2. _Cue for Questions_. If the subject does not respond after 60 seconds, the subject is asked if he/she can point to where the answer is found in the material. The examiner records on the Scoring Sheet whether a cue is given and whether the answer is right or wrong with a cue (i.e., circles RwC or WwC), and writes down the place in the material to which the subject pointed. The prompting procedure may be useful for subjects having difficulty articulating the answer, or for subjects that are unsure of themselves and are hesitant to verbalize a response.

3. _Starting Point_. The test covers a wide range of difficulty levels, in order to assess functioning in cognitively impaired elderly, as well as elderly who may be cognitively intact, but functioning below average due socioeconomic reasons (e.g., low education). A procedure similar to that employed in the Bailey Developmental Scales for children and in the Stanford-Binet Intelligence Scale is used, that is, the start point for assessment varies by the cognitive level of the subject.

a. _Intact elderly_. If the subject appears cognitively intact, with no known or suspected cognitive impairment, the tester should begin the test with Item # 5. Most intact elderly would be expected to answer the first 4 items correctly, since 90% of low SES nondemented elderly answered the first 4 items correctly (see Table 4 below). If the subject answers incorrectly or does not answer 50% or more of the next four questions (Item # 5,6,7,8), then the tester administers Items 1-4.

   b. Cognitively impaired elderly. If the subject is known or suspected to be cognitively impaired, then the tester should begin with Item 1.

   4. Stopping point. The tester should stop after 4 consecutive item failures.

C. Scoring Procedures

   On the score sheet (see Appendix A) the examiner writes down verbatim the subject's response for each item, and circles whether the item was answered correctly, and whether a cue was given.

   1. Test scores. Depending on the research question being addressed, the researcher may use the raw total score (each item scored dichotomously), the percentage correct, or the person ability scores derived from item analyses.

   2. Person ability scores. Person ability scores, derived from item analyses using TESTAT (SYSTAT, 1990), have been computed for both a total sample (N = 201) and a low SES sample (N = 90). Person ability scores have been computed for both one- and two-parameter models. Since no significant difference in fit of the model was found for the one- and two-parameter models (see Chapter II), the one-factor model can be employed (see Tables 7 and 8 in Appendix A).

D.   Item Description

   Items were developed to assess older adults ability to solve problems in activities of daily living, involving printed materials. The content of the items represents the seven activity domains in which competence is considered essential in order for the older adult to live independently in our society. Table 1 presents a description of the 32 items.

TABLE 1

DESCRIPTION OF ITEMS

ACTIVITY DOMAIN	STIMULUS	QUESTION/PROBLEM
Phone usage	Chart: Emergency Phone Numbers	1. If you lived in Spring Mills and if your neighbor fell and broke her hip, what number would you need to dial? 2. If you were in Reversburg and your car was broken into, what number would you dial?
Medications/ Health	Directions: Use of Liquid Laxative	3. How much of this medication should you give to children? 4. To get the most benefit, for how many days should you use this product?
Household	Directions: Toaster Cleaning & Safety Instructions	5. Before cleaning the outside of the toaster, what should you do? 6. If your toaster and coffee maker are plugged into the same outlet, why might your toaster not work?
Finances	Form: Health Enrollment Form	7. Where would you indicate that your Blue Cross plan pays for your medications? 8. If you were a black woman living in your own home, where would you indicate this on the form?
Meal Preparation 18-	Directions: Turkey Thawing Instructions	9. According to these directions, how long would it take to thaw a 12 lb. turkey using the cold water method? 10. If you have no refrigeration in which to thaw an pound turkey for tomorrow s dinner, how should you prepare the turkey for thawing?
Phone	Chart: Itemized Long Distance Telephone Bill	11. To what phone number was the greatest number of calls made? 12. What is the name of the phone company that provides local phone service?
Consumer	Form: NRP Membership Application	13. If you buy a membership for the period 1990 to 2000, how much would you pay? 14. If you are married and decide to join NRP, how much would your partner have to pay?
Finances	Directions: How to Apply for Food Stamps	15. You are 59 years old and your spouse is 60. What is the maximum financial worth you can have and qualify for food stamps? 16. What must happen next after you return your food stamp application to the office?
Household	Chart: Choosing Furniture Polishing Products	17. What product should you use to hide imperfections in the finish? 18. What product should you use if you want the most protection available for your furniture?

