PRESENTATION

Everyday Competence: Subjective and Objective Measurement

Michael Marsiske

Institute of Gerontology
Wayne State University
87 E. Ferry St.
Detroit, MI 48202

Sherry L. Willis

Department of Human
Development and Family Studies
The Pennsylvania State University
S-110 Henderson Building
University Park, PA 16802

Paper presented at the 48th Annual Scientific Meeting of the Gerontological Society of America, Los Angeles, CA, Nov. 15-19, 1995.

[OH1: Title]

The measurement of everyday competence appears to be -- as this conference gives withness--one of the dominant empirical issues in gerontological research. There is great heterogeneity in the specific measurement appreaches and types of competence that particular investigators are interested in. As a consequence, it seems, the assessment of everyday performance capabilities in late life often seems uncritical with regard to the fundamental assumptions that drive particular measurement approaches.

[OH2: Everyday Competence: Definitions and dimensions]

We'll begin by considering how, for the purposes of this presentation, everyday competence is understood. For today's presentation, I am going to rely on the definition offered by my co-author, Sherry Willis, who has suggested that everyday competence "represents adults' ability or potential to perform adequately those activities considered essential for living on one's own" (Willis, 1991). By this definition, we should be interested not only in how well people do do, but in how well they could do, if challenged with a particular everyday task.

Holding in abeyance for a moment the question of what the "essential" tasks for independence might be, it seems clear that the ability or potential to perform them can be quite multidimensional. If I have trouble shopping, for example, that trouble could be physical ("I can't leave the house"), or cognitive ("I can't find my way to the store") or social ("I don't have the help I need") or emotional ("I'm afraid to leave the house"). Interestingly, most current everyday competence measures have not tried to so clearly delineate exactly where individual differences in competence might lie.

In addition--certainly in epidemiological and survey research--measurement of everyday competence with such measures as the Instrumental Activities of Daily Living (IADLs; Lawton & Brody, 1969) or the OARS has frequently relied on self-

report, often without acknowledging that there may be real differences between actual competence in a particular domain and how well people perceive themselves to be in that domain.

This is not just an issue of theoretical relevance. It has enormous practical consequences, because questions about the validity and accuracy of self-assessments of functional performance address the very trustworthiness of much gerontological survey research.

[OH3: Objective and subjective measures of competence]

In summary: To date, most studies of older adults' everyday competence have focused on domain-general conceptions, which seldom distinguish such components as physical and cognitive competence from one another. Moreover, there has not always been careful attention to the validity of the data source, whether it is self-reports, proxy ratings, or actual samples of subjects' behavior.

[OH4: Objective and subjective measures of competence: Perspectives from life-span social psychology]

It is intuitively obvious to most of us that, when we ask people to evaluate themselves on almost any dimension, their self-evaluations will probably consist of at least two components: some reflection of how well they are actually doing, and some bias that emerges from wanting to appear competent in the eyes of others, and in one's own eyes. Investigation into the nature, antecedent eliciting conditions, and psychological consequences of such biases has long been the province of social psychology, and remains a strong research focus there.

An emerging field of lifespan social psychology has begun to look at how such basic self-serving biases (e.g., Urban and Witt, 1990) and positive illusions about the self (e.g., Baumeister, 1989; Taylor & Brown, 1994) might have particular salience in old age. In the later decades of life, older adults are confronted by such competence-deflating experiences as real losses in performance

capabilities, as well as self-held and socially held negative stereotypic expectations of aging.

The evidence, particularly in work trying to understand how so many older adults maintain high or stable levels of life satisfaction and well being in late life in the face of losses and stereotypes, suggests that older adults may actually use the stereotypes to their advantage. They may construct a view of the self that may deemphasize certain performance goals (e.g., Brandtstädter, Wentura & Greve, 1993; Heckhausen & Schulz, 1995), as in "What business do I have doing 'X' at my age?". They may also increasingly evaluate themselves against stereotypes that suggest that aging should be a lot worse than it is, and against specific exemplars who seem to be doing more poorly (e.g., Fleeson & Baltes, 1995; Ryff, 1991; Taylor & Lobel, 1989), as in "My vision may be going, but compare it to that poor blind lady across the street, and I'm not doing so badly!").

