Achieving the Promise of Prevention for Older Adults

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July 2, 2008
Summer Institute in Mental Health Research
Different Social Images of Aging

Aging is a time of:

- Loss and decrepitude
- Unlimited leisure
- Productive engagement
One vision...

• “Successful aging”…
  – The intersection of physical and cognitive/psychological health, and social engagement

  – Rowe and Kahn, Science 1987
The Future of Successful Aging

• “We maintain that the future of old age depends to a significant degree on making images of aging more positive, empowering people to live healthy lives, and redesigning society to include more age-friendly technology and opportunities for challenging and meaningful roles in old age.” (Baltes, Smith, & Staudinger, 1992)
Make a difference!
for our community

To learn more about the Baltimore Experience Corps Study
call:
Gene Graves
410-807-1785

Volunteers will receive $25 for each in-person health evaluation interview. A small stipend will be provided for those selected to be Experience Corps program members.

Experience Corps is operated by:
The Greater Homewood Community Corporation
The Johns Hopkins Center on Aging and Health in cooperation with the Baltimore City Public School System, Baltimore City and the Committee on Aging and Retirement Education (CARE)

Funding provided by:
Abell Foundation
France-Merrick Foundation
Goldscher Foundation
Harry and Jeanette Weinberg Foundation
AmeriCorps National Service Network
Experience Corps National Office
National Institute on Aging
Maryland Governor’s Office of Service and Volunteerism

Principal Investigator
Linda P. Fried, M.D., M.P.H.
Johns Hopkins IRB # NA 00001250

Share your wisdom—
Make a difference!
Join the Baltimore Experience Corps® Study

Are you over 60?

Do you have life experience to share?

Do you want to make a difference?
The biggest challenge in mental health is staring you in the face.
We are an aging society

• By 2030:
  – 20% 65 and over, including 75 million baby boomers
  – 25% 60 and over
  – As many adults >65 as children <18
In an aging society...we will be living 1/3 of our lives after retirement
Figure 1: Number of Persons 65+, 1900 - 2030 (numbers in millions)

Year (as of July 1)

1900: 3.1
1920: 4.9
1940: 9
1960: 16.7
1980: 25.7
1990: 31.2
2000: 35
2010: 40.2
2020: 54.6
2030: 71.5
Rectangularizing the Pyramid

Source: UN Population Division. World Population Prospects 2006 Revision
World Aging Distribution 2050

Source: UN Population Division, Department of Economic and Social Affairs, 2002
Projected Increase in Mental Disorders Among Elderly

• 15 million cases of mental disorders, triple the current caseload, are expected among those aged 65+ by 2030.
• 275% increase in psychiatrically ill elderly predicted from 1970 to 2030, versus only a 67% increase in comparable cases among those aged 30-44.
• Mental illness in the elderly is underdiagnosed and undertreated.
• Health system is poorly prepared to deal with coming geriatric mental health crisis.
<table>
<thead>
<tr>
<th>Disorder</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any anxiety disorder</td>
<td>11.4</td>
</tr>
<tr>
<td>Simple Phobia</td>
<td>7.3</td>
</tr>
<tr>
<td>Social Phobia</td>
<td>1.0</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>4.1</td>
</tr>
<tr>
<td>Panic Disorder</td>
<td>0.5</td>
</tr>
<tr>
<td>Obsessive-Compulsive Disorder</td>
<td>1.5</td>
</tr>
<tr>
<td>Any Mood Disorder</td>
<td>4.4</td>
</tr>
<tr>
<td>Major Depressive Episode</td>
<td>3.8</td>
</tr>
<tr>
<td>Unipolar Major Depression</td>
<td>3.7</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>1.6</td>
</tr>
<tr>
<td>Bipolar I</td>
<td>0.2</td>
</tr>
<tr>
<td>Bipolar II</td>
<td>0.1</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>0.6</td>
</tr>
<tr>
<td>Somatization</td>
<td>0.3</td>
</tr>
<tr>
<td>Antisocial Personality Disorder</td>
<td>0.0</td>
</tr>
<tr>
<td>Anorexia Nervosa</td>
<td>0.0</td>
</tr>
<tr>
<td>Severe Cognitive Impairment</td>
<td>6.6</td>
</tr>
<tr>
<td>Any Disorder</td>
<td>19.8</td>
</tr>
</tbody>
</table>
Developmental Considerations

