Impacts of a computer and Internet skills training program on communication and social connectedness among low-income older adults

Jinsook Kim, Ph.D., Jennifer Gray, Ph.D., & Jim Ciesla, Ph.D.
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Presenter Disclosure

Jinsook Kim
No relationships to disclose

Background

- Social network decrease with aging
- Internet's potential to enhance social, psychological, and physical well-being of older adults
- Digital divide
  - Less use and narrower scope of computer and Internet use among older adults
  - Digital divide within older adults
- Inconclusive regarding intervention programs' impact on social connectedness among older adults
- Most studies done with highly educated, middle-class, white populations

Digital Divide within Older Adults

Discrepancies in computer and Internet use by

- Age
  - Younger > older
- Socioeconomic status
  - Lower income < higher income
  - Less education < more education
- Race/ethnicity
  - Hispanic < African American < White
- Gender
  - Historically male > female, now similar

Impacts of Training on Usage

- The majority continuing to use the Internet and email on a weekly basis (White et al., 2002)
- Increase in Internet and email use (Woodward et al., 2011)
- Email use among 80% of intervention participants (Grad & Berdes, 2005)
- More regular email use among participants in older adult-specific training than those in generic training (Lawton, 2001)

Impacts of Training on Social Networks

- Training -> Increased use -> Improved social networks?
  - Reduced loneliness in a meta-analysis (Choi et al., 2012)
  - Increase in perceived social support (Woodward et al., 2011)
  - Decreased loneliness (Shapira et al., 2007)
  - No effect on social network development (Slegers et al., 2008)

Study Aims

- Examine whether participation in a computer and Internet skills training influences
  - Primary modes of communication
  - Frequency of Internet use
  - Extent of social networks among low-income older adults
- Examine whether the changes in the extent of social networks vary by demographic and other factors

Methods

- Study design
  - One-group pre-and-post design
- Using data collected before and after a 6-week computer and Internet skills training program
  - Part of a comprehensive sustained Internet use promotion program
- Sample
  - Low-income older adults (age 65 to 91) living in public and Section 8 senior housing facilities

Intervention

- Computer learning center and Wi-Fi in communal spaces
- Computer and Internet skills training
- Staffed by a community program manager
- Free broadband service available for 1 year upon training completion
- Receipt of a free laptop computer at training completion

Instrument

Hard-copy self-administered questionnaire including

- Demographic characteristics
- Communication modes in 4 categories
- Frequency of Internet use in 6 categories
- Abbreviated version of Lubben Social Network Scale (LSNS-6) to measure the extent of social networks (Lubben & Gironda, 2000)

Lubben Social Network Scale (LSNS-6)

- Total 6 questions on
  - "the number of each *relatives* and *friends* one …"
    - "sees or hears from at least once per month."
    - "feels close enough to call on for help."
    - "feels at ease enough to talk about private matters."
- Six-point Likert-type response

0 = none	3 = three or four
1 = one	4 = five through eight
2 = two	5 = nine or more

- Sum of 6 item scores (ranging from 0 to 30) = the extent of overall social networks (Lubben et al., 2006)

Analysis

- Sample characteristics and distributions of 3 main outcomes at each pretest and posttest
  - Using means, percentages, t-tests, ANOVA, and Fischer's exact tests
- Pre-post difference in outcomes
  - Using paired t-tests, Sign tests, and Fischer's exact tests
- Variation in pre-post changes in LSNS-6
  - Using t-tests, ANOVA, and linear regression

Results: Sample Characteristics (1)

		n	%
Gender (n=76)	Female	49	64.5
	Male	27	35.5
Race (n=77)	White	58	75.3
	African American	19	24.7
Age (n=77)	65-69	26	33.8
	70-79	33	42.9
	80+	18	23.4

Results: Sample Characteristics (2)

		n	%
Education (n=77)	< High School	29	37.7
	High school/GED	22	28.6
	Some college+	26	33.8
Income (n=69)	< $5,000	19	27.5
	$5,000 - $15,000	41	59.4
	$15,001+	9	13.0

Results: Distribution of Outcomes

- Communication mode, Internet use frequency, and the extent of social networks (LSNS-6)
  - Similar across demographic groups at pretest & posttest
  - Exception: LSNS-6 difference by gender
    - At pretest, women (16.9) > men (13.1), $p < .05$
    - At posttest, women (20.7) > men (17.8), $p < .01$
- Social networks (LSNS-6)
  - No difference by communication mode or Internet use frequency
  - Exception: difference by Internet use frequency
    - At posttest, moderate users (22.1) > frequent users (19.6) > rare users (15.0), $p < .01$