[OH5: Objective and subjective measures of competence: Empirical findings]

The social psychological work leads to the prediction that, to preserve well being and one's public face, there may be circumstances where older adults generate biased self-evaluations. With regard to everyday competence, the evidence concurs. Several studies of ADL/IADL self-ratings have now suggested that, when validated against behavioral observations, older adults and proxy raters who know them may often tend to overestimate, and sometimes underestimate, how well they are doing (Fillenbaum, 1978; Ford et al., 1988; Kuriansky, Gurland, & Fleiss, 1976; Rogers & Holm, 1990).

[OH6: Research Questions]

Our focus today, then, is on trying to see if we can identify these biases in self-evaluations, and if we can begin to ferret out what the consequences of these biases might be.

Our first research question uses the dominant approach to measuring everyday competence, the IADL questionnaire, and asks whether older adults and their proxies tell us the same story--how much agreement there is between them.

Second, because we believe that everyday competnece has multiple components, we focus on a subtype of competence: everyday problem solving or cognitive competence. We compare how well people say they are doing with how well they actually seem to be doing.

Finally, we take a look at the question of self-perception biases (the over- and under-estimators, if you will), and see if we can begin to understand what these biases are related to.

[OH7: Participants]

Subjects were 111 older adults, drawn from a larger program of research directed by Sherry Willis. They resided independently in a continuing care retirement community, and were somewhat educationally advantaged. With a mean age of 78 years, much of the sample represented the old-old.

[OH8: Measures]

General everyday competence was assessed with the IADL scale of Lawton & Brody (1969), which measures limitations in such tasks as food preparation, housekeeping, or transportation. Subjective competence was measured with traditional self-ratings; so-called "objective" competence was measured with the ratings of close proxies.

Focusing in on the specific component of *cognitive* competence, we measured subject competence with Lachman et al.'s (1982) Personality in Intellectual Aging Contexts (PIC) Inventory, and objective cognitive competence was measured with the Everyday Problems Test.

[OH9: The Personality in Intellectual Aging Contexts Inventory]

The PIC is a measure of the locus of older adults' control beliefs over everyday intellectual performances. People who believe themselves to be cognitively efficacious in everyday cognition will tend to see themselves as high in internal control , and low in how much the external world controls their intellectual performance (influences like powerful others, or chance). The PIC, then, is not self-ratings of cognitive competence per se, but it is a subjective evaluation of how personally efficacious one is with everyday cognitive tasks.

[OH10: The Everyday Problems Test]

Our measure of objective cognitive competence, the Everyday Problems Test (Willis & Marsiske, 1993), presented individuals with real everyday printed materials--like this actual excerpt from a phone book--and asked individuals to locate or manipulate information in the printed stimulus, sometimes also relying on prior knowledge (as in this case, where subjects need to know things like night rates being cheaper than evening rates).

[OH11: Proxy and self-ratings of IADL competence]

Turning to our first question, about the relationship of self- and proxy ratings of general IADL functional status, we found substantial agreement. All but one of our subjects nominated a proxy--mostly a spouse or friend. There was no mean difference between the level of IADL limitation reported by participants and their proxies. As this might suggest to some of you, self- and proxy ratings were strongly related, with a bivariate correlation of .68. Moreover, that correlation was pretty consistent acrss the type of proxy (spouse or non-spouse) or the frequency of contact (e.g., daily vs. several times a week). We'll return to consider the implications of these agreements in a moment.

[OH12: Everyday cognitive competence: Self-ratings and performance]

Turning to the specific component of cognitive competence, we also see moderate-to-high levels of congruence. Here, we cannot meaningfully look at mean level differences, since the locus of control scales asked subjects how much control they had, while the EPT scored how well they were solving problems. What you can see, though, is that in terms of correlations, individual differences in actual performance were quite related to perceived control over that performance. For the Powerful Others scale, in which subjects basically rated how much they thought they needed help with everyday cognitive tasks, about 80% of the reliable, latent variance was shared with cognitive performance!

[OH13: Over and under-estimation]

Next, we turned to the question of over- and under-estimation of self-rated performance. For the general IADL ratings, we identified overestimators as individuals whose self-rated number of limitations was at least one standard deviation lower than what their proxy had said. Underestimators said that they had at least one standard deviation more limitations than their proxies had indicated. As you might expect from the high correlations, there were reasonably few of these over- or under-estimators. You can see this in the lower right of the figure. Most subjects were accurate (or within one standard deviation of their proxies). Interestingly, over- and under-estimators on this general IADL scake did not differ from each other, or from accurate raters, in terms of any demographic or psychological variables we looked at. That is not true for cognitive competence, as we'll see in a moment.