Consumer	Form: Recipe Book Order Form	19. To order 2 Irresistible Desserts Recipe Books and 1 Vegetable Recipe Book, how much money should be sent?
		20. Which recipe book might be more useful if one were planning an anniversary celebration or a St Patrick s Day event?
Transportation	Directions: Procedure If Involved in an Accident	21. What monetary information should you get from a person involved in an accident if he/she doesn t have insurance?
		22. If you have an accident in the middle of an intersection, but your car will run, what should you do with your car?
Transportation	Directions: Driver s Right of Way Laws	23. If you are continuing on the same road through an intersection, who should yield to you?
		24. Who has the right-of-way if you are making a right turn on red and a jogger is crossing with the light?
Meal Preparation	Chart: Comparison of Cereal Brands	25. If you are concerned about both low cost and low calories, which product would be the best choice?
		26. If your doctor prescribes a diet low in salt and low in calories, which product should you definitely not purchase?
Medications/ Health	Directions: Use of Cough Medicine	27. What is the maximum number of teaspoons you should take in 24 hours?
		28. Mr. Jones smokes and has a smoker s cough. What is the maximum number of doses he should take per day?
Phone	Form: Telephone Service Application	29. How many Directory listings can you request for each new phone line without additional charge?
		30. If you make many local calls, which usage option might be best for you?
Medications/ Health	Chart:Energy Expenditure of Healthy Adult	31. If your job were one in which you had to stand quietly for a 4 hour shift, about how many calories would you use in 4 hours?
		32. It takes you 30 minutes to clear your driveway of snow. About how many calories did you use?

Chapter IV: Normative Data

A. Description of Samples

The EPT for Cognitively Challenged Elderly has been studied with a sample of nondemented community-dwelling elderly, and with one small sample of community-dwelling Alzheimer s patients.

Nondemented elderly. The mean age of the nondemented sample (N = 201) was 74. 23 (SD = 7.06; Range = 60-93 years). Approximately one-half of the sample (N = 106) were young-old (Age range 60-74) and the remaining (N = 94) were old-old (Age range 75-93). The mean educational level was 13.4 years (SD = 2.97; Range - 5-22 years). 52% of the young-old had ≤ 12 years of education; 40% of the old-old had ≤ 12 years of education. The median income range was $16,000 to $17,999. Subjects rated on a 6-point likert scale their general health (M = 2.09, SD = .98), vision (M = 2.53, SD = 1.05), and hearing (M = 2.47, SD = 1.15), on average, as good. Subjects were asked to indicate which of the eight IADL domains (medication, meals, finances, shopping, phone, household, laundry, transportation) they perceived themselves to have some limitation (i.e., need some assistance). On average, subjects reported some limitation in 1.46 (SD = 1.23) domains of the eight domains.

Low SES/Low Educated nondemented elderly. The low educated elderly are a subgroup (N = 90) of the total nondemented sample that is of special interest. The mean age of the sample (N = 90) was 72.29 (SD = 7.20; Range = 60-89 years). The mean educational level was 10.87 years (SD = 1.72; Range = 5-12 years). The median income range was $12,000 to $13,999. Subjects rated on a 6-point likert scale their general health (M = 2.31, SD = 1.02), vision (M = 2.75, SD = 1.05), and hearing (M = 2.52, SD = 1.14), on average, as good. Subjects were asked to indicate which of the eight IADL domains (medication, meals, finances, shopping, phone, household, laundry, transportation) they perceived themselves to have some limitation (i.e., need some assistance). On average, subjects reported some limitation in 1.50 (SD = 1.26) domains of the eight domains.

Alzheimer s patients. The EPT was piloted with 20 community-dwelling elderly with a diagnosis of probable Alzheimer s by NINCDS-ADRDA criteria (McKhann, Drachman, Folstein, Katzman, Price, & Stadlan, 1984). Subjects were recruited at the Stanford NIMH Clinical Research Center for the Study of Senile Dementia. Median age of AD subjects was 67 years (Range = 60-75 years); median educational level was 16 years (Range = 9-23 years). Median MMSE score at time of EPT administration was 17 (Range = 14-28).

B. Score Distribution by Age, Education, and Cognitive Status

Nondemented elderly. Table 2 presents for the N = 201 sample the proportion of items answered correctly for the Young-old (60-74 years) and Old-old (75+ years), stratified by educational level.

Alzheimer s subjects. Given the small sample (N = 20), a breakdown by age and education is not possible. AD patients answered correctly 48.7%, on average, compared to 80% correct for nondemented. Comparisons of nondemented and AD subjects by education and by age are shown in Tables 3 and 4.

TABLE 2

NONDEMENTED ELDERLY: PROPORTION ITEMS CORRECT BY AGE AND EDUCATION

AGE	EDUCATION				
	1-11 yrs	12 yrs	13-16 yrs	17+ yrs	Total
60-74	71.4 (22)	82.1 (35)	89.4 (42)	93.8 (7)	83.6 (106)
75+	54.9 (16)	68.9 (16)	82.6 (43)	85.5 (19)	76.1 (94)
Total	64.4 (38)	78.2 (51)	85.6 (85)	87.7 (26)	80.3 (200)

NOTE: N s in parentheses

TABLE 3

PROPORTION CORRECT BY AGE: NONDEMENTED AND AD SUBJECTS

STATUS	AGE	
	60-74 YR	75+ YR
NONDEMENTED	83.6 (106)	76.1 (94)
ALZHEIMER S	50.3 (15)	63.7 (4)

NOTE: Value for older AD subjects is based on small N

TABLE 4

PROPORTION CORRECT BY EDUCATION: NONDEMENTED AND AD SUBJECTS

STATUS	EDUCATION	
	1-12 YR	13+ YR
NONDEMENTED	72.4 (90)	86.1 (111)
ALZHEIMER S	31.6 (5)	60.8 (14)

Chapter V: Validity

A. Criterion-related validity

1. <u>Clinical assessment of everyday competence</u>. The relationship between AD patients EPT performance and clinicians ratings of functional competence was examined for two separate measures.

    a. *Brief Cognitive Rating Scale (BCRS)*. The BCRS (Reisberg, 1983) provides an estimate of the severity of the dementia syndrome through clinician ratings on five cognitive function questions: concentration and calculation ability; recent memory; past memory; orientation; and functioning/self care. The EPT should be more highly related to clinician ratings of the orientation and functioning axes. The EPT was found to be significantly correlated with clinician ratings of Orientation ($r = -.63, p < .001$), and Functioning/Self Care ($r = -.49, p < .01$); EPT was not significantly related to other BCRS domains: Concentration ($r = .07$); Recent memory ($r = .04$); Past memory ($r = .06$).

    b. *Global Deterioration Scale (GDS)*. EPT performance was significantly related to clinician ratings on the GDS ($r = .61, p < .02$).

B. Construct-related Validity

1. <u>Mental abilities.</u> The relationship between the EPT and cognitive performance has been examine with clinical measures for AD subjects, and with psychometric ability measures for nondemented subjects.

    a. *Mini-mental State Exam (MMSE)*. For AD subjects, a significant relationship between the MMSE and EPT was found ($r = .67, p < .001$).

    b. *Alzheimer Disease Assessment Scale (ADAS)*. For AD subjects, the correlation of the ADAS Construction Scale and the EPT was $r = .62, p < .02$; correlation with the ADAS Word Recognition Scale was $r = .43, p < .12$.

    c. *Psychometric mental abilities* The relationship between the EPT and psychometric measures of mental abilities have been extensively examined for nondemented elderly (Marsiske, Willis, Goodwin & Maier, 1992). The correlation between the EPT and four ability factors was: Memory ($r = .51, p < .0001$); Perceptual Speed ($r = .44, p < .0001$); Fluid Intelligence ($r = .73, p < .0001$); Crystallized/Verbal Intelligence ($r = .66, p < .0001$)

2. <u>Measures of Practical Intelligence</u>. For nondemented elderly (N = 54), the relationship between the EPT and two measures of practical intelligence was examined.

    a. *Practical Problems Test* (Denney & Pierce, 1989). The subject is presented with ten everyday problems and is asked to generate as many safe and effective solutions to each problem as possible. The score is the *number* of acceptable solutions. The Practical Problems Test and the EPT correlate $r = .25, p < .05$.

b. *Everyday Problem Solving Inventory* (Cornelius & Caspi, 1987). The subject is presented with 48 hypothetical problems. For each problem the subject must choose one of four responses, representing four coping styles: 1) Problem-focused action; 2) Cognitive problem analysis; 3) Passive-dependent behavior; and 4) Avoidant thinking and denial. The score is the *coping style*, not a correct solution to the problem. The Everyday Problem Solving Inventory and the EPT correlated $r = .16$

3. Locus of Control and Self Efficacy. Locus of control indicates to what extent an individual believes that outcomes or performances are due to his or her own doing, as opposed to forces outside the self. Those who believe their own actions are responsible for outcomes are said to have an internal *locus of control*, or belief in *self efficacy*. Those who believe that outside forces such as fate or powerful others are responsible for outcomes in their lives are said to have an *external locus of control*. The External Locus of Control of particular interest in aging is *Powerful Others* - the belief that one must depend on others for assistance in performing everyday tasks. It is expected that elderly with a high internal locus of control or belief in self efficacy should have higher scores on the EPT. The correlation between the Self Efficacy and EPT was $r = .36$, p < .001). The correlation between Powerful Others and EPT was $r = -.56$, p < .001, indicating that those believing that they needed to depend on others for assistance with tasks of daily living performed more poorly on the EPT.

4. Demographic Variables. The correlation between age and EPT for nondemented elderly (N = 201) was $r = -.20$, p < .004, indicating that the oldest elderly performed more poorly than the younger elderly. There was also a significant correlation with education ($r = .49$, $p < .0001$), indicating that those with higher levels of education had higher EPT scores. There was a significant correlation with income ($r = .43$, $p < .0001$), with higher incomes associated with higher EPT scores.