Important to distinguish among:

(a) Those who had the disorder earlier in life and are experiencing a continuation or recurrence

(b) Those with a vulnerability from earlier in life that is exacerbated in old age and only then results in mental disorder

(c) Those who experience a new disorder in later life

(d) Older adults who had a disorder earlier in life but do not show any evidence of disturbance in old age
Main Areas of Prevention in Old Age

- Prevention of skill loss and promotion of competency
- Prevention of psychological and physical conditions associated with dementia
- Prevention of major depression
- Prevention of suicide and relapse
- Stress and anxiety prevention
- Prevention of loss of control and self-esteem enhancement
- Prevention of institutionalization
- Preventive health
  - Diet
  - Nutrition
  - Exercise
Main Preventive Goals for Older Adults

- Health
  - Physical
  - Emotional (Mental)
  - Cognitive
- Financial security
- Independence and enhanced functional status
- Sense of meaning, ego integrity, and vital involvement
Aging, Cognitive Health, and Cognitive Decline

Cognitive Health?

Age-Associated Cognitive Impairment

Mild Cognitive Impairment

Alzheimer’s Disease

Cognitive Function

Age

50  60  70  80
Cognitive Aging

The graph shows the decline in various cognitive capacities across different age groups. The Z-scores for tasks such as Digit symbol, Letter comparison, Pattern comparison, Letter rotation, Line span, Computation span, Reading span, Benton, Rey, Cued recall, Free recall, Shipley vocabulary, Antonym vocabulary, and Synonym vocabulary are plotted against age groups from 20s to 80s. The data is based on a sample of 350 participants.
Age Changes in Cognitive Function

• Cognitive and memory declines are of great concern to older adults
• Most adults will eventually experience slowed information processing, changes in working memory, and executive function
• Changes in cognition in later life have important public health consequences
• Intense interest in developing interventions to protect cognitive health and prevent cognitive losses
“Outside of their own business, the ideas gained by men before they are twenty-five are practically the only ideas they shall have in their lives. They cannot get anything new. Disinterested curiosity is past, the mental grooves and channels set, the power of assimilation gone.”

William James (1893) *Principles of Psychology*
Exercise Your Brain!
Cognitive Training and Prevention Programs

- Cognitive training studies improve older adults’ memory and cognitive performance (Ball, Berch, Helmers, et al., 2002; Rasmusson, Rebok, Bylsma, & Brandt, 1999)

- Cognitive training programs demonstrate that diverse socioeconomic, ability level, and racial populations benefit from traditional training (Ball et al., 2002; Baltes & Kliegl, 1992; Rebok & Balcerak, 1989; Schaie & Willis, 1986)

- Training effects demonstrated for wide age ranges, including oldest-old (Baltes, Smith, & Kliegl, 1990), normal elderly, and those with cognitive impairment (Cahn-Weiner, Malloy, Rebok, & Ott, 2003)
Brain training takes aging Japan by storm
By George Nishiyama Mon Apr 10, 10:58 AM ET

TOKYO (Reuters) - Tamako Kondo says 10 minutes of exercise every morning keeps her fit. But the 80-year-old doesn't hit the treadmill or take aerobics classes. Instead, she sits at a desk, pencil in hand, and tackles simple arithmetic and other quizzes, part of a "brain training" program that has taken Japan by storm.

Bookshops now have separate sections for workbooks with the exercises and video game versions are selling like hot cakes among the growing ranks of older Japanese who hope the drills will reinvigorate their gray matter.

"I want to delay becoming senile as much as possible," said Kondo, who lives in a Tokyo home for the elderly.
“Use it or Lose it?”

“It’s a fortunate person whose brain
Is trained early, again and again,
And who continues to use it
To be sure not to lose it,
So the brain, in old age, may not wane.”

(Rosenzweig MR, Bennett EL. Behavioral Brain Research 1996;78:57-65)

“Despite the frequent assertions of the mental exercise hypothesis, its intuitive plausibility, and an understandably strong desire to believe that it is true……, there is currently little scientific evidence that differential engagement in mentally stimulating activities alters the rate of mental aging.”