A similar scoring procedure was used for cognitive competence. Overestimators were persons whose rank order in saying they were in control (either by indicating high internal control, or by endorsing little control by external forces) was at least one standard deviation higher than their rank order in actual

performance. Underestimators were those whose rank order of saying they were in intellectual control was at least one standard deviation lower than their everyday problem solving performance. This classification is based on some potentially controversial assumptions, including the ability to map two construct distributions onto one another as I have, and the possible role of statistical regression to the mean, which I'll be be happy to talk about in the question period. For now, you can also see that most people could be classified as accurate in their self-ratings. For Powerful Others control, whose correlation with actual performance was highest, you can also see the highest proportion of accurate self-raters.

What does this mean? Well, unlike general IADL self-ratings, there were some interesting differences between the underestimators -- who viewed themselves poorly--, the overestimators -- who viewed themselves glowingly --, and the accurate self-estimators.

[OH14: Over- and under-estimators in self evaluations: Internal control]

When internal control is used as our subjective cognitive competence measure, overestimators were significantly older than underestimators.

[OH15: Over- and under-estimators in self evaluations: Powerful others control]

When powerful others control was used as our subjective cognitive competence measure, overestimators were again the oldest subjects, and they were significantly older than accurate subjects. These accurate people were, by far, the most educated and least intellectually anxious subjects.

[OH16: Over- and under-estimators in self evaluations: Chance control]

Finally, using Chance control as our measure of perceived competence with everyday problem solving, the overestimators -- those who believed that chance played little role in their everyday cognition -- showed significantly higher levels of

intellectual well being, as measured with a scale called "Attitude toward Intellectual Aging" from the PIC, than underestimators.

How do we put all of this together?

[OH17: Conclusions]

Well, first of all, the results of this study certainly suggest that biases in self-evaluations of everyday competence, both in domain-general ratings and in cognitive competence, are themselves an individual difference variable. Moreover, correlationally, our subjective- and objective measures are quite strongly related. Accuracy of self-evaluations seems quite common.

Where does this accuracy come from? For one thing, we have seen that accuracy of estimation seems to be associated with education, and we do have an educationally advantaged sample. In other words, high rates of accuracy in this sample may not necessarily represent the broader population of older adults.

We must also acknowledge that, for our general IADLs, holding proxy ratings as a standard against which we judge accuracy is very dangerous. Close relationships are also characterized by shared social realities: the spouse who needs or wants to believe in the competence of a husband or wife; the friend whose knowledge of me is largely based on what I have conveyed to him or her.

In addition -- in this study, for cognitive competence -- there is a suggestion that with increasing age, reduced education, and higher levels of age, our older adults were more likely to produce self evaluations which were discrepant from performance measures, and these were frequently overestimations. For one self evaluation, chance control, we also observed that overestimation was related to higher levels of intellectual well-being. All of this raises, again, the provocative question (which requires further study) that life-span social psychologists have been asking: as individuals feel threatened -- here by losses of competence -- is one

adaptive response to change one's standard of self-evaluation; to view positively what one can do, and to attend less to what one cannot? Thank you.

References

Baumeister, R. F. (1989). The optimal margin of illusion. Journal of Social and Clinical Psychology, 8, 176-189.

Brandtstädter, J., Wentura, D., & Greve, W. (1993). Adaptive resources of the aging self: Outlines of an emergent perspective. International Journal of Behavioral Development, 16, 323-349.

Fillenbaum, G. G. (1978). Reliability and validity of the OARS multidimensional functional assessment questionnaire. In Duke University Center for the Study of Aging (Ed.), Multidimensional functional assessment: The OARS methodology (2nd. ed, pp. 20-28). Durham, NC: Duke University Press.

Fleeson, W. W., & Baltes, P. B. (1995). The predictive power of perceived change and life-time comparisons in personality assessments. Unpublished manuscript, Berlin, Germany: Center for Psychology and Human Development, Max Planck Institute for Human Development and Education.

Ford, A. B., Folmar, S. J., Salmon, R. B., Medalie, J. H., Roy, A. W., & Galazka, S. S. (1988). Health and function in the old and very old. Journal of the American Geriatrics Society, 36, 187-197.

Heckhausen, J. & Schulz, R. (1995). A life-span theory of control. Psychological Review, 102, 284-304.

Kuriansky, J. B., Gurland, B. J., & Fleiss, J. L. (1976). The assessment of self-care capacity in geriatric psychiatric patients by objective and subjective methods. Journal of Clinical Psychology, 32, 95-102.

