



Ageing Well in the European Context: Research and Practice Lessons from Age-related Vision Impairment

Hans-Werner Wahl

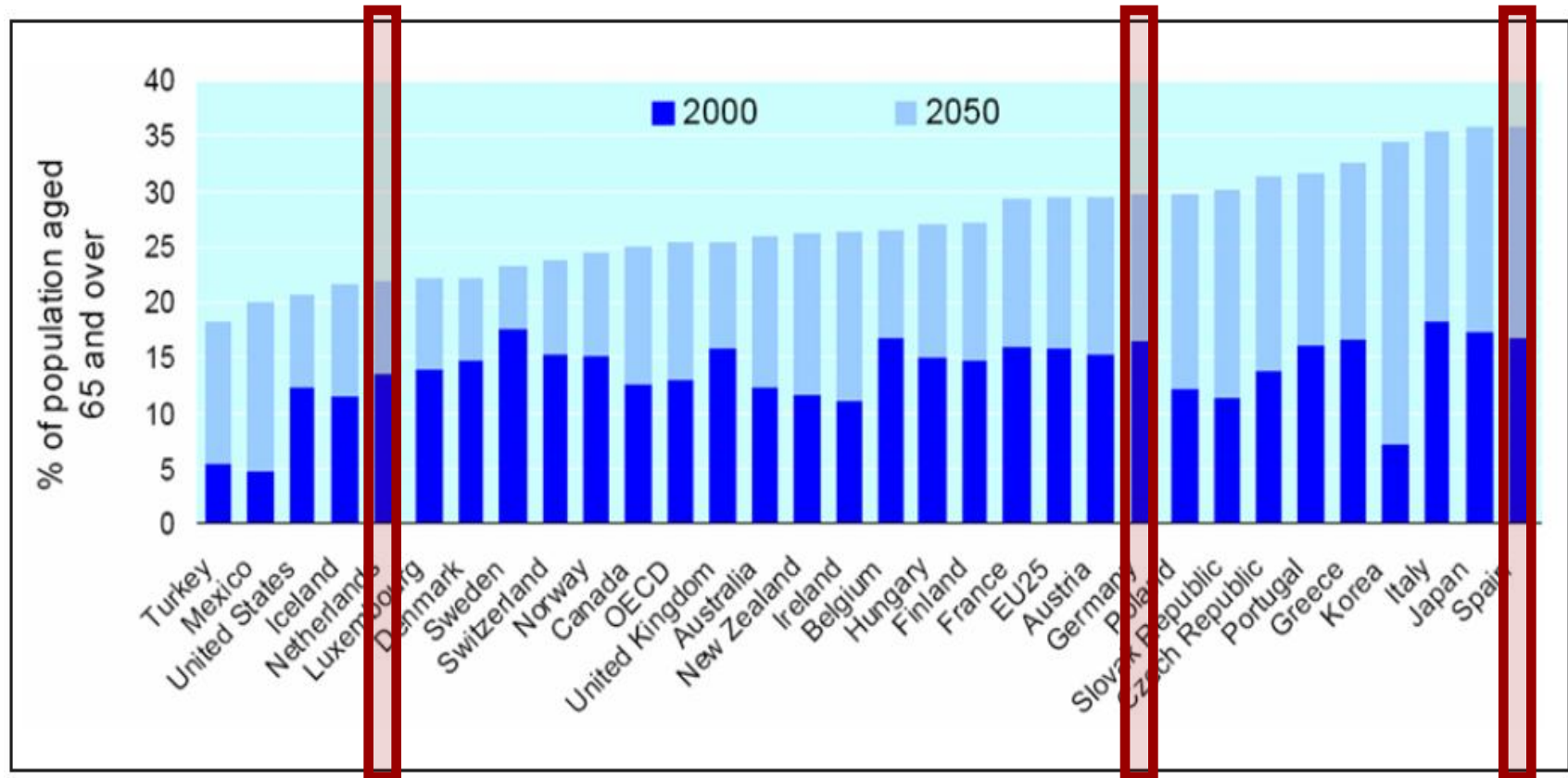
Heidelberg University, Institute of Psychology,
Department of Psychological Aging Research

4th ECΨVI, Heidelberg, University of Education, March 29-30, 2012

Introduction

Many thanks for this invitation – Great honour to be here!

