

Apple iPads and MacBook Pros: Are They Relevant in the Lives of Seniors Age 65 and Older

by

Lori Lynn Reinstrom

American University

COMM 738: Research for Strategic Communication

Section 01 – Spring I 2017

In doing a SWOT (strengths, weaknesses, opportunