Growing old or living long: Take your pick
Percentage of the United States Population Over the Age of 65
Racing Toward Immortality
(Or at Least Your 150th Birthday)

The spectacular — and scary — promise of embryonic-cell research.
By Stephen S. Hall

McEnroe's Midlife Tantrum • Bad-Girl Art • Mary Tyler Moore's Imaginary Friend
Percentage of the United States Population Over the Age of 65

1910: 3.6%
1930: 5.3%
1950: 6.9%
1970: 8.5%
1990: 10.3%
2010: 13.2%
2030: projected 18.5%
Any variable you like
The Aging Mind

Processing Capacity

Age Groups

Z-scores

n = 350

20's 30's 40's 50's 60's 70's 80's

Digit Symbol
Letter Comparison
Pattern Comparison
Letter Rotation
Line Span
Computation Span
Reading Span
Benton
Rey
Cued Recall
Free Recall

Park, Lautenschlager, Hedden, Davidson, Smith, & Smith, (2002). Psychology and Aging
High above the hushed crowd, Rex tried to remain focused. Still, he couldn’t shake one nagging thought: He was an old dog and this was a new trick.
The Aging Mind

Processing Capacity

World Knowledge

Age Groups

n = 350

Testing The Limits Research

Baltes & Kliegl, 1991

Number of Words Repeated (Max=30)

Final Distribution of Subjects

Baltes & Kliegl, 1991
Mean Recall by Condition

Hess, Auman, Colcombe & Rahal (2002) *Journal of Gerontology*
Socioemotional Selectivity Theory
Carstensen, 1993; Carstensen et al., 1999

- Humans are uniquely able to monitor time – including lifetime
  -- and do so at both conscious and subconscious levels.
- Goals are always set in temporal contexts.
- Because chronological age is associated with time left in life, goals change across the life span.
Preparing for the Future

- Expand horizons
- Acquire knowledge
- Meet new people
- Take chances
Focusing on the Present

- Live in the moment
- Know what’s important
- Invest in sure things
- Deepen relationships
- Savor life
Theoretical postulates

- Perceived constraints on time motivate people to pursue emotionally meaningful goals.

- Motivation to pursue emotionally meaningful goals influences cognitive processing.

- Focusing on emotionally meaningful goals is good for wellbeing.
Theoretical postulates

- Perceived constraints on time motivate people to pursue emotionally meaningful goals.

- Motivation to pursue emotionally meaningful goals influences cognitive processing.

- Focusing on emotionally meaningful goals is good for wellbeing.
Time horizons influence preferences

- When time horizons are manipulated experimentally, preferences change systematically. Younger people show preferences similar to the old when time horizons are shortened and older people show preferences similar to the young when time horizons are expanded. (Fredrickson & Carstensen, 1990; Fung, Carstensen & Lutz, 1999; Fung, Lai & Ng, 2001)

- When natural occurrences, such as personal illnesses, epidemics, political upheavals, or terrorism prime endings, preferences of the young come to resemble those of the old (Carstensen & Fredrickson, 1998; Fung et al. 1999; Fung & Carstensen, 2006)
National Health Interview Survey:
Percent reporting Serious Psychological Distress

Centers for Disease Control and Prevention, 2003
Theoretical postulates

- Perceived constraints on time motivate people to pursue emotionally meaningful goals.

- Motivation to pursue emotionally meaningful goals influences cognitive processing.

- Focusing on emotionally meaningful goals is good for wellbeing.
VIDEO CLIP
Capture the unexplored world.

ARNOLD Camera
111 First Street | Palo Alto, California | 650.555.1232 | arnoldcamera.com
Capture those special moments.

ARNOLD Camera
111 First Street | Palo Alto, California | 650.555.1234 | arnoldcamera.com
Success is within reach.
Don’t let time pass you by.
Take time for the ones you love.  
Don’t let time pass you by.
Preferences for Emotional Ads by Age

Preferences for emotional ads by age and condition

Recognition Memory:
Type of Advertisement Slogan by Age

Recognition Memory:
Type of Advertisement Slogan by Age

Mean Number of Images Recalled

Recall proportions

Mather, Canli, English, Whitfield, Wais, Ochsner, Gabrieli & Carstensen, Psychological Science, 2004
Amygdala activity

Amygdala Activity

Attentional bias scores

Do such findings have implications for decisions about health care?
Sample Decision Scenario

<table>
<thead>
<tr>
<th></th>
<th>Doctor A</th>
<th>Doctor B</th>
<th>Doctor C</th>
<th>Doctor D</th>
</tr>
</thead>
<tbody>
<tr>
<td>patient satisfaction</td>
<td>average</td>
<td>average</td>
<td>average</td>
<td>average</td>
</tr>
<tr>
<td>continuing education</td>
<td>very good</td>
<td>poor</td>
<td>very poor</td>
<td>good</td>
</tr>
<tr>
<td>medical school ranking</td>
<td>very poor</td>
<td>good</td>
<td>very good</td>
<td>poor</td>
</tr>
<tr>
<td>interpersonal skills</td>
<td>poor</td>
<td>very good</td>
<td>good</td>
<td>very poor</td>
</tr>
<tr>
<td>connections to good hospitals</td>
<td>good</td>
<td>very poor</td>
<td>poor</td>
<td>very good</td>
</tr>
</tbody>
</table>

(Löckenhoff & Carstensen, 2004; Löckenhoff & Carstensen, in press)
## Sample Decision Scenario

<table>
<thead>
<tr>
<th></th>
<th>Doctor A</th>
<th>Doctor B</th>
<th>Doctor C</th>
<th>Doctor D</th>
</tr>
</thead>
<tbody>
<tr>
<td>patient satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>continuing education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>medical school ranking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>interpersonal skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>connections to good hospitals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Löckenhoff & Carstensen, 2004; Löckenhoff & Carstensen, under review)
Instructional Manipulations

Control condition:
No particular instructions

Information-focus:
“Please focus on the facts and details.”

(Löckenhoff & Carstensen, 2004; Löckenhoff & Carstensen, in press)
Proportion of Positive Cells Reviewed

(Löckenhoff & Carstensen, 2004; Löckenhoff & Carstensen, in press)
Example Decision Frame

Health Care Plan

Please imagine that your current health plan is no longer available and you need to choose a new one.

(Please press spacebar when ready)
Queries

• **Memory**
  “Overall, how well do you remember HealthNow?”
  not at all   1  2  3  4  5  6  7   very well

• **Affective**
  “Overall, how do you feel about HealthNow?”
  very negative  1  2  3  4  5  6  7   very positive
HealthNow: dental care is fully covered

HealthNow: routine exams are not covered

CareNet: prescription drugs are fully covered

CareNet: physical therapy is covered
Choice Decision

Given this information, which option do you choose? (please circle one)

Health Now         CareNet
Choice Quality

- Age by Condition Interaction: $F(1, 76) = 5.86$, $p < .05$

Mikels et al., in preparation
Growing old or living long: Take your pick

Henry and Bryna David Lecture
National Academies of Science
November 14, 2006

Laura L. Carstensen
Professor of Psychology
Director, Stanford Center on Longevity