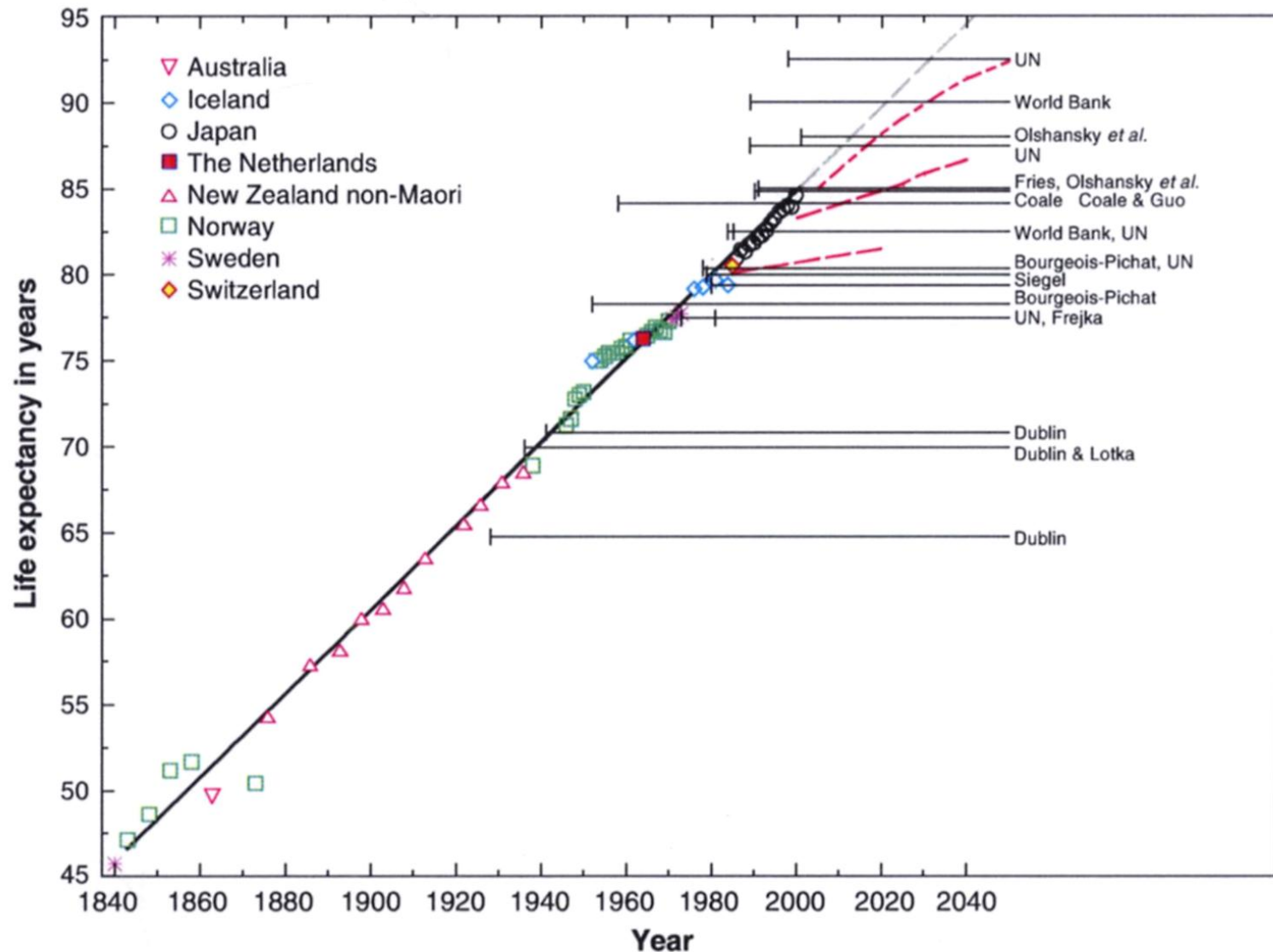
Demographic Background: Toward the “Long Life“ = Toward Higher Prevalence of Vision Impairment in Later Life



Source: Keese 2006:18

Source: Keese, M. (2006). *Live Longer, Work Longer*, OECD, Paris.

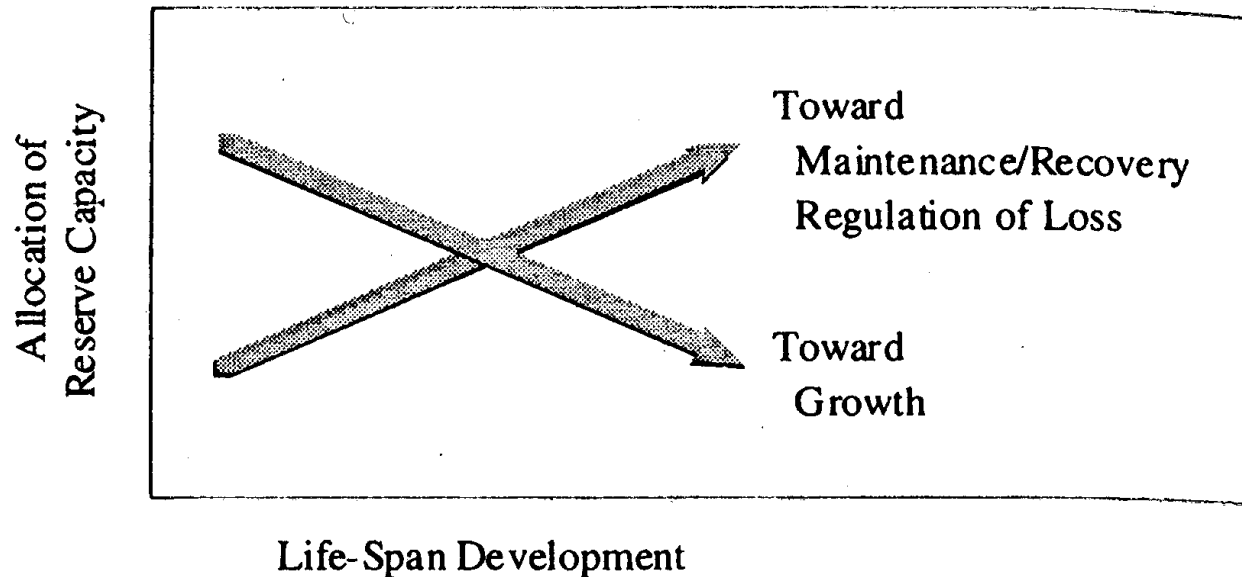
Demographic Background: Life Expectancy Will Increase Further



Source: Oeppen & Vaupel, 2002.

Coping with Age-related Vision Loss: The Individualistic (Lifespan Psychology) Perspective

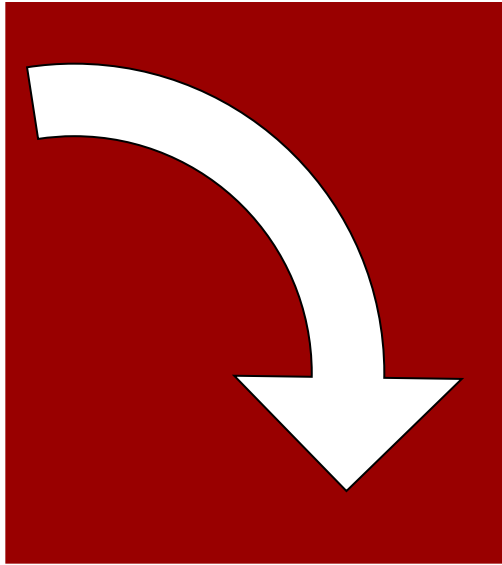
- Ageing as multidimensional and multidirectional in resources and outcomes.



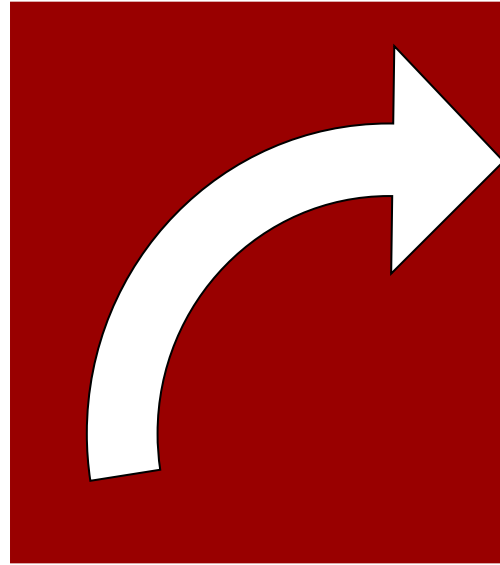
- Optimization becomes increasingly more difficult as life is extended to its maximum biological lifespan.
- Aging well with severe vision loss as the psychology (and art) of (1) maintenance, (2) loss regulation, and (3) growth.**

Source: Baltes et al., 1998.

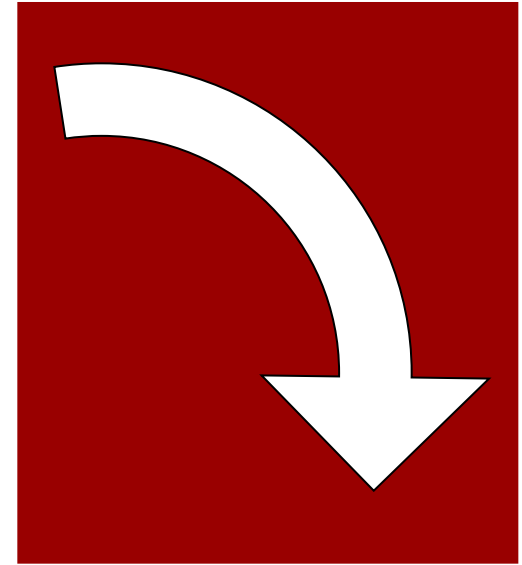
Dynamics between Biology and Culture Across the Life Span: Also Relevant for Age-related Vision Loss



**Evolutionary
Selection Benefits:
Decrease with Age**



**Need for Culture:
Increases with Age**



**Efficacy of Culture
Decreases with
Age**

→ **How can European societies (and their public health policies) manage to live a meaningful “long age“ with vision impairment?**

Source: Baltes & Smith, 1999.

Leading Questions Behind my Presentation

- **How can the science of psychology serve the better understanding of “long ageing“ with chronic conditions, such as age-related vision impairment?**
- **Can research on chronic conditions, such as age-related vision impairment, infuse the science of psychology?**
- **Is this all more of an Ivory Tower game? Or is psychology also able to improve the quality of life of “real“ older adults with severe vision loss?**
- **What is the European perspective in all this?**

Outline

- (1) Research on age-related vision impairment in the European research arena**
- (2) A synopsis of our own research on the psychology of age-related vision impairment: From a static to a more dynamic view**
- (3) Practice Implications**
- (4) Conclusions: Ageing well in the European context – Lessons to be learned from age-related vision impairment**

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Research on Age-related Vision Loss in the European Research Arena: Findings of a Recent “Scan”

- **There is significant research on age-related vision impairment, but mostly in the area of medical research and here mostly in the area of age-related macular degeneration (many pharmacological outcome studies).**
- **Some efforts are made to share treatment and training knowledge across European countries (mostly under the Leonardo funding scheme of the EU; e.g., sharing of innovative training approaches).**
- **Most psychosocially framed research on visually impaired persons at large does not address the special needs of older adults with vision loss.**
- **When older adults with vision impairment are addressed, mostly young-old adults are included, whereas the situation of those mostly affected (i.e. the old-old) do not play a major role.**

Research on Age-related Vision Loss in the European Research Arena: Findings of a Recent “Scan”

- Older adults with severe vision impairment (not to speak of very old visually impaired older adults) do not play a major role, when it comes to the area of technology and ageing.
 - If considered, older adults with vision loss are typically subsumed under “older adults with disabilities.”
 - In sum, given the prevalence of low vision in the continuously increasing subpopulation of advanced old age, it continues to be surprising, how low the research intensity in this area is.
 - What can attract early stage researchers to invest in this area?
 - My answer: To see the paradigmatic character: What can we learn from research with visually impaired older adults in order to better understand the “long ageing” at large.
- See also P. Verstraten’s work on this conference.

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Some Fundamentals Lines of our Research Program on Age-related Vision Impairment

Phase I: Mid 1990's

Identifying the psychological consequences of age-related vision impairment

Phase II: 2002

Using psychological control theory to understand age-related vision impairment + some emerging intervention

Phase III: 2006

General view of adaptation; setting vision loss in the context of resources (e.g., cognitive) and other sensory impairment (e.g., hearing impairment)

Rather static view

Rather dynamic view

Some Fundamentals Lines of our Research Program on Age-related Vision Impairment

Phase I: Mid 1990's

Identifying the psychological consequences of age-related vision impairment

Present

Rather static view

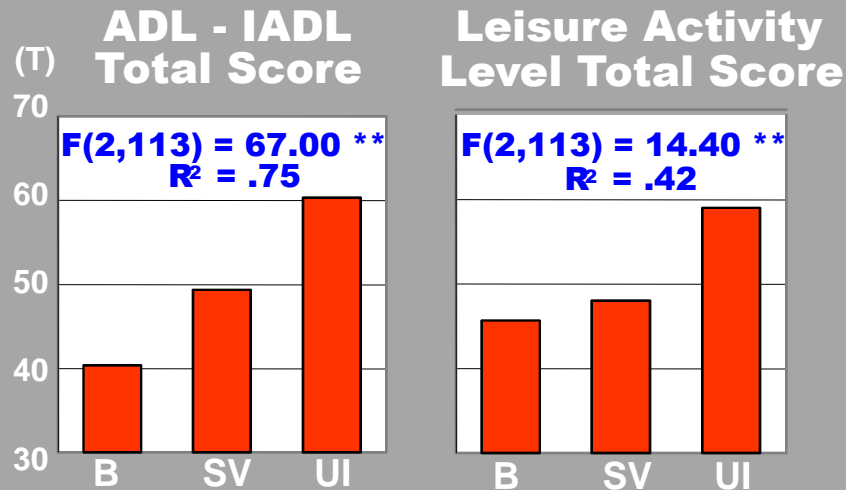
Rather dynamic view

Some Comments in Advance

- **Only a bit of methodology / empirical information.**
- **Study participants over 65 years and more recently over 75 years of age.**
- **Internationally established measures.**
- **Only severe age-related visual impairment considered (visual acuity roughly $< .10$).**
- **Mostly substantial sample sizes (N = 50 – 350).**
- **Some data analyzed in cooperation with other research sites [Prof. Amy Horowitz, Fordham University, New York].**

