

THE SENIOR ODYSSEY: COLLABORATIVE PROBLEM SOLVING AS A COGNITIVE INTERVENTION

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RATIONALE

The engagement hypothesis suggests that age-related declines in cognition may to some extent be mitigated by a lifestyle marked by social and intellectual engagement (e.g., Schooler et al., 1998; 2001). Assuming that the environment provides resources and rewards for effective solutions and creates opportunities for self-directed activity, complex environments continue to promote self-efficacy and the allocation of resources toward intellectual activity, thereby expanding the repertoire of intellectual skills available to solve new problems.

Ironically, contemporary American culture does not readily afford opportunities for intellectual engagement for elders. To the contrary, some have argued that we have constructed an "age-segregated" society, in which intellectual activities are tightly constrained by chronological age, with education and intellectual growth provided primarily to youth (e.g., Riley & Riley, 1994, 2000).

As a cognitive intervention, the Senior Odyssey operationalizes a "substantively complex" environment (Schooler et al., 1998), in which opportunities are provided for engagement with ill-defined problems and rewards are in place for effective solutions.

METHOD

Participants and Design

Adults (n=189; mean age = 73 years) from the community and residential retirement communities have volunteered to participate over two seasons (2004-05, 2005-06). Participants were randomly assigned to an experimental group or to a waitlist control. All participants were administered a battery of cognitive and psychosocial measures before and after the program. Complete data are available for the first cycle of the program.

The Program

The Senior Odyssey has been based on and developed in collaboration Odyssey of the Mind (www.odysseyofthemind.com), an existing program in which participants engage in creative problem solving in a collaborative/competitive context.

- *"Sports" model
- *Teams of 5-7 people
- *20-week season
- *Culminates in competitive tournament

Long-term Problems

Open-ended problems from the international OOTM program, with specific criteria for "success" that can be achieved in an infinite number of ways. Drawn from broad areas, such as literature, science and technology, civil engineering, and history. For example, ...

Ancient Egypt: Teams create an original performance that takes place in ancient Egypt. The presentation must include either a pharaoh, king, or queen, ancient Egyptian works of art/artifacts created by the team, an alternative explanation about the construction of an ancient Egyptian architectural structure, and a plot twist.

Geometry Structure: The problem is to design and build a structure of balsa wood and glue. The team will build geometric shapes into the structure's design and attach colored paper to the shapes. The structure will be tested for its ability to balance and support as much weight as possible.

Spontaneous Problems

Fast-paced, novel problems that exercise speed of processing, working memory, inductive reasoning, and verbal and ideational fluency. For example,....

What common phrase is suggested by...

KNOWITNO

PICT RES

Complete the series:

1, 2, 4, 7, 11, 16,...

2, 3, 10, 12, 13, 20, 21, ...

O, T, T, E, F, S, S, ...

Given: 6 straws, wad of clay, mailing label, 9 toothpicks, paper plate

Task: Create a structure that will support as many nails as possible at least 4 inches above the table.

RESULTS

Measure	Proportion Δ		t†	p	r(Engagement, Cognition)		
	Exp	Cnt			Activity	Mindful	Self-Effic
Perceived Cognitive Engagement							
Mindfulness	0.00	-0.06	2.07	.02			
Need for Cognition	-0.57	0.04	-0.83	>.2			
MIA Self-Efficacy	-0.01	0.00	-0.03	>.2			
Perceived Activity Level							
Lifetime Cogn Activ	0.01	0.01	0.14	>.2			
Activity Questionnaire	-0.01	0.04	-0.45	>.2			
Processing Speed							
Letter Comparison	0.22	0.02	2.13	.02	.32 **	.10	.27 **
Pattern Comparison	0.02	-0.07	1.33	.09	.27 **	.21 *	.16
Finding As	0.15	-0.01	0.95	.17	.10	-.05	.04
Identical Pictures	-0.11	-0.10	-0.22	>.2	.30 **	.15	.22 *
Working Memory							
Letter/Number Seq	0.08	0.00	1.29	.10	.25 *	.12	.26 **
Inductive Reasoning							
Letter sets	0.34	0.29	0.11	>.2	.36 **	.07	.37 **
Figure Classification	-0.20	-0.10	0.82	>.2	.41 **	.28 **	.33 **
Everyday Prob Slvg	0.17	0.12	0.82	>.2	.27 **	.10	.15
Visual-Spatial Processing							
Card Rotation	0.04	0.01	0.18	>.2	.25 *	.11	.26 **
Hidden Patterns	0.59	3.63	-1.03	.16	.37 **	.13	.21 *
Divergent Thinking: Fluency							
Word Association	0.03	-0.01	0.46	>.2	.28 **	.22 *	.08
FAS	0.07	0.06	0.07	>.2	.24 *	.22 *	.20 *
Alternative Uses	0.30	0.06	2.29	.01	.38 **	.23 *	.03
Substitute Uses	0.10	0.27	-1.50	.08	.36 **	.33 **	.29 **
Ornamentation	0.21	-0.05	1.58	.06	.10	.04	.01
Opposites Test	0.18	0.28	-0.90	.18	.42 **	.26 *	.11
Divergent Thinking: Originality							
Alternate Uses	0.04	0.02	0.25	>.2	.26	-.05	.10
Verbal Ability							
Extended Range	0.00	-0.03	0.45	>.2	.08	.09	-.02

† positive values indicate differences in change in the predicted direction; one-tailed test; *p<.05, **p<.01

CONCLUSION

The Senior Odyssey offers promise as a cognitive intervention as a lab-to-life translation. The development within existing educational and social structures optimizes potential for scaling up the program in an age-integrated form.



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