Lachman, M. E., Baltes, P. B., Nesselroade, J. R., & Willis, S. L. (1982). Examination of personality-ability relationships in the elderly: The role of the contextual (interface) model. Journal of Research in Personality, 16, 485-501.

Lawton, M. P., & Brody, E. (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. The Gerontologist, 9, 179-185.

Rogers, J. C., & Holm, M. B. (1990, November). Objective and subjective methods of assessing activities of daily living. Paper presented at the annual scientific meeting of the Gerontological Society of America, Boston, MA.

Ryff, C. D. (1991). Possible selves in adulthood and old age: A tale of shifting horizons. Psychology and Aging, 6, 286-295.

Taylor, S. E., & Brown, J. D. (1994). 'Illusions' of mental health does not explain positive illusions. American Psychologist, 49, 972-973.

Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. Psychological Review, 96, 569-575.

Urban, M. S., and Witt, L. A. (1990). Self-serving bias in group member attributions of success and failure. Journal of Social Psychology, 130, 417-418.

Willis, S. L., & Marsiske, M. (1993). Manual for the Everyday Problems Test. Unpublished test, University Park, PA: Department of Human Development and Family Studies, The Pennsylvania State University.

Willis, S. L. (1991). Cognition and everyday competence. Annual Review of Gerontology and Geriatrics, 11, 80-109.

OH 1

Everyday Competence: Subjective and Objective Measurement

Michael Marsiske

Wayne State University

Sherry L. Willis

Pennsylvania State University

OH 2

Everyday Competence: Definitions and dimensions

- "Everyday competence represents adults' ability or potential to perform adequately those activities considered essential for living on one's own." (Willis, 1991)

- Competence in daily life has multiple components (e.g., physical, cognitive, social, emotional), and is likely a multidimensional concept (Marsiske & Willis, 1995)

- There is a distinction between *actual* competence and one's *perceived* competence

OH 3

Objective and subjective measures of competence

- To date, most studies of older adults' everyday competence have focused on domain-general conceptions, or the aggregate of functioning across multiple domains (e.g., cooking, transportation, housekeeping). Even "multidimensional" competence inventories seldom distinguish the components of competence from one another.

- There has not always been careful attention to the validity of the data source: self-reports, proxy ratings, performance-based observations.

OH 4

Objective and subjective measures of competence

Perspectives from life-span social psychology

- Self-serving bias in self-evaluations (e.g. Urban & Witt, 1990), positive illusions (e.g. Taylor & Brown, 1994), optimal margins of illusion (e.g., Baumeister, 1989)
- Use of secondary control strategies and goal transformations (Brandtstädter, Wentura & Greve, 1993; Heckhausen & Schulz, 1995)
- Changing lifetime reference standards of self-evaluation (e.g., Fleeson & Baltes, 1995; Ryff, 1991; Taylor & Lobel, 1989)

OH 5

Objective and subjective measures of competence

Empirical findings

- Several validation studies suggest that older adults' self-ratings of ADL/IADL competence may over-estimate, and sometimes under-estimate, their functional capabilities (Fillenbaum, 1978; Ford et al., 1988; Kuriansky, Gurland, & Fleiss, 1976; Rogers & Holm, 1990)

- Proxy reports of functional status may also tend to over-estimate true (observed) levels of performance (e.g., Rogers & Holm, 1990)

OH 6

Research questions

1. What is the agreement between proxy ratings and self-ratings of IADL competence?

2. How does greater specificity of the self-rated domain (e.g., *cognitive* IADL competence) affect the relationship between subjective and objective competence?

3. Does over- or under-estimation of competence have consequences in terms of well-being or anxiety?

Participants

- 111 older adults, 44 males and 67 females
- Independently living residents of a continuing care retirement community
- Mean age = 77.8 years (SD = 5.6 years, range = 68-94 years)
- Mean education = 15.2 years (SD = 2.4 years, range = 7-22 years)
- Health, hearing and vision were rated as "good", on average

Measures

- **General competence**
  - Subjective: self-rated limitations on the Instrumental Activities of Daily Living (IADL) scale: (Lawton & Brody, 1969)
  - "Objective": Proxy (spouse, friend, child) ratings on the IADL scale
- **Cognitive competence**
  - Subjective: Self-ratings on the Personality-in-Intellectual-Aging Contexts (PIC) scale (Lachman et al., 1982)
  - Objective: Performance (number correct) on the Everyday Problems Test (Willis & Marsiske, 1993)