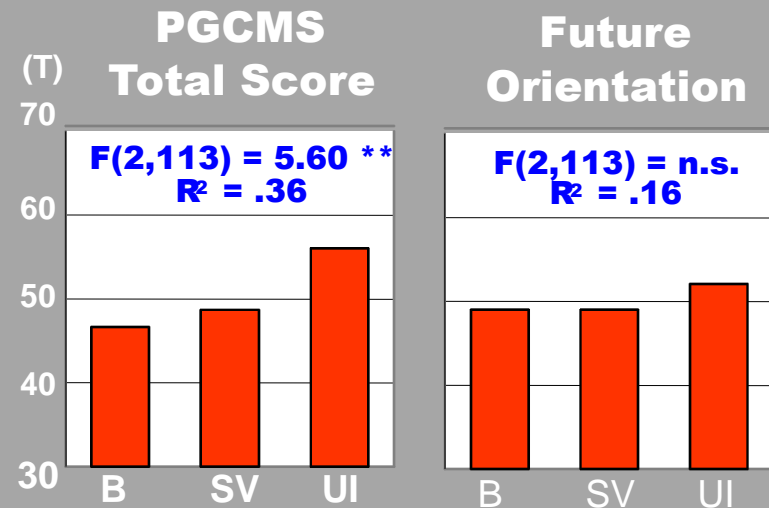
Identifying the Psychological Consequences of Age-related Vision Impairment

Behavioural Consequences



B = Blind, SV = Severely Visually impaired, UI = Unimpaired.

Well-being Consequences

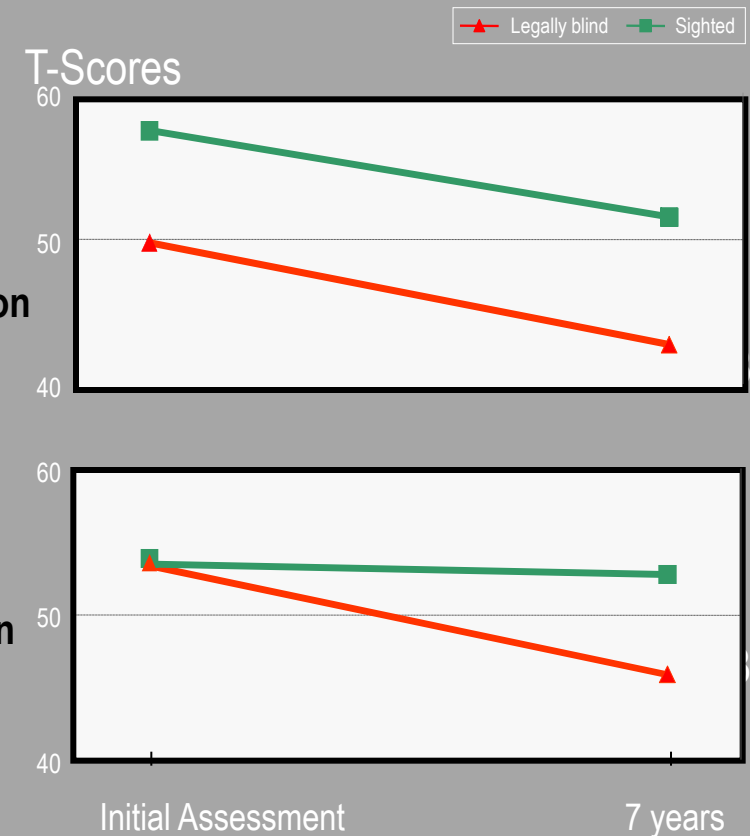
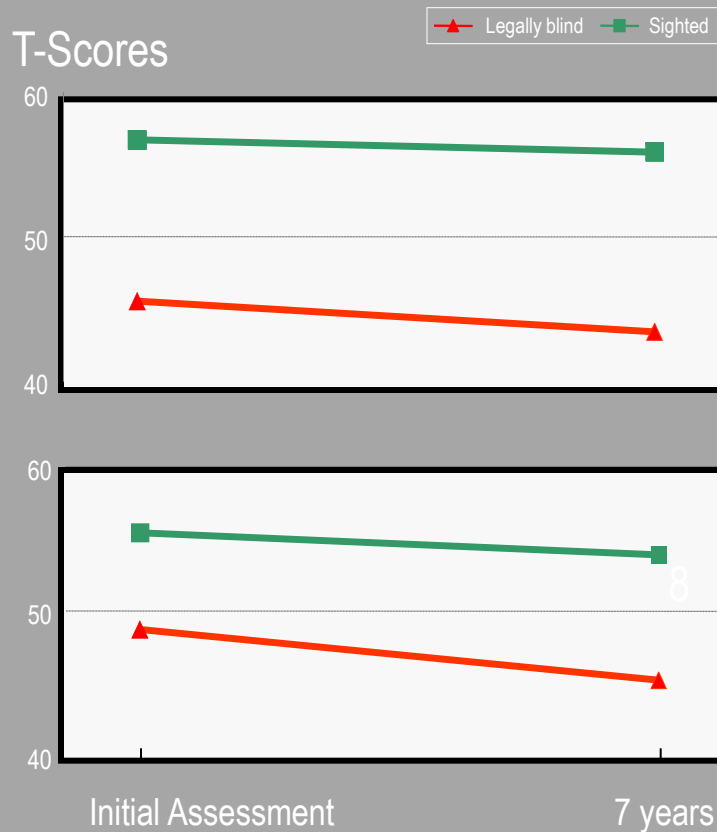


Source: Wahl, Schilling, Oswald & Heyl, Journal of Gerontology, 1999.