(Salthouse TA. Mental exercise and mental aging: Evaluating the validity of the “Use it or lose it” hypothesis. Perspectives on Psychological Science 2006; 1:68-87.)
“Use it or Lose it” Hypothesis

• Has great popular appeal but has seldom been empirically tested
• Effortful cognitive activities appear to be protective against dementia in some studies
• Results of cognitive training studies show evidence for considerable cognitive plasticity
• Controlled trials are needed to assess effects of cognitive leisure activities on risk of dementia
ACTIVE

Advanced Cognitive Training Intervention for Vital and Independent Elders

ACTIVE Steering Committee

Funded by the National Institute on Aging and the National Institute of Nursing Research
ACTIVE Steering Committee

- University of Alabama-Birmingham
  Karlene Ball, Ph.D.
- Hebrew Rehabilitation Center for Aged, Boston
  John Morris, Ph.D.
- Indiana University
  Frederick Unverzagt, Ph.D.
- Johns Hopkins University
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- University of Florida / Wayne State University
  Michael Marsiske, Ph.D.
- New England Research Institutes, Coordinating Center
  Sharon Tennstedt, Ph.D.
- National Institute on Aging
  Jeffrey Elias, Ph.D.
- National Institute of Nursing Research
  Kathy Mann-Koopke, Ph.D.
ACTIVE: Primary Aim

To test the efficacy of three cognitive interventions, to improve or maintain the cognitively demanding activities of daily living.
Interventions

Three cognitive training interventions:
- Memory
- Reasoning
- Speed of Processing
Common Structural Features

- Small-groups (3-5 participants per group)
- Led by a certified trainer with a scripted manual
- 10 sessions over a 6-week period
- 60-75 minutes per session
- Pre-specified order of sessions and rules for make-ups
- 80% compliance for successful completion
Common Structural Features

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- Led by a certified trainer with a scripted manual
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Figure 1. Study Design

1. Ineligible
2. Screen for Eligibility
3. Eligible and Consenting
4. Baseline Measurements
5. Randomize to Training
   - Memory
   - Reasoning
   - Speed
   - No Contact
   - Post-Test (PT)

6. Booster
   - Yes
   - No
7. Booster
   - Yes
   - No
8. Booster
   - Yes
   - No

1. Yr Test (A1)
2. Yr Test (A2)
3. Yr Test (A3)
4. Yr Test (A5)
Target Population

- 65+ years of age
- Socioeconomically and racially diverse
- No evidence of substantial cognitive or functional decline
- At risk of decline
Excluded

- Age < 65 years
- Substantial cognitive decline
  - MMSE < 23
  - Self-reported Alzheimer's disease
- Substantial functional decline
  - Assistance with dressing, personal hygiene, bathing
  - Specified predisposing medical conditions (e.g., CVA)
Baseline Characteristics (N=2,802)

• Mean Age:  years  73.6 (5.9)  Range 65-94
• Gender:  Female  75.9%
• Race:  African American  26.0%
• Education:  H.S. diploma  88.6%
• Marital Status:  Married  35.9%
• Cognitive Status:  MMSE score  27.3 (2.0)
Simplified Conceptual Model

Participant Characteristics ⇔ Training ⇔ Cognitive Abilities ⇔ Daily Function

Proximal Outcomes
Primary Outcomes
Shared Intervention Components

- Focus on strategies for solving problems or responding quickly to information
- Modeling and demonstration of strategy usage
- Practice on exemplar problems
- Individual and group exercises
- Immediate feedback on performance
Shared Intervention Components

- Fostering of self-efficacy
- Application of strategies to real-world tasks
- Provision of individualized training experiences
- Activities focused on social interaction
ACTIVE: Memory Training Techniques

- Begin with use of simple memory strategies (such as grouping) and move to more complex techniques (such as method of loci), progressively fading out external/retrieval cues.
- Subjects get at least 3 individual and group practice exercises per session, involving both lab-type tasks (word lists) and real-world tasks (shopping lists).
- Work with certified trainers in small groups of 3-5 with a manual, posters, and handouts.
ACTIVE: Memory Training Techniques

Training involves instruction, guided practice, and immediate feedback in the use of memory techniques such as:

- Grouping items into meaningful categories
- Creating visual imagery and associations
- Using hierarchical text organization
- Using external aids and environmental modifications
ACTIVE: Memory Training Techniques

Techniques are based on the M.O.V.A. principles of memory:

- **Meaningfulness**
- **Organization**
- **Visualization**
- **Association**
ACTIVE: Memory Training Techniques

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Memory Man
Substantial and Durable Training Effects on Proximal Cognitive Outcomes
Training Effects on Primary Outcomes

- Effects generally small and non-significant
- No effects at A1 or A2
- No effects at A3, but stronger than at A1 or A2
Summary and Significance of Phase I Results

- Lack of Observed Transfer of Training Effects to Daily Function
  - Lack of observed functional decline
  - Proportion of participants at ceiling on primary outcomes
  - Evidence of strong practice effects in control group
Effects on Cognitive Abilities Five Years After Training

![Graph showing standardized training effect size for memory, reasoning, and speed trained groups.](image)

- Memory trained
- Reasoning trained
- Speed trained
Training Effects on Daily Function

- All trained participants reported less difficulty with everyday IADLs compared to control group; Significant only for Reasoning training.
- Training had no effect on performance-based measures of function. However, booster speed training improved performance in Everyday Speed.
- Training effects were modest, however have not been reported previously.
## Normal Memory vs Memory Impaired: Impact on Training on Memory, Reasoning, Speed

<table>
<thead>
<tr>
<th>Interven</th>
<th>Time</th>
<th>Memory</th>
<th>Reasoning</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>PT</td>
<td>.300***</td>
<td>-.009</td>
<td>-.050</td>
</tr>
<tr>
<td></td>
<td>A1</td>
<td>.254***</td>
<td>.033</td>
<td>-.061</td>
</tr>
<tr>
<td></td>
<td>A2</td>
<td>.214***</td>
<td>.052</td>
<td>-.057</td>
</tr>
<tr>
<td>Reason</td>
<td>PT</td>
<td>.001</td>
<td>.477***</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>A1</td>
<td>.013</td>
<td>.416***</td>
<td>-.026</td>
</tr>
<tr>
<td></td>
<td>A2</td>
<td>-.003</td>
<td>.262***</td>
<td>-.021</td>
</tr>
<tr>
<td>Speed</td>
<td>PT</td>
<td>.004</td>
<td>-.017</td>
<td>-1.488***</td>
</tr>
<tr>
<td></td>
<td>A1</td>
<td>.004</td>
<td>.009</td>
<td>-1.238***</td>
</tr>
<tr>
<td></td>
<td>A2</td>
<td>-.024</td>
<td>-.013</td>
<td>-0.886***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interven</th>
<th>Time</th>
<th>Memory</th>
<th>Reasoning</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>PT</td>
<td>-.012</td>
<td>-.117</td>
<td>0.105</td>
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<tr>
<td></td>
<td>A1</td>
<td>-.175</td>
<td>-.163</td>
<td>0.107</td>
</tr>
<tr>
<td></td>
<td>A2</td>
<td>-.100</td>
<td>-.015</td>
<td>0.400*</td>
</tr>
<tr>
<td>Reason</td>
<td>PT</td>
<td>-.048</td>
<td>.573***</td>
<td>-.277</td>
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<tr>
<td></td>
<td>A1</td>
<td>-.230</td>
<td>.208</td>
<td>-.155</td>
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<tr>
<td></td>
<td>A2</td>
<td>-.331</td>
<td>.276*</td>
<td>-.434*</td>
</tr>
<tr>
<td>Speed</td>
<td>PT</td>
<td>-.108</td>
<td>-.111</td>
<td>-1.420***</td>
</tr>
<tr>
<td></td>
<td>A1</td>
<td>-.163</td>
<td>-.097</td>
<td>-1.100***</td>
</tr>
<tr>
<td></td>
<td>A2</td>
<td>-.298</td>
<td>.079</td>
<td>-0.755***</td>
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</tbody>
</table>
To Be Determined:

- What are the best methods for specific training outcomes?
- How can current cognitive theory inform cognitive training, and vice versa?
- How should we define successful training?
- Who are the best candidates for successful training?
- Does cognitive training in later adulthood develop cognitive reserve or serve a protective function?
- How do we make training appealing, accessible, and cost-effective?
Some Caveats

• Training gains are of lower magnitude than many elderly, patients, and caregivers expect and progress may not be steady; problem of raising “false hope” and “blaming the victim” for cognitive declines

• Training effects tend to be highly task-specific and show limited generalizability; effects are reasonably durable but maintenance doesn’t automatically occur.

• Training may not prevent cognitive decline, BUT it can boost performance and may delay normative cognitive decline.

• A few sessions of cognitive training may not be sufficient to alter the life course with respect to decline, BUT it may compress the point of disability into a smaller window at the end of life.
Next-Generation Training Platforms

• Experiential/engagement: global, non-ability specific interventions

• Technology-based: video training, computerized training, internet-based

• Trainer-less Training: collaborative, interactive but little feedback provided

• Combinatorial Training: little work done on combined training (exercise and cognition, pharmacotherapy and cognition, etc.)
The Experience Corps Program

A new model of senior service and health promotion that simultaneously creates generative roles for older adults while meeting unmet needs of public elementary schools. Designed in 1994-1995 by Linda Fried and Marc Freedman.

Funded by the Johns Hopkins Prevention Center, Maryland State Department of Education, Baltimore City Public Schools, Baltimore City Commission on Aging and Retirement Education, Greater Homewood Community Corporation, Corporation for National Service, Retirement Research Foundation, and the Erickson Foundation
Experience Corps premises

• **What older adults do** affects their health and vitality
  – Healthy aging involves meaning, purpose, legacy, engagement
  – Physical, cognitive, and social activity engagement provides additive benefit
  – Dose and duration matter
  – Access to health promotion varies; dropout high
• The age-related desire for generativity offers a vehicle for health promotion
• An aging society can bring benefits
  – potential roles
  – impact needs to be defined to exemplify import
• Potential societal “win-win”
Experience Corps model

- Volunteers 60 and older
- Serve in public elementary schools: K-3
- Meaningful roles; important needs
- High intensity: $\geq 15$ hours per wk
- Reimbursement for expenses: $\$150$/mo
- Sustained dose: full school year
- Critical mass, teams
- Health behaviors: physical, social, and cognitive activity
- Leadership and learning opportunities
- Infrastructure to support program
- Program evaluation
- Diversity

- Freedman M, Fried LP; Experience Corps monograph, 1997
Roles for Experience Corps volunteers

- Literacy support
- Opening/maintaining school libraries
- Math support
- Computer support
- Behavioral: conflict resolution; non-conflictual play
- School attendance
- Parental outreach
- Public Health: Asthma club
Roles Were Designed for Impact and Health Promotion, Were Manualized, and Were Evaluated

- Literacy support: “Bound for Reading”
- Conflict resolution: “I to I”
- Socialized recess: “Partners in Play”
- Library support
Causal Pathway

Older Adult Outcomes

Intervention

Primary Pathways

Mechanisms

Performance-based measures
Secondary outcomes and intermediate mechanisms

Primary/ [Self Report] Outcomes

Experience Corps Participation - Generative Role Performance

Physical Activity

Cortical plasticity Cognition: Executive function

Strengths, balance

Walking Speed “get up & go”; Chair stand

Frailty

Complex task, speed and accuracy; change making

↑ Social Support & Interaction, psych. well-being, +Views of Aging, ↓ Depression

Mobility Function

IADLs: Meds Mngnt

Memory

Falls

↑ or preserved function or delayed decline in:

Social Integration & Support Generativity

Physical Activity

Cognitive Activity

Social Activity, Engmnt.
EC Pilot Study: Subject Randomization

- 151 older volunteers recruited and randomized to either treatment or control schools in Year 1
- Approximately equal numbers of volunteers randomized to treatment (n=72) or control schools (n=79)
- Almost 100% retention rate in Year 1
- Almost 90% of volunteers returned in Year 2
- Recruited an additional 17 volunteers for Year 2 and assigned to treatment schools to maintain critical mass
Primary outcomes