OH 9

The Personality-in-Intellectual-Aging-Contexts (PIC) Inventory

- Assesses perceived locus of control over everyday intellectual performances
  - *Internal control*

    "When paying in a restaurant for meals or in a store for clothes, I am able to understand the bill."
  - *Powerful others control*

    "I would have to ask a salesperson to figure out how much I'd save with a 20% discount."
  - *Chance control*

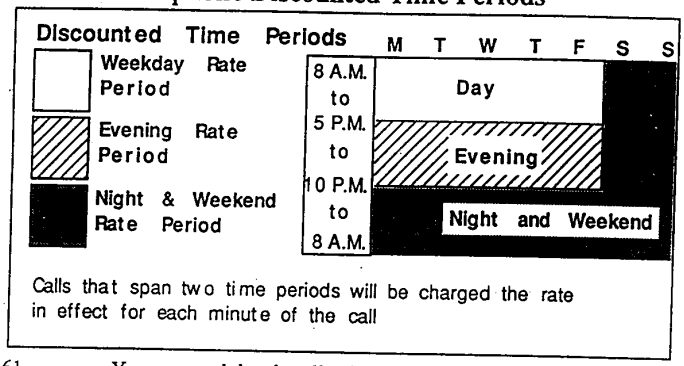
    "My crossword puzzle skills will go downhill even if I keep doing puzzles."

OH 10

The Everyday Problems Test (EPT)

- 84-item measure of reasoning and document processing with everyday printed materials

Charts: Telephone Discounted Time Periods



61. Your son and daughter live in the same city but out-of-state. You call your daughter at 11:37 am on Saturday. You call your son at 9:30 pm on Wednesday. Both calls last 5 minutes. Which call is cheaper?

OH 11

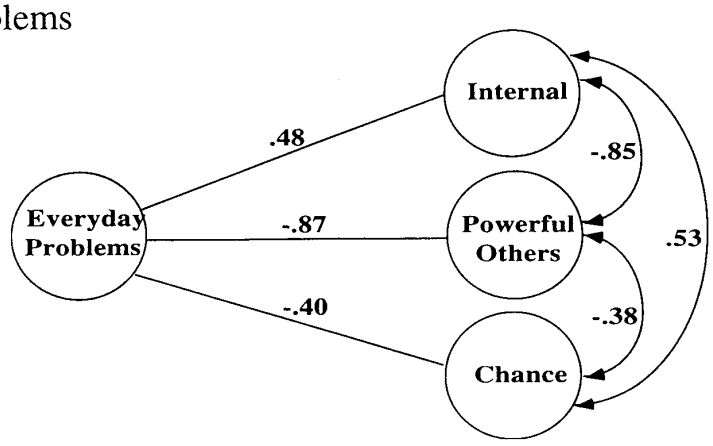
Proxy and self-ratings of IADL competence

- All but one participant nominated a proxy rater. 78 of the proxies were *spouses*; 29 were *neighbors/friends*. All but seven participants reported being "close" or "very close" to their proxies, and all reported seeing their proxy daily or several times a week.
- There was *no mean difference* between the level of IADL limitation reported by participants and their proxies
- Self- and proxy ratings were *strongly related* ($\underline{r} = .68$), and did not vary as a function of relationship variables (e.g., spouse/non-spouse, frequency of contact).

OH 12

Everyday cognitive competence: Self-ratings and performance

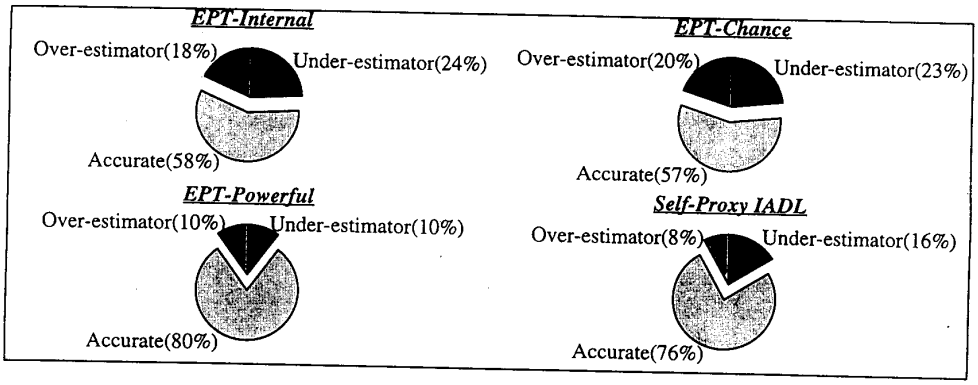
- There were strong relationships between performance on everyday problems and perceived control over those problems