Identifying the Psychological Consequences of Age-related Vision Impairment

Behaviour Across 7 Years

Well-being Across 7 Years



Note. Higher scores indicate better behavioural functioning.

Note. Higher scores indicate better emotional adaptation.

Source: Heyl & Wahl, Journal of Visual Impairment and Blindness, 2001.

Identifying the Psychological Consequences of Age-related Vision Impairment

- **Findings mostly consistent with the international literature** [Burmedi et al., 2002; Horowitz & Reinhardt, 2000; Pinquart & Pfeiffer, 2011].
- **Some uniqueness regarding the experience of vision loss: Everyday competence lower as in those with hearing and mobility impairment** [Rudberg et al., 1993; Wahl et al., 1999; Wahl, Heyl & Schilling, 2012].
- **Visually impaired older adults are creative in compensatory efforts and the design of the objective environments is also important** [Gignac et al., 2000; Wahl et al., 1999; 2009].
- **Mortality increased across a considerable period of time: Four-year mortality 15% in visually unimpaired 75+; 29% in severely visually impaired 75+** [Heyl, Wahl & Drapaniotis, still unpublished data].

Some Fundamentals Lines of our Research Program on Age-related Vision Impairment

Phase I: Mid 1990's

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Phase II: 2002

Using psychological control theory to understand age-related vision impairment + some emerging intervention

Present

Rather static view

Rather dynamic view

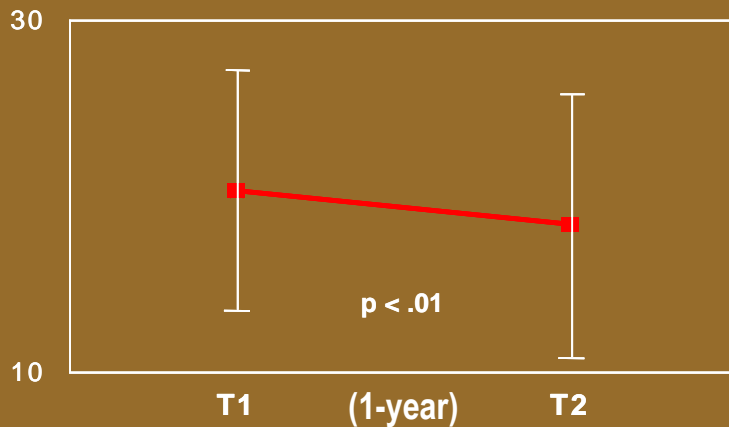
Applying Psychological Control Theory to Age-related Vision Impairment

Research Question

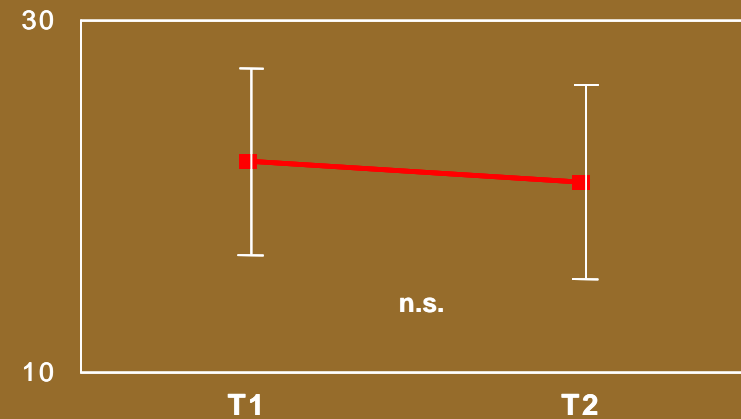
- **Is there a relation between the course of chronic functional impairment (such as vision loss) and psychological control strategies?**