LSNS-6 Score of Internet Use Groups

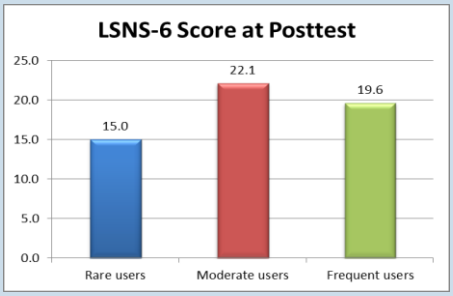

Figure 1. LSNS-6 score of 3 Internet use groups (per frequency) at posttest

Results: Pre-Post Differences

	Pretest	Posttest	p-value
Communication mode (n=73)			
Face-to-face	45.2%	20.5%	
Mail	9.6%	4.1%	
Phone	39.7%	32.9%	
Email/Internet	5.5%	42.5%	< 0.001[1]
Internet use frequency (n=59)			
Rare	37.3%	8.5%	
Moderate	22.0%	44.1%	
Frequent	40.7%	47.4%	< 0.0001[2]
LSNS-6 total score (n=72)	15.6 (0.7)	19.7 (0.5)	< 0.0001[3]

[1]From a Fisher's exact test; [2]From a Sign test; [3]From a paired t-test

Communication Mode at Pre & Post

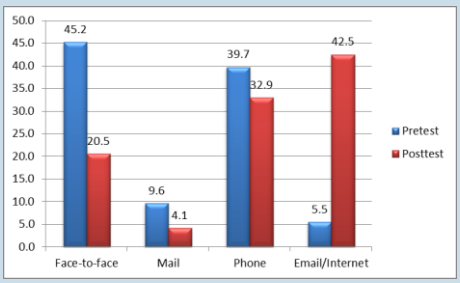

Figure 2. Primary mode of communication at pretest and posttest in percentages

Internet Use Groups at Pre & Post

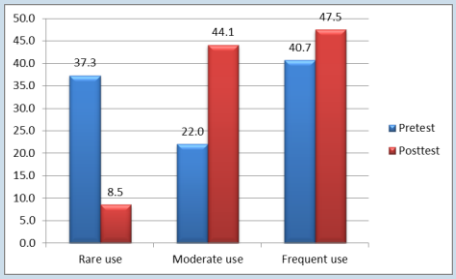

Figure 3. Three groups based on Internet use frequency in percentages at pre and posttest

Results: Pre-Post Changes in LSNS-6 (1)

		n	Mean (s.d.)	p-value
Gender	Female	46	3.9 (2.6)	
	Male	25	4.7 (2.5)	0.21[1]
Age	65-69	24	4.5 (2.2)	
	70-79	32	3.8 (3.1)	
	80+	16	4.1 (1.8)	0.65[2]
Race	White	54	3.7 (2.1)	
	African American	18	5.2 (3.5)	0.03[1]

[1]From a t-test comparing means of 2 groups
[2]From analysis of variance comparing means of more than 2 groups

Changes in LSNS-6 by Gender & Race

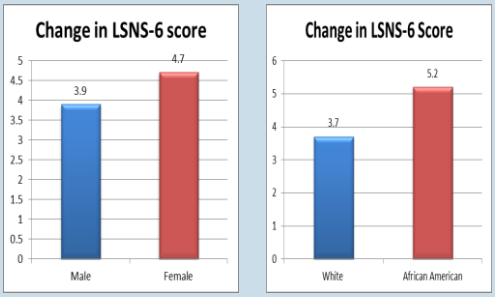

Figure 4. Changes in LSNS-6 score (pretest to posttest) by gender and race

Results: Pre-Post Changes in LSNS-6 (2)

		n	Mean (s.d.)	p-value
Education	< High school	28	4.2 (2.8)	
	High school/GED	21	3.7 (2.1)	
	Some college+	23	4.3 (2.8)	0.71[1]
Income	< $5,000	17	4.9 (3.3)	
	$5,000 - $15,000	39	4.2 (2.4)	
	$15,001+	9	2.7 (2.0)	0.12[1]

[1]From analysis of variance comparing means of more than 2 groups

Summary

- The primary mode of communication shifted from more traditional (face-to-face & mail) to digital means (email or Internet).
- The frequency of Internet use increased.
- The extent of social networks improved.
  - Similar improvement across groups regardless of demography, primary communication mode, and Internet use frequency
  - Significantly greater improvement among African Americans

Discussion

- Comparatively more improvement in the extent of social networks among African Americans
  - may indicate greater benefits of interventions on population groups of disadvantaged background
- Moderate Internet users with the highest LSNS-6 score, followed by frequent users and rare users at posttest
  - could be factors correlated with greater social networks among moderate users
- Limitations in study design, instrument, and sample size

Future Research & Practice Directions

- Test programs with a larger sample of disadvantaged participants and more longitudinal time points
- Further examine how the extent and types of Internet use influence social networks
- Compare programs with different components (in curriculum, service, equipment, etc.)
  - Test which components are associated with improvements in Internet use and social networks

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