OH13

Over- and under-estimation

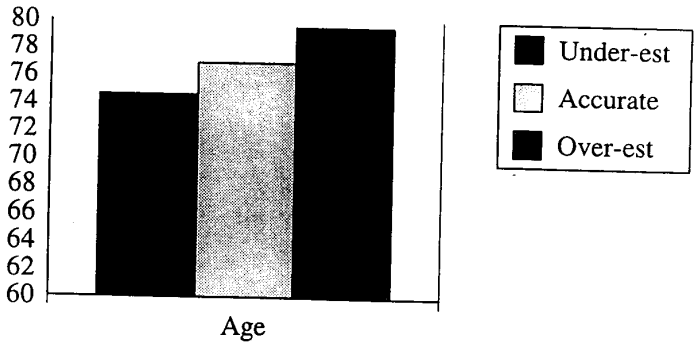
- As the high correlations indicate, most subjects were accurate (i.e. their self-evaluations were within one standard deviation of either (a) proxy ratings, or (b) their test performance). However, there was some inaccuracy of estimation.



OH14

Over- and under-estimations in self-evaluations

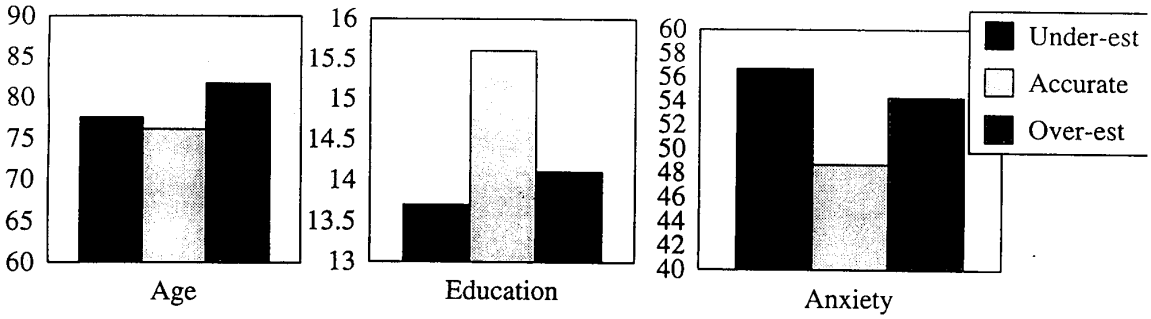
- Internal control over-estimators were significantly older than under-estimators



OH 15

Over- and under-estimations in self-evaluations

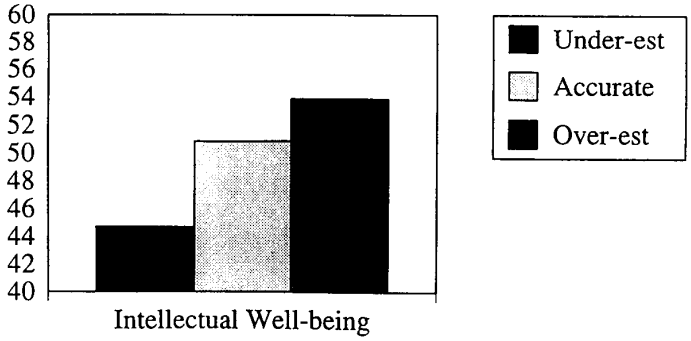
- Over-estimators (persons who believed much less in the influence of Powerful Others) were older than all others. Accurate estimators were the most educated, and least intellectually anxious of all participants.



OH 16

Over- and under-estimations in self-evaluations

- Chance control over-estimators (who believed much less in the influence of Chance over their everyday problem solving) had significantly higher levels of intellectual well-being than under-estimators.



Conclusions

- This study did not find strong evidence for inaccurate self-estimations of everyday competence. Depending on the specific objective and subjective indicators examined, between 30% and 75% of the variance was shared. For general IADL ratings, there were no mean differences between proxy and self-ratings.
- High agreement between self- and proxy ratings may reflect shared social realities, and not only valid self-ratings.
- There is some support for the notion that over-estimation of everyday cognitive functioning may increase with age, and may be somewhat protective of intellectual well-being. Accuracy of estimation is associated with higher levels of education and lower levels of anxiety. Are positive self-illusions necessary only when well-being is threatened?