Applying Psychological Control Theory to Age-related Vision Impairment

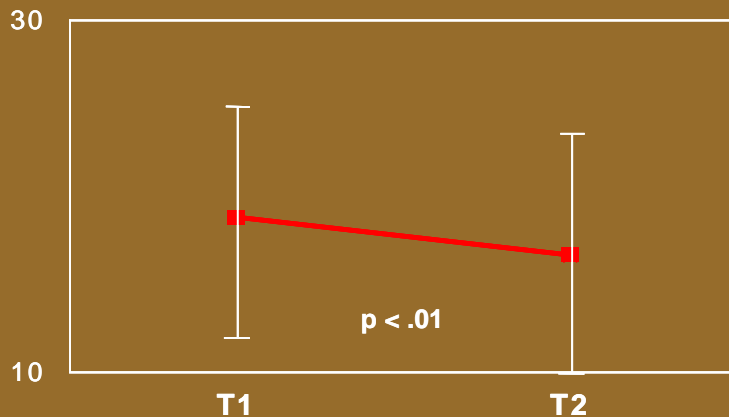
Selective Primary Control



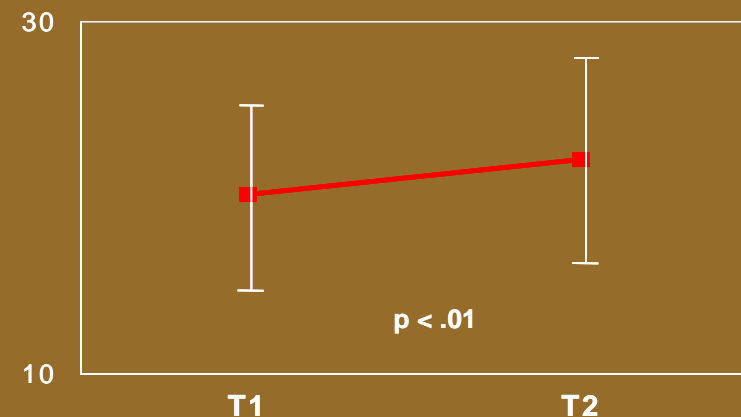
Compensatory Primary Control



Selective Secondary Control



Compensatory Secondary Control



→ Adaptive change in control strategies across a 1-year observation interval

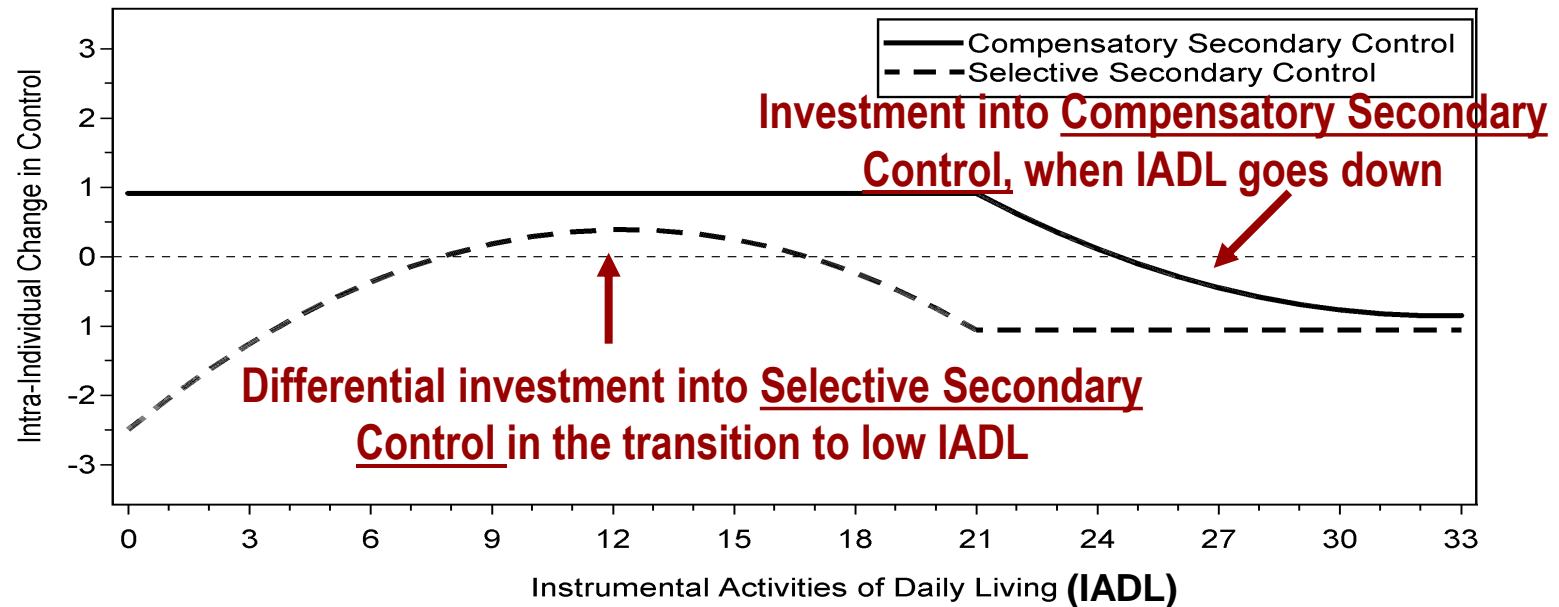
Source: Wahl, Becker & Burmedi, *Psychology and Aging*, 2004.

Applying Psychological Control Theory to Age-related Vision Impairment

Research Question

- **Does adaptation to chronic functional impairment need different self-regulation strategies, depending on the remaining everyday functional competence?**

Applying Psychological Control Theory to Age-related Vision Impairment



→ Remaining IADL seem to drive to some extent control strategy use across 1 year.

Source: Wahl, Schilling & Becker, Journal of Gerontology: PS, 2007.

Applying Psychological Control Theory to Age-related Vision Impairment

- **Control theory as an important conceptual means to understand adaptation to age-related vision impairment [Heckhausen et al., 2010].**
- **Complementary findings reported in the international literature
→ need to consider vision-specific control strategies [Boerner et al., 2010].**

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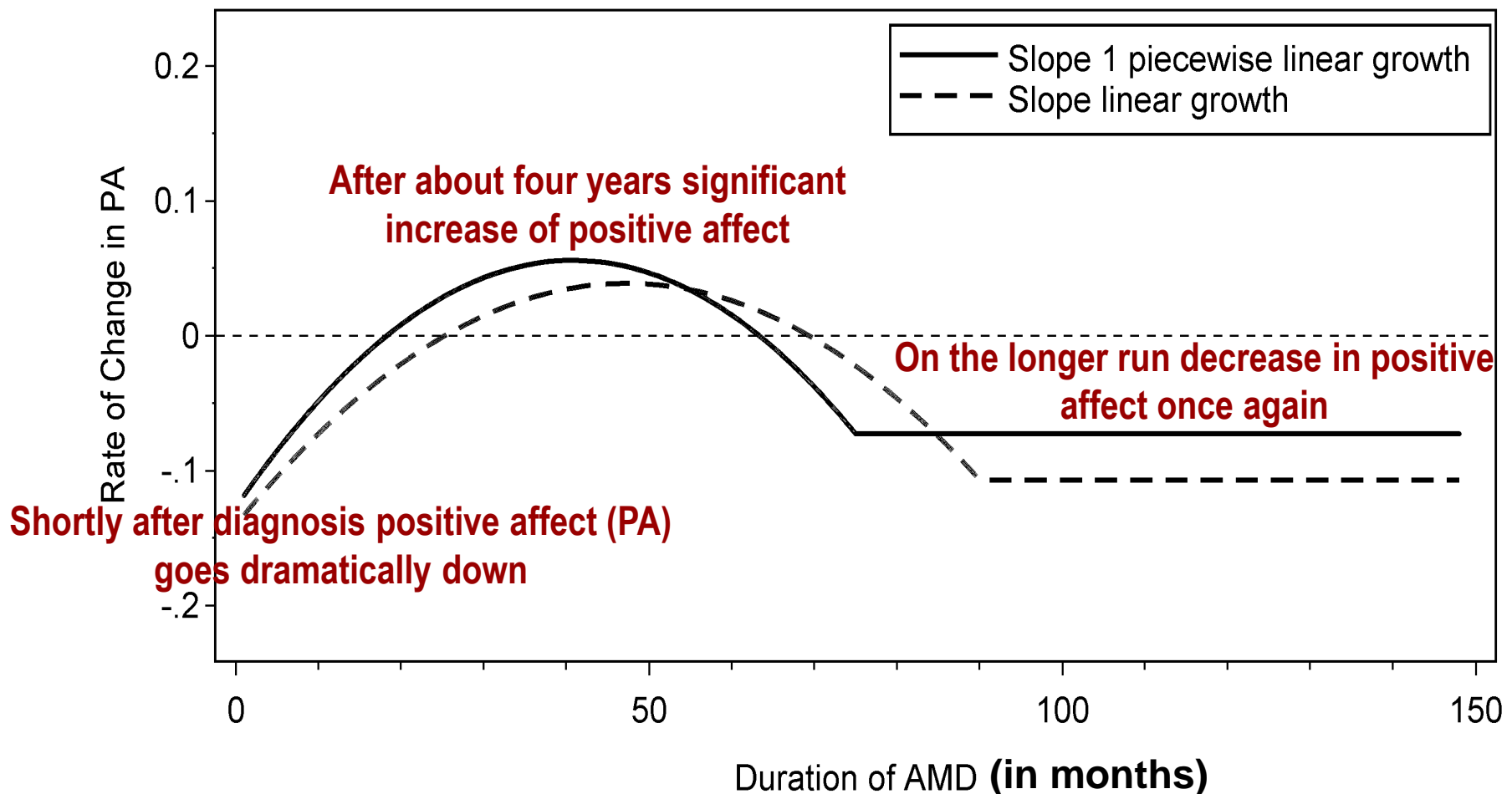
Rather static view