A similar pattern of relationships was found for the low educated subgroup. The correlation between age and EPT was $r = -.37$, $p < .0003$, indicating that the oldest elderly performed more poorly than the younger elderly. There was also a significant correlation with education ($r = .46$, $p < .0001$), indicating that those with higher levels of education had higher EPT scores. There was a significant correlation with income ($r = .35$, $p < .0009$), with higher incomes associated with higher EPT scores.

5. Self-rated Health. Nondemented subjects rated their general health, vision, and hearing on 6-point likert scales. Significant relationships occurred between EPT scores and ratings of health ($r = .28$, $p < .001$), vision ($r = .22$, $p < .002$), and hearing ($r = .20$, $p < .004$), with higher EPT scores associated with positive health ratings.

A similar pattern of correlations was found for the low educated subgroup. Significant relationships occurred between EPT scores and ratings of health ($r = .32$, $p < .002$), vision ($r = .23$, $p < .03$), and hearing ($r = .25$, $p < .02$), with higher EPT scores associated with positive health ratings.

6. Self-ratings of Functional Competence. Nondemented subjects were administered the traditional 3- or 4-point IADL questionnaire (Lawton & Brody, 1969) in which subjects rate their perceived competence (e.g., can do without assistance, with assistance, cannot do) in eight

IADL domains. A significant relationship ($r = -.28$, $p < .0001$) was found between EPT scores and number of IADL domains in which subjects reported a limitation (needed some assistance). For the low educated subgroup the correlation was $r = -.29$, $p < .005$.

The correlations between the EPT and various constructs are summarized in Table 5.

TABLE 5

CORRELATION OF EPT AND VALIDITY FACTORS

MEASURE	NONDEMENTED	ALZHEIMER S
Functional Measures		
BCRS (Clinician rating)		
Orientation	-.-.-	-.63***
Functioning	-.-.-	-.49**
GDS (Clinician rating)	-.-.-	.61*
Self-rating of IADLs	-.28***	
Cognitive Measures		
MMSE	-.-.-	.67***
ADAS		
Construction	-.-.-	.62*
Fluid ability (Gf)	.71***	-.-.-
Crystallized/Verbal (Gc)	.65***	-.-.-
Perceptual Speed (Ps)	.49***	-.-.-
Memory (Ms)	.49***	-.-.-
Practical Intelligence Measures		
Practical Problems Test	.25*	-.-.-
Locus of Control		
Self Efficacy	.30***	-.-.-
Powerful Others	-.43***	-.-.-
Demographic Variables		
Age	-.20**	-.-.-
Education	.49***	-.-.-
Income	.43***	-.-.-
Health Self-Ratings		
General health	.29***	-.-.-
Vision	.22**	-.-.-
Hearing	.20**	-.-.-

Chapter VI: Reliability

Data on the reliability of the EPT for Cognitively Challenged Elderly is only available for nondemented samples.

A. Cronbach's alpha

Chronbach's alpha for a representative group (N = 201) of nondemented elderly was α = .88. The alpha for the low educated ($\leq$ 12 yr) subgroup (N = 87) was α = .87.

B. Test-retest reliability

The two-month test-retest reliability for a sample of nondemented elderly (N = 85) was r = .94, with Spearman-Brown correction. The two-month test-retest reliability for low SES nondemented elderly (N = 61) was r = .93, with Spearman-Brown correction.

C. Item-Total Correlations

Table 6 presents proportion of subjects answering each item correctly, item-total correlations, and alpha for a large sample (N = 201) of nondemented elderly, and a subsample of low SES elderly (N = 90)

TABLE 6

EPT ITEM STATISTICS: TOTAL NONDEMENTED SAMPLE AND LOW SES SUBGROUP

ITEM	TOTAL SAMPLE			LOW SES GROUP		
	% CORRECT	ITEM-TOTAL	ALPHA	% CORRECT	ITEM-TOTAL	ALPHA
1	.97	.12	.868	.97	.18	.874
2	.96	.24	.864	.96	.19	.873
3	.89	.35	.863	.82	.38	.870
4	.94	.44	.860	.91	.56	.866
5	.94	.16	.866	.92	.15	.875
6	.90	.40	.861	.83	.48	.868
7	.94	.44	.860	.89	.51	.867
8	.92	.43	.860	.87	.43	.869
9	.86	.33	.863	.84	.30	.871
10	.79	.44	.860	.72	.42	.869
11	.82	.30	.864	.76	.29	.872
12	.85	.26	.865	.78	.28	.872
13	.86	.47	.860	.77	.53	.867
14	.70	.58	.857	.53	.59	.865
15	.83	.59	.857	.76	.63	.864
16	.89	.37	.862	.83	.36	.870
17	.91	.31	.863	.88	.45	.868
18	.80	.44	.860	.70	.51	.866
19	.75	.40	.861	.68	.46	.868
20	.79	.50	.859	.72	.53	.866
21	.67	.45	.860	.57	.44	.869
22	.81	.40	.861	.68	.39	.870
23	.78	.23	.865	.69	.13	.875
24	.77	.28	.864	.69	.23	.873
25	.67	.22	.866	.66	.19	.874
26	.66	.26	.865	.59	.23	.873
27	.63	.37	.862	.58	.37	.870
28	.70	.42	.861	.61	.48	.868
29	.73	.49	.859	.63	.49	.867
30	.63	.43	.860	.51	.46	.868
31	.64	.52	.858	.42	.47	.868
32	.56	.53	.857	.40	.50	.867

