

THE SENIOR ODYSSEY: FACTORS ASSOCIATED WITH PARTICIPATION IN A COMMUNITY-BASED PROGRAM OF INTELLECTUAL ENGAGEMENT

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RATIONALE

There is some controversy about the nature of the interrelationships among cognitive functioning, activity level, and personality (Levy & Langer, 1999; Schaie, 2005; Hultsch et al., 1999). We explored these relationships in the context of participation in the Senior Odyssey, an ongoing program of intellectual engagement.

Our goals were:

- To establish the psychometric viability of a measure of personality attributes reflecting cognitive engagement (PACE).
- To examine the interrelationships among PACE, activity, self-efficacy, and cognitive ability.
- To describe how these factors contribute to participation in the Senior Odyssey program.



METHOD

Participants

Participants were community-dwelling elders and residents of local retirement apartments.

Procedure

Following pretest, a subset of participants were randomly assigned to participate in the Senior Odyssey program (or to a wait-list control). Based on the principles and activities of Odyssey of the Mind (www.odysseyofthemind.com), the Senior Odyssey program engages cognition in the context of collaborative creative activity on a regular basis over a 20-week season. Senior Odyssey incorporates both divergent and convergent problem solving to exercise speed of processing, working memory, fluency, visual-spatial processing, and inductive reasoning in a context that rewards active participation and creativity.

Measures

Participants were administered a battery assessing performance on a variety of cognitive measures (e.g., Ekstrom et al., 1976; Salthouse, 1991), personality (i.e., mindfulness, Bodner & Langer, 2001; MIDI openness, Lachman & Weaver, 1997; need for cognition, Cacioppo & Petty, 1982), self-efficacy (Dixon et al., 1988), and activity level (Hultsch et al., 1999) (see first column of Table 2).

During the 6th, 10th, 14th and 18th weeks of the program, participants in the experimental group completed a short assessment of their personal involvement in the program. This assessment consisted of ratings for the statements "I put forth a lot of effort in working on the problems," and "I felt like I was a strong contributor to my group," on a 1 to 5 scale (1=strongly disagree, 5=strongly agree). Immediately after each Senior Odyssey session, coaches used anchored scales (1=not at all engaged, 7=highly engaged) to rate each participant on their levels of cognitive engagement (e.g., at the high end, pays attention, offers answers, tries to complete all tasks) and social engagement (e.g., at the high end, relates to other group members on a personal level, instructs others in how solutions were derived, piggybacks on others' ideas).

Table 1. Participant characteristics

	Overall (N=89)		Experimental (n=61)	
	M	SD	M	SD
Age	73.0	8.8	74.6	8.8
Education	15.8	2.8	16.1	2.6
MMSE	27.7	1.9	27.5	2.0
Activity	276.6	46.9	276.4	47.0
Mindfulness	109.0	16.1	108.4	16.9
Openness	21.1	3.9	21.2	4.5
Need Cog	17.0	22.2	18.3	21.1
Self-efficacy	100.0	17.1	99.2	16.2

RESULTS

Table 2. Correlations between cognitive abilities (vertical) and activity level, self-efficacy, and PACE (horizontal)

	Activity	Self-Eff	PACE
Processing Speed			
Letter Comparison	0.32 **	0.27 *	0.12
Pattern Comparison	0.27 *	0.16	0.22
Finding As	0.10	0.04	-0.04
Identical Pictures	0.30 **	0.22	0.18
Speed Scale ($\alpha=.85$)	0.30 **	0.21	0.14
Working Memory			
Letter/number sequencing	0.25 *	0.26 *	0.20
Inductive Reasoning			
Letter sets	0.36 **	0.37 **	0.18
Figure Classification	0.41 **	0.33 **	0.32 **
Everyday Problem Solving	0.27 *	0.15	0.15
IR Scale ($\alpha=.67$)	0.44 **	0.39 **	0.28 *
Visual-Spatial Processing			
Card Rotation	0.26 *	0.26 *	0.21
Hidden Patterns	0.37 **	0.21	0.20
VS Scale ($\alpha=.67$)	0.39 **	0.27 *	0.26 *
Divergent Thinking			
Substitute Uses	0.36 **	0.28 *	0.28 *
Ornamentation	0.10	0.01	-0.03
Opposites Test	0.42 **	0.11	0.34 **
Alternative Uses: Fluency	0.38 **	0.04	0.25 *
Alternate Uses: Orig	0.26 *	0.10	0.04
Word Association	0.28 *	0.08	0.17
FAS	0.24 *	0.21	0.25 *
DT Scale ($\alpha=.74$)	0.45 **	0.20	0.30 *
Verbal Ability			
Extended Range	0.08	-0.01	0.16
MMSE	0.36 **	0.45 *	0.03

* p<.05, **p<.01

Table 3. Correlations between cognitive scales, activity level, self-efficacy, PACE, and program participation

	WM	IR	VS	DT	Verbal	Activity	Self-Eff	PACE	ProgParten
Processing Speed	0.41 **	0.49 **	0.61 **	0.59 **	0.21	0.30 **	0.21	0.14	0.29 †
Working Memory		0.57 **	0.41 **	0.50 **	0.20	0.25 *	0.26 *	0.20	0.18
Inductive Reasoning			0.61 **	0.51 **	0.27 *	0.44 **	0.39 **	0.28 *	0.38 *
Visual-Spatial				0.39 **	0.19	0.39 **	0.27 *	0.26 *	0.03
Divergent Thinking					0.49 **	0.35 **	0.45 **	0.20	0.30 *
Verbal Ability						0.08	-0.01	0.16	0.20
MMSE						0.36 **	0.45 *	0.03	0.07
Activity							0.38 **	0.38 **	0.16
Self-Efficacy								0.44 **	0.05
PACE									0.16

* p<.05, **p<.01, †p<.10

FINDINGS

- Mindfulness, openness, and need for cognition were combined to form a scale to assess a predisposition toward cognitive engagement (PACE). This scale showed good internal consistency ($\alpha=.84$), and was related to self-reported activity level ($r=.38$) and to certain facets of cognition (See Table 2).
- Consistent with earlier findings, an active lifestyle and self-efficacy were each related to cognitive abilities (Tables 2 and 3).
- Individual differences in the predisposition toward cognitive engagement (PACE) were related to inductive reasoning, visuo-spatial processing, and divergent thinking.
- Participant ratings and coach ratings of participation were averaged across time to provide a mean participation assessment for each rating scale ($\alpha=.78$). These four measures formed a scale with good internal consistency, so we took this as a measure of program participation.
- Program participation showed isolated relationships with cognition, but not with activity, self-efficacy, or PACE (Table 3).

CONCLUSION

More cognitively able elders had relatively more active lifestyles, showed a stronger predisposition toward cognitive engagement, and were more active group participants. However, the predisposition toward cognitive engagement was not predictive of group participation, suggesting that intellectual and collaborative engagement may represent independent contributors to cognitive competence.

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