Rather dynamic view

Ageing Well, Vision Impairment and Adaptation

- **Definition of adaptation [Schilling & Wahl, 2006]: Every facet of psychological functioning that can be understood in terms of adjustment to the individual's living conditions...**
- **...such that “little that goes on in mind and behaviour is not in some way relevant to adaptation.” [Lazarus, 1991, p. 7].**
- **Reduced responsivity to repeated or continued stimulation [Bevan, 1965; Helson, 1948; Lawton & Nahemow, 1973].**
- **Differentiation between outcome and process perspective.**

Extensions to General Adaptational Models

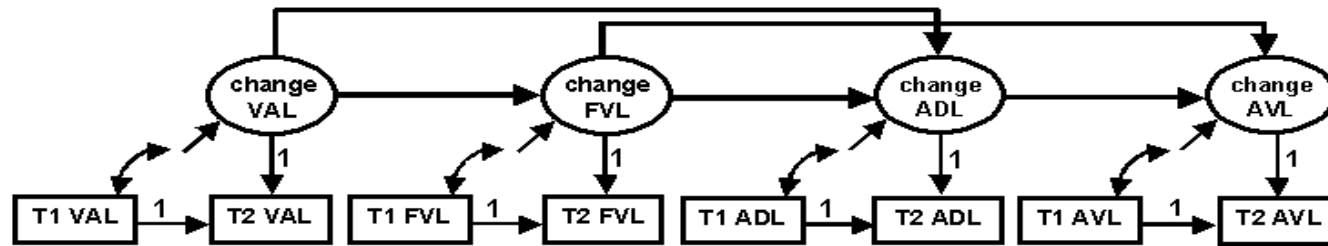


→ Psychological adaptations works (also) in visually impaired older adults, but certainly also has its limits.

Source: Schilling & Wahl, Psychology and Aging, 2006.