Appendix A

SCORING SHEET FOR EVERYDAY PROBLEMS TEST FOR COGNITIVELY CHALLENGED ELDERLY

Introductory Remarks to the Subject:

"This exercise involves the types of activities that you may do every day. I will show you some printed material and ask you two questions about the material. Let's practice on an example. Here is a copy of a medicine bottle label for Mrs. Hoover (Show Example A). How many pills should Mrs. Hoover take during one day?" (Give 60 seconds for response). (If no answer is given or subject responds he/she does not know, point to number 1 and say): "Mrs. Hoover should take 1 pill every day."

"Do you have any questions about what you are to do in this exercise? Let's begin."

TEST ITEMS:	RIGHT	CUE	WRONG
1. This is a chart of EMERGENCY TELEPHONE NUMBERS If you lived in Spring Mills and if your neighbor fell and broke her hip, what number would you need to dial? CUE: Can you point to the answer on the chart? ANSWER: _____	R	RwC WwC	W
2. If you were in Rebersburg and your car was broken into, number would you dial? CUE: Can you point to the answer on the chart? ANSWER:_____	R	RwC WwC	W
3.These are directions for TAKING A LAXATIVE. How much of this medication should you give to children? CUE: Can you point to the answer in the directions? ANSWER: _____	R	RwC WwC	W
4. To get the most benefit, for how many days should you use this product? CUE: Can you point to the answer in the directions? ANSWER:_____	R	RwC WwC	W

TEST ITEMS:	RIGHT	CUE	WRONG

5. These are directions for CLEANING A TOASTER. Before cleaning the outside of the toaster, what should you do?

    CUE: Can you point to the answer in the directions?

    ANSWER:_____

R   RwC WwC   W

6. If your toaster and coffee maker are plugged into the same outlet, why might your toaster not work?

    CUE: Can you point to the answer in the directions?

    ANSWER:_____

R   RwC WwC   W

7. This is a HEALTH ENROLLMENT FORM. Where would you indicate that your Blue Cross plan pays for your medications?

    CUE: Can you point to the section on the form?

    ANSWER: _____

R   RwC WwC   W

8. If you were a black woman living in your own house, where would you indicate this on the form?

    CUE: Can you point to the section on the form?

    ANSWER: _____

R   RwC WwC   W

9. This is DIRECTION FOR THAWING A TURKEY. According to these directions, how long would it take to thaw a 12 lb. turkey using the cold water method?

    CUE: NONE POSSIBLE

    ANSWER:_____

R   RwC WwC   W

10. If you have not refrigeration in which to thaw an 18 pound turkey for tomorrow s dinner how should you prepare the turkey for thawing?

    CUE: Can you point to the answer?

    ANSWER:_____

R   RwC WwC   W

TEST ITEMS:	RIGHT	CUE	WRONG

11. This is an ITEMIZED TELEPHONE BILL. To what phone number was the greatest number of calls made?

    CUE: Can you point to the answer in the chart?

    ANSWER:_____

R   RwC WwC   W

12. What is the name of the phone company that provides local phone service?

    CUE: Can you point to the answer in the chart?

    ANSWER:_____

R   RwC WwC   W

13. This is a NRP MEMBERSHIP APPLICATION. If you buy a membership for the period from 1990 to 2000, how much would you pay?

    CUE: Can you point to answer in the form?

    ANSWER:_____

R   RwC WwC   W

14. If you are married and decide to join NRP, how much would your partner have to pay?

    CUE: Can you point to the answer in the form?

    ANSWER:_____

R   RwC WwC   W

15. This is DIRECTIONS TO APPLY FOR FOOD STAMPS If you are 59 years old and your spouse is 60, what is the maximum financial worth you can have and qualify for food stamps?

    CUE: Can you point to the answer?

    ANSWER:_____

R   RwC WwC   W

16. What must happen next after you return your food stamp application to the office?

    CUE: Can you point to the answer?

