INTELLECTUAL AND SOCIAL ENGAGEMENT THROUGH THE LIFE SPAN:
A FIRST LOOK AT THE SENIOR ODYSSEY PROGRAM

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RATIONALE

The engagement hypothesis of cognitive aging suggests that age-related declines in intellectual functioning may to some extent be buffered by a lifestyle marked by social and intellectual activities (e.g., Schooler et al., 1999; 2001), so that healthy minds are engaged minds. However, in the prevailing cultural stereotype, engagement in mentally demanding tasks is associated with youth, with the aged assumed to be either disinterested or unable to participate in intellectually stimulating activities (e.g., Riley & Riley, 1994). As a result, opportunities for elders to engage in cognitively stimulating activities may be restricted. These culturally defined limitations may actually exacerbate biologically based age-related declines in mental mechanics.

We are in the process of developing the Senior Odyssey program designed to promote social and intellectual engagement so as to promote cognitive functioning and mindful engagement with the world. Modeled on the Odyssey of the Mind program (odysseyofthemind.com), Senior Odyssey involves seniors in sessions devoted to solving both well-defined and ill-defined problems. As a model of cognitive intervention, it engages cognition:

- on many dimensions (i.e., speed, WM, decision-making).
- on a regular basis over time.
- in the context of creative activity so as to be inherently motivating.
- in the context of collaboration so as to provide environmental support in terms cognitive process and motivation.
- in the context of friendly competition, which provides rewards for effective solutions.

REFERENCES

Cacioppo, J. T., & Petty, R. E. (1982). The Need for Cognition. *Journal of Personality and Social Psychology, 42,* 116-131.

Ekstrom, R. B., French, J. W., & Harmon, H. H. (1976). *Manual for the kit of factor-referenced cognitive tests.* Princeton, NJ: Educational Testing Service.

Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). Mini-Mental State: A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatry, 12,* 189-198.

Metcalfe, J. (2000). Is study time allocated selectively to a region of proximal learning? *Journal of Experimental Psychology: General, 131*(3), 349-363.

Miles, J. R. & Stine-Morrow, E. A. L. (submitted). Adult age differences in self-regulated learning in reading sentences.

Riley, M., & Riley, J. W., Jr. (1994). Age integration and the lives of older people. *The Gerontologist, 34,* 110-115.

Salthouse, T. A., & Babcock, R. L. (1991). Decomposing adult age differences in working memory. *Developmental Psychology, 27,* 763-776.

Schooler, C., & Mulatu, M. S. (2001). The reciprocal effects of leisure time activities and intellectual functioning in older people: A longitudinal analysis. *Psych and Aging, 16,* 466-482.

Schooler, C., Mulatu, M. S., & Oates, G. (1999). The continuing effects of substantively complex work on the intellectual functioning of older workers. *Psych and Aging, 14,* 483-506.

Stine, E. A. L., & Hindman, J. (1994). Age differences in reading time allocation for propositionally dense sentences. *Aging and Cognition, 1,* 2-16.

Wilson, R. S., Barnes, L. L., & Bennett, D. A. (2003). Assessment of lifetime participation in cognitively stimulating activities. *Journal of Clin and Exp Neuropsych, 25,* 634-642.

PROGRAM FRAMEWORK

Stable teams of 5 to 7 elders work together over an Odyssey "season" in sessions of collaborative problem solving. The typical season revolves around one long-term problem selected by the team and numerous spontaneous problems. The Senior Odyssey season culminates in a tournament at which each team presents its solution to the long-term problem and competes in the solution to a novel spontaneous problem.

Spontaneous Problems

Spontaneous problems are fast-paced and encourage participants to think on their feet. They are presented in cycles of problems of different types that increase in difficulty throughout each session. These activities encourage active problem solving in a collaborative context so that participants typically have to consider what others in the group have done and build on that. Problems are designed to engage speed of processing, WM, inductive reasoning, spatial reasoning, and divergent thinking, and the difficulty of the problems is tailored to the ability of the group. For example...

What common phrase is suggested by...

T RN

GIVE GET
GIVE GET
GIVE GET
GIVE GET

What is the missing letter?
J ? M A M J J A

Name something that destroys something else.

Given
4 pieces of masking tape
1 page of newspaper
2 paper clips,
6 pipe cleaners

Task
Build a ranch.

Given
1 foot square of aluminum foil
1 toothpick

Task
Create a useful kitchen tool.

Long-term Problems

Long-term problems are open-ended with no single perfect solution. Problems are designed so that participants of varying ability levels can solve the problem in some way. Each team develops and tests solutions so it can present its most compelling and creative option. The solution is staged in the context of a theatrical presentation. For example…

Idiom Inspiration: Create and present an original humorous performance that includes a minimum of four idioms, three of which will be selected from a list and the fourth created by the team.

Fantastic Art: Create and present a performance that includes works of art that come alive when no one can see them and return to their original state when others are around. The team will make four works of art: two will be replicas of works by artists from a list, and two will be original works created by the team.

Balancing Act: Design, build, and test an asymmetrical structure made of balsa wood and glue that is wider at its top than at its base. The structure will be tested by balancing and supporting as much weight as possible.

Ody-SEE-ing Sounds: Present a humorous performance that includes ten different sound effects performed "live" for the audience. Six of the sound effects will be produced by two team-created devices; the others will be created in any manner the team wishes.

King Arthur: Present one of the legends of King Arthur and the Knights of the Round Table as popularly described. Include a legendary character and an original, team-made tapestry, a coat of arms and a flag.

IMPLEMENTATION

PHASE 1: Three small groups (N =16, M = 68 years, range = 52-81 years) of seniors participated in one 2-hour session of the program to assess the appropriateness of the problems chosen, feasibility with this age group, and attitudes toward the program.

On a five-point scale (1=strongly disagree; 5=strongly agree), participants reported that they had a good time (M=4.75, SD=.45); understood directions given for the problems (M=4.44, SD=.51); thought the activities chosen were enjoyable (M=4.38, SD=.81), and did not believe problems should have been included that were either easier (M=1.69, SD=.704) or more challenging (M=2.31, SD=1.195). Participants varied in terms of life satisfaction, mindfulness (M), and need for cognition (NC). These dispositions were related to program evaluation. The activities were especially enjoyable for those lower in NC (r=-.85). Individuals higher in NC and M would have preferred the inclusion of easier problems (r=.52 and .48, respectively), suggesting the importance of keeping activities within a region of proximal learning (Metcalfe, 2000; Miles & Stine-Morrow, submitted).

PHASE 2: Four groups were recruited from the surrounding community to participate in a 4-week Senior Odyssey program, in which groups met once a week for approximately one hour. Pre-test and post-test measures of cognitive ability and engagement were administered in the weeks immediately prior to and after the program.

Retention

With the exception of the group at the Retirement Apartments, attrition was low, suggesting that participation can be sustained over several weeks.
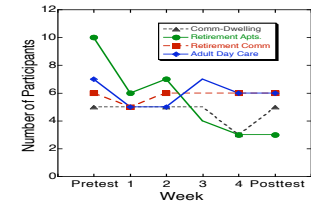
Satisfaction with the Program

On a five-point scale (1=strongly disagree; 5=strongly agree), participants reported that they had a good time throughout the program. Generally, problem difficulty appeared to be appropriate. However, Adult Day Care participants, who showed lower levels of cognitive performance overall, would have preferred some easier activities, suggesting that further adjustments in problem difficulty will be needed for this population.

GROUP	N	AGE	GOOD M	GOOD SD	EAS M	EAS SD	CHA M	CHA SD	EFF M	EFF SD
Comm-Dwelling	5	70	4.4	0.9	2.6	1.3	2.8	0.4	3.4	1.3
Retiremt Apts	3	74	5.0	0.0	3.0	1.7	2.6	1.5	4.3	1.4
Retiremt Comm	6	84	4.5	0.6	2.5	1.0	2.5	0.8	3.7	1.2
Adult Day Care	6	78	4.8	0.4	4.2	1.3	2.6	1.1	4.2	0.4

GOOD: Overall, I had a good time in the Senior Odyssey program.
EAS: I wish there had been some easier activities.
CHA: I wish there had been some more challenging activities.
EFF: I put forth much effort in working on the problems.

Measures of Cognition and Engagement

GROUP	N	AGE	MMS	VOC Pre	VOC Post	WM Pre	WM Post	SPD Pre	SPD Post	IND RS Pre	IND RS Post	VS Pre	VS Post	DT Pre	DT Post	NC Pre	NC Post	LCA Pre	LCA Post
Comm-Dwelling	5	70	28	.74	.76	.49	.57	.33	.77	1.18	.54	.91	1.19	.64	.79	14	20	85	78
Retiremt Apts	3	74	29	-.08	-.50	-.22	-.37	.08	-.06	.31	-.38	-.25	.14	-.15	.56	17	13	85	89
Retiremt Comm	6	84	26	.44		-.52		-.12		.07		-.42		-.50		13		96	
Adult Day Care	6	78	26	-.59	-.85	-----	-----	-----	-1.18	-.94	-1.11	-.96	-.92	-.13	-.55	12	4	89	89

MMS: Mini-Mental State Examination (Folstein, et al., 1975)
VOC: Extended Range Vocabulary (ETS-KRFT, Ekstrom, French, & Harmon 1976)
WM: Working Memory: Average z score of loaded listening span (Stine & Hindman, 1994) and computation span (Salthouse & Babcock, 1991)
SPD: Processing Speed: Average z score of letter and pattern comparison (Salthouse & Babcock, 1991)
IND RS: Inductive Reasoning: Average z score of letter sets and figure classification (ETS-KRFT, Ekstrom, French, & Harmon, 1976)
VS: Visual-Spatial: Average z score of card rotation, paper folding, and hidden patterns (ETS-KRFT, Ekstrom, French, & Harmon, 1976)
DT: Divergent Thinking: Average z score of ornamentation (ETS-KRFT, Ekstrom, French, & Harmon, 1976) and alternate uses (Reese et al., 2001)
NC: Need for Cognition (Cacioppo & Petty, 1982)

PHASE 3: To begin Fall 2004, a Senior Odyssey program will be implemented to be synchronized with the national Odyssey of the Mind Program.