Extensions to General Adaptational Models

M1



Val: Visual Acuity Level

FVL: Functional Vision Loss

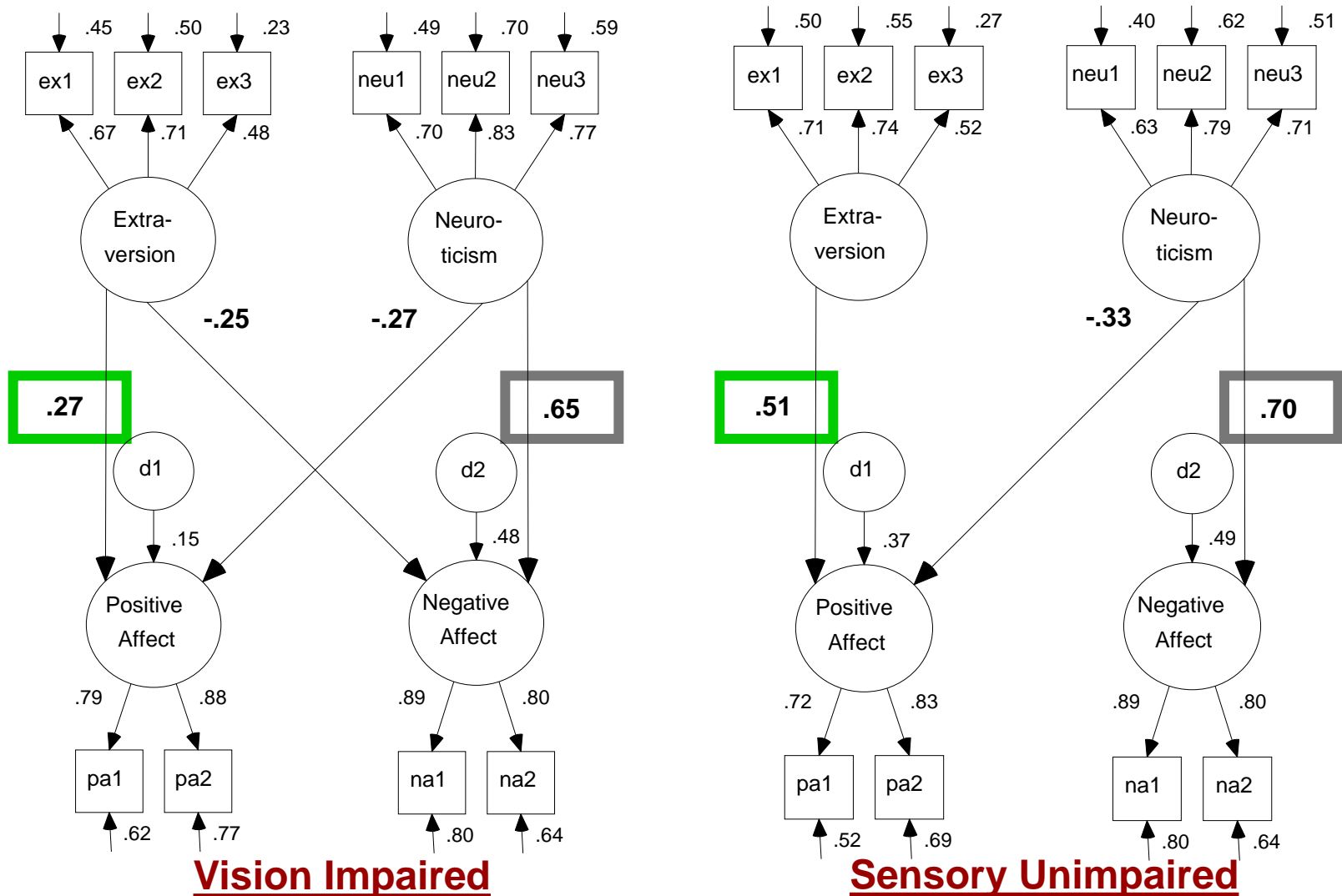
ADL: Activities of Daily Living

AVL: Adaptation to Vision Loss

→ Model confirmed in a multi-group comparative approach (Heidelberg and New York sample; 1-year observational interval).

Schilling, Wahl, Horowitz, Reinhardt & Boerner, Psychology and Aging, 2011.

Extraversion, Neuroticism and Positive and Negative Affect Depending on Vision Status



Source: Wahl, Heyl & Schilling, Journal of Gerontology: PS, 2012.

Use of Cognitive Resources Depending on Vision Status

- **Visually impaired older adults rely more on their cognitive resources, while exerting everyday tasks, as compared to sensory unimpaired older adults [Heyl & Wahl, 2011].**
- **At the same time, they seem to be more sensible for their remaining cognitive resources than sensory unimpaired older adults.**

Source: Wahl, Heyl & Schilling, Journal o Gerontology: PS, 2012.

What Kind of Bigger Picture of Age-related Vision Impairment is Emerging?

- 1. Age-related vision loss comes, over the years, with major loss in everyday functioning and leisure activity level as well as, to a less degree, with negative impact on well-being.**
- 2. However, a highly differentiated picture is also in place: There is high inter-individual variability in endpoints and a lot of factors are important to explain such variability (e.g., creativity in compensatory efforts, control strategy regulation, physical and social environment).**
- 3. As compared to other classic chronic conditions, the most dramatic difference on the negative side is everyday competence loss. However, on the more positive side, older adults with vision impairment tend to have closer connections with their social environment and are classic receivers of the dependency-support script.**

What Kind of Bigger Picture of Age-related Vision Impairment is Emerging?

- 4. Adaptation to age-related vision impairment needs a dynamic and time duration based view. Such an approach shows that adaptation is a major resource also for older adults with vision loss, but in the longer run new risks arise – and are possibly more pronounced as compared to those ageing sensory unimpaired.**
- 5. Age-related vision impairment challenges some of the robust findings of normative ageing research. For example, the linkage between positive affect and extraversion seem to decrease due to the chronic condition of sensory impairment. Cognitive resources also operate differently in the context of age-related vision impairment [see also presentations of V. Heyl and P. Drapaniotis on this conference].**
- 6. Taking all together, the experience of age-related vision loss is a good paradigm to learn about the gain and loss dynamic as people age and the potential and limits of human resilience in advanced old age.**
→ CAN WE DO SOMETHING AS PROFESSIONALS?

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Practical Implications

- **Psychosocial needs of older adults with vision impairment are significant.**
- **Classic training and rehabilitation approaches should undergo further development:**
- **Strong connection between vision and cognition: Cognitive enrichment and cognitive training as a major add-on.**
- **Role of personality and affect: Take such linkages serious; enrich the social world of older adults with vision loss, e.g., through interactions with the younger generation.**
- **Take the existing creativity in compensation and optimisation means serious; role of physical and technological environments.**
- **Use the power of self-management programs at large as an additional means to unfold rehabilitation potential and the generation of (new) life goals.**

Practical Implications

First Author / Publication Date	Sample Size and Mean Age	Country	Findings
Birk et al., 2004	N = 22; 73 years	D	+
Bradley et al., 2005	N = 12; 76 years	GB	+/-
Brody et al., 1999	N = 92; 79 years	USA	+
Brody et al., 2002	N = 231; 81 years	USA	+
Brody et al., 2005	N = 214; 81 years	USA	+
Brody et al., 2006	N = 32; 81 years	USA	+
Dalin-Ivanoff et al., 2002	N = 187; 79 years	S	+
Eklund et al., 2004	N = 131; 78 years	S	+
Eklund et al., 2006	N = 92; 79 years	S	+
Eklund et al., 2007	N = 131; 78 years	S	+
Kämmerer et al., 2006	N = 67; 77 years	D	+/-
Reeves et al., 2004	N = 226; 82 years	GB	-
Rovner et al., 2007	N = 206; 81 years	USA	+/-
Scalan et al., 2004	N = 64; 80 years	USA	+
Wahl et al., 2006	N = 67; 77 years	D	+/-

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Conclusions: Ageing Well in the European Context – Lessons to be Learned from Age-related Vision Impairment

- **Age-related vision impairment is a heuristically fruitful research paradigm for psychology and gerontology at large.**
- **...which may also increasingly attract early stage researchers.**
- **Age-related vision impairment should more strongly enter the European research arena (see FUTURAGE → Roadmap for European Research → 8th Framework Programme forthcoming).**
- **Age-related vision impairment should also find stronger consideration in the European research arena on ageing and technology (Ambient Assisted Living, AAL etc.).**
- **...and in psychosocially framed intervention research at large.**

Closing Vision

“Ageing, as we observe it today, is but one expression of what is possible in principle” [Baltes et al., 2006].



In some sense, this also applies to older adults with vision impairment.

Acknowledgement

- **Thanks to Vera Heyl, Amy Horowitz (& Team); Frank Oswald and Oliver Schilling.**
- **Thanks to funding bodies (German Research Foundation, Wilhelm Woort-Stiftung für Altersforschung).**

Thanks for Your Attention



Rauschebart mit Rad: Tilmann Waldthaler auf der Dreiländerbrücke bei Weil am Rhein.

FOTO: BIRGIT-CATHRIN DUVAL