    ANSWER:_____

R   RwC WwC   W

TEST ITEMS:	RIGHT	CUE	WRONG

17. This is a CHART FOR CHOOSING FURNITURE POLISH   R   RwC WwC   W
What product should you use to hide imperfections in the
finish?

   CUE: Can you point to the answer?

   ANSWER:_____

18. What product should you use if you want the most   R   RwC WwC   W
protection available for your furniture?

   CUE: Can you point to the answer in the chart?

   ANSWER:_____

19. This is a BOOK ORDER FORM. To order 2 Irresistible   R   RwC WwC   W
Desserts Recipe Books and 1 Vegetable Recipe Book, how
much money should be sent?

     CUE: CANNOT POINT TO ANSWER

     ANSWER:_____

20. which recipe book might be more useful if one were   R   RwC WwC   W
planning an anniversary celebration or a St Patrick s
Day event?

   CUE: Can you point to the answer?

   ANSWER:_____

21. This is DIRECTIONS IF INVOLVED IN AN ACCIDENT   R   RwC WwC   W
What monetary information should you get from a person
involved in an accident if he/she doesn t have insurance?

   CUE: Can you point to the answer?

   ANSWER:_____

22. If you have an accident in the middle of an intersection,   R   RwC WwC   W
but your car will run, what should you do with your car?

   CUE: Can you point to the answer?

   ANSWER:_____

TEST ITEMS:	RIGHT	CUE	WRONG
23. This is a statement of DRIVER'S RIGHT OF WAY LAWS. If you are continuing on the same road through an intersection, who should yield to you? CUE: Can you point to the answer in the directions? ANSWER:_____	R	RwC WwC	W
24. Who has the right of way if you are making a right turn on red and a jogger is crossing with the light? CUE: Can you point to the answer in the directions? ANSWER: _____	R	RwC WwC	W
25. This is a CHART COMPARING CEREAL BRANDS. If you were concerned about both low cost and low calories, which product would be the best choice? CUE: Can you point to the answer in the chart? ANSWER: _____	R	RwC WwC	W
26. If your doctor prescribes a diet low in salt and low in calories, which product should you definitely not purchase? CUE: Can you point to the answer in the chart? ANSWER: _____	R	RwC WwC	W
27. This is DIRECTIONS FOR A COUGH MEDICINE. What is the maximum number of teaspoons you should take in 24 hours? CUE: Can you point to the answer in the directions? ANSWER: _____	R	RwC WwC	W
28. Mr. Jones smokes and has a smoker s cough. What is the maximum number of doses he should take per day? CUE: Can you point to the answer in the directions? ANSWER: _____	R	RwC WwC	W

TEST ITEMS:	RIGHT	CUE	WRONG
29. This is a FORM FOR TELEPHONE SERVICE APPLICATION How many Directory Listings can you request for each new phone line without additional charge?	R	RwC WwC	W
CUE: Can you point to the answer in the form?			
ANSWER: _____			
30. If you make many local calls, which usage option might be best for you?	R	RwC WwC	W
CUE: Can you point to the answer in the directions?			
ANSWER: _____			
31. This is a CHART OF ENERGY EXPENDITURES FOR A HEALTHY ADULT. If your job were one in which you had to stand quietly for a 4 hour shift, about how many calories would you use in 4 hours?	R	RwC WwC	W
CUE: Can you point to the answer in the directions?			
ANSWER: _____			
32. It takes you 30 minutes to clear your driveway of snow. About how many calories did you use?	R	RwC WwC	W
CUE: Can you point to the answer in the directions?			
ANSWER: _____			

Table 7. EPTItem Difficulties, Personal Ability Scores, and Discrimination Indices for Nondemented Elderly.

1-Parameter Model[1].

Item #	Proportion Correct	Item Difficulty
1	.969	-3.242
2	.954	-2.884
3	.887	-2.007
4	.938	-2.617
5	.938	-2.617
6	.897	-2.108
7	.938	-2.617
8	.912	-2.275
9	.881	-1.959
10	.778	-1.225
11	.809	-1.414
12	.845	-1.662
13	.856	-1.741
14	.686	-0.746
15	.825	-1.516
16	.892	-2.056
17	.907	-2.217
18	.794	-1.317
19	.747	-1.054
20	.789	-1.286
21	.660	-0.628
22	.804	-1.381
23	.314	0.802
24	.680	-0.722
25	.892	-2.056
26	.655	-0.605
27	.619	-0.446
28	.696	-0.795
29	.727	-0.947
30	.619	-0.447
31	.634	-0.514
32	.541	-0.126
MEAN	.784	-1.451
SD	.143	0.894

1.Discrimination Index = 0.789.