- Primary outcomes for older adults
  - Physical function
    - Activities of daily living
    - Instrumental activities of daily living
    - Mobility
  - Cognitive function
    - Memory
    - Executive function
- Primary outcomes for children/schools
  - Academic achievement (reading, math literacy)
  - Classroom behavioral problems
  - School climate
What We’ve Learned So Far

- Can recruit and retain a large group of elderly volunteers
- Volunteers accept the need for randomization
- Program perceived as widely attractive to older adults, well-accepted by participants, including principals, teachers, and children
- Results show initial positive benefit in selected areas of function among older adults:
  - Physical: improved chair stand
  - Cognitive: improved executive functioning
### Changes in Rates of Markers of Physical, Cognitive, and Social Activity in EC Participants and Controls

<table>
<thead>
<tr>
<th>Activity Risk Factors</th>
<th>EC Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More physically active at follow-up</td>
<td>63.0%</td>
<td>43.0%*</td>
</tr>
<tr>
<td>Time lying down/day</td>
<td>-1.2 hrs/day</td>
<td>+0.6 hrs/day</td>
</tr>
<tr>
<td><strong>Cognitive:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time watching TV/day</td>
<td>-0.5 hrs/day</td>
<td>+0.9 hrs/day*</td>
</tr>
<tr>
<td>Time reading books</td>
<td>no change</td>
<td>no change</td>
</tr>
<tr>
<td><strong>Social Support:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of people you could turn to for help</td>
<td>+0.8</td>
<td>-1.6*</td>
</tr>
<tr>
<td>*p&lt; .05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Preliminary pilot data (@ 12mos)

- Want more emotional support
- Feel I made a difference
- Feel others need me
- # people around to check on you
- # reported ties

Percent

EC Control
Impact on K-3\textsuperscript{rd} Grade Children

Results also show positive benefit for children. In first year of program operation:

- *Office referrals for behavioral issues dropped by 50\% in two EC schools and 34\% in the other EC school.*

- *Vocabulary scores on the PPVT-III improved in K and 1\textsuperscript{st} grade students.*

- *The percentage of children scoring “satisfactory” on the MSPAP reading test improved.*
Experience Corps Expansion: Project Study Design

- Randomized, controlled trial (24 EC schools, 24 control schools)
- N = 1046 older volunteers
- Men and women 60 and older; 6th grade literacy; MMSE ≥24 or ed adj ≥24 + pass Trails B; pass security check
- Randomized to Intervention (EC) or Control (referral to low intensity volunteering)
- Follow-up: 2-3 yrs
- Evaluations: baseline, 3, 12 and 24 months; 36 months for those enrolled year 1
1st Graders' Mean Normal Curve Equivalent of Stanford 10 Achievement Tests

*Significant difference between EC and non-EC schools
Change in Number of Suspensions from 2003-2004 to 2005-2006
(Original + New Schools)

<table>
<thead>
<tr>
<th>Kindergarten</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Total</th>
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<tbody>
<tr>
<td>EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>
Short Term Costs & Benefits

**Older Adult Compression of Morbidity**
- Memory maintenance
- Fewer falls
- Less disability and dependency
- Lower Medical Care Costs
- Higher quality of life
- Lower informal care costs

**School Benefits**
- Better school climate
- Fewer principal referrals
- Lower teacher turnover

**Changes in Experience Corps Volunteer Activity**
- Corps Volunteer & Other Assistance Activities

**Experience Corps Implementation**
- Recruiting
- Administration
- Stipend

**Changes in Non-Experience Corps Volunteer & Other Assistance Activities**
Long Term Costs & Benefits

Experience Corps
- Implementation
  - Recruiting
  - Administration
  - Stipend

Changes in Non-Experience Corps Volunteer & Other Assistance Activities

Children's Benefits
- Higher achievement test scores
- Improved expected lifetime earnings
- Avoid lifetime cost of dropout

School Benefits
- Better school climate
- Fewer principal referrals
- Lower teacher turnover

Older Adult Compression of Morbidity
- Memory maintenance
- Lower long-term cost of dementia
- Fewer falls
- Less disability & dependency
- Lower Medical Care Costs
- Higher quality of life
- Lower informal care costs

Experience Corps Implementation
- Recruiting
- Administration
- Stipend

Changes in Non-Experience Corps Volunteer & Other Assistance Activities
Experience Corps Papers