Table 7 (con't)

Scale Raw Score	Proportion Right Score	Person Ability Score
1-4	*** UNDEFINED PERSON ABILITY SCORE ***	
5	.156	-3.029
6	.188	-2.845*
7	.219	-2.660
8	.250	-2.500
9	.281	-2.352
10	.313	-2.215*
11	.344	-2.078
12	.375	-1.948
13	.406	-1.822
14	.438	-1.698
15	.469	-1.576
16	.500	-1.455•
17	.531	-1.334
18	.563	-1.212
19	.594	-1.089
20	.625	-0.963
21	.656	-0.833
22	.688	-0.699
23	.719	-0.558
24	.750	-0.409
25	.781	-0.249
26	.813	-0.074
27	.844	.124
28	.875	.353
29	.906	.633
30	.938	1.005
31	.969	1.598
32	*** UNDEFINED PERSON ABILITY SCORE ***	
MEAN 25.082	.784	.000
SD 5.654	.177	1.000

* = Interprelated value.

Table 7 (con't)

2-Parameter Model

Item #	Proportion Correct	Item Difficulty	Discrimination
1	.969	-7.333	.285
2	.954	-3.632	.562
3	.887	-2.273	.644
4	.938	-2.301	1.024
5	.938	-4.346	.396
6	.897	-2.234	.711
7	.938	-2.413	.925
8	.912	-2.192	.837
9	.881	-2.499	.546
10	.778	-1.278	.718
11	.809	-2.134	.441
12	.845	-2.452	.453
13	.856	-1.556	.936
14	.686	-0.442	1.723
15	.825	-1.204	1.148
16	.892	-2.207	.698
17	.907	-2.559	.628
18	.794	-1.318	.765
19	.747	-1.221	.621
20	.789	-1.149	.913
21	.660	-0.636	.741
22	.804	-1.559	.641
23	.314	.919	.616
24	.680	-0.688	.807
25	.892	-1.684	1.148
26	.655	-0.671	.659
27	.619	-0.576	.554
28	.696	-0.823	.722
29	.727	-0.928	.782
30	.619	-0.425	.802
31	.634	-0.316	1.487
32	.541	-0.018	3.000
MEAN	.784	-1.692	.842
SD	.143	1.462	.484

Table 7 (con't)

Scale Raw Score	Proportion Right Score	Person Ability Score
1-4		*** UNDEFINED PERSON ABILITY SCORE ***
5	.156	-3.248
6	.188	
7	.219	-3.106
8	.250	-2.854, -2.715
9	.281	-2.506, -2.391
10	.313	
11	.344	-2.101
12	.375	-1.992, -1.958
13	.406	-1.934, -1.676
14	.438	-1.783, -1.712, -1.688
15	.469	-1.678, -1.611, -1.587, -1.563, -1.502
16	.500	
17	.531	-1.400, -1.373, -1.341, -1.242, -1.159
18	.563	-1.234, -1.125
19	.594	-1.084, -1.058, -0.441
20	.625	-0.857, -0.643
21	.656	-0.885, -0.829, -0.824, -0.783, -0.780, -0.677, -0.293, -0.276
22	.688	-0.767, -0.720, -0.696, -0.563, -0.561, -0.511, -0.367, -0.218
23	.719	-0.650, -0.491, -0.477, -0.352, -0.174
24	.750	-0.480, -0.412, -0.402, -0.392, -0.373, -0.349, -0.183, -0.083, -0.077, -0.049, -0.035, .007
25	.781	-0.352, -0.348, -0.326, -0.318, -0.286, -0.283, -0.243, -0.196, -0.169, -0.058, -0.013, .068, .090, .102
26	.813	-0.269, -0.226, -0.125, -0.116, -0.102, -0.088, -0.077, .010, .076, .103, .133, .195, .228
27	.844	-0.162, -0.155, -0.124, -0.116, -0.068, -0.029, .112, .209, .233, .243, .282, .290, .294, .372, .435
28	.875	-0.063, -0.032, .036, .050, .099, .100, .121, .143, .248, .263, .264, .302, .381, .403, .419, .449, .455, .500, .529
29	.906	.060, .127, .329, .348, .362, .428, .600, .618, .595, .602, .604, .627, .647, .649, .660, .697, .748, .770, .734, .788, .725, .738

Table 7 (con't)

Scale Raw Score	Proportion Right Score	Person Ability Score			
30	.938	.132,	.211,	.246,	.257,
		.263,	.342,	.666,	.836,
		.890,	.923,	.948,	.969,
		.972,	.983,	.999,	1.006,
		1.031,	1.055,	1.067,	1.080,
		1.115,	1.146,	1.303,	1.467
31	.969	.935,	1.509,	1.551,	1.531,
		1.583,	1.611,	1.699,	1.757,
		1.758,	1.866,	2.091	
32	*** UNDEFINED PERSON ABILITY SCORE ***				
MEAN 25.082	.784	0.000			
SD 5.654	.177	1.000			

Table 8. EPT Item Difficulties, Person Ability Scores, and Discrimination Indices for Low SES Nondemented Elderly

1-Parameter Model[1].

Item #	Proportion Correct	Item Difficulty
1	.967	-2.911
2	.956	-2.687
3	.822	-1.420
4	.911	-2.103
5	.922	-2.222
6	.833	-1.490
7	.889	-1.897
8	.867	-1.720
9	.844	-1.563
10	.722	-0.891
11	.756	-1.052
12	.778	-1.167
13	.767	-1.109
14	.533	-0.112
15	.756	-1.052
16	.833	-1.490
17	.878	-1.806
18	.700	-0.790
19	.678	-0.692
20	.722	-0.891
21	.567	-0.241
22	.678	-0.692
23	.233	-1.115
24	.522	-0.069
25	.811	-1.352
26	.556	-0.198
27	.578	-0.284
28	.611	-0.415
29	.633	-0.505
30	.511	-0.027
31	.422	.311
32	.400	.397
MEAN	.708	-0.970
SD	.174	.895

1.Discrimination Index = 0.878.

Table 8 (con't)

Scale Raw Score	Proportion Right Score	Person Ability Score
1-4		*** UNDEFINED PERSON ABILITY SCORE ***
5	.156	-2.445
6	.188	-2.270*
7	.219	-2.095
8	.250	-1.944
9	.281	-1.803
10	.313	-1.674*
11	.344	-1.545
12	.375	-1.423
13	.406	-1.306
14	.438	-1.190
15	.469	-1.076
16	.500	-0.964*
17	.531	-0.851
18	.563	-0.738
19	.594	-0.623
20	.625	-0.504*
21	.656	-0.385
22	.688	-0.261
23	.719	-0.131
24	.750	.007
25	.781	.156
26	.813	.319
27	.844	.501
28	.875	.712
29	.906	.968
30	.938	1.306
31	.969	1.842
32		*** UNDEFINED PERSON ABILITY SCORE ***
MEAN 22.656	.708	0.000
SD 6.563	.205	1.000

Table 8 (con't)

2-Parameter Model

Item #	Proportion Correct	Item Difficulty	Discrimination
1	.967	-3.635	.633
2	.956	-3.676	.556
3	.822	-1.586	.724
4	.911	-1.542	2.747
5	.922	-3.352	.481
6	.833	-1.435	.945
7	.889	-1.729	1.080
8	.867	-1.746	.858
9	.844	-2.225	.511
10	.722	-1.105	.614
11	.756	-1.665	.445
12	.778	-1.624	.524
13	.767	-0.973	1.135
14	.533	-0.022	1.868
15	.756	-0.836	1.459
16	.833	-1.717	.690
17	.878	-1.758	.934
18	.700	-0.740	.961
19	.678	-0.729	.782
20	.722	-0.808	1.035
21	.567	-0.242	.793
22	.678	-0.856	.615
23	.233	1.007	1.078
24	.522	-0.057	.840
25	.811	-1.160	1.234
26	.556	-0.180	.884
27	.578	-0.369	.578
28	.611	-0.414	.833
29	.633	-0.495	.862
30	.511	-0.009	.915
31	.422	.318	.931
32	.400	.341	1.726
MEAN	.708	-1.288	.946
SD	.174	1.099	.460

Table 8 (con't)

Scale Raw Score	Proportion Right Score	Person Ability Score
1-4	*** UNDEFINED PERSON ABILITY SCORE ***	
5	.156	-2.467
6		
7	.219	-2.291
8	.250	-2.138, -1.793
9	.281	-1.925, -1.872
10	.313	
11	.344	-1.467
12	.375	-1.540
13	.406	-1.332, -1.152
14	.438	-1.195, -1.176
15	.469	-1.271, -1.218, -1.108, -1.021, -1.000
16	.500	
17	.531	-1.088, -0.876, -0.913, -0.785, -0.766
18	.563	-0.691
19	.594	-0.668, -0.590, -0.337
20	.625	
21	.656	-0.444, -0.421, -0.351, -0.149, -0.101
22	.688	-0.370, -0.308, -0.297, -0.152
23	.719	-0.198, -0.164, .018
24	.750	-0.078, -0.014, .081, .144, .217, .238, .292
25	.781	.063, .069, .073, .078, .126, .146, .231, .319, .402, .410
26	.813	.272, .399, .430, .532
27	.844	.359, .392, .475, .516, .764
28	.875	.381, .518, .542, .567, .671, .713, .726, .761, .763, .766
29	.906	.815, .913, 1.045, 1.101
30	.938	.930, .976, 1.219, 1.303, 1.424
31	.969	1.650, 1.762, 1.798, 1.814, 2.109
32	*** UNDEFINED PERSON ABILITY SCORE ***	
MEANS 22.656	.708	0.000
SD 6.563	.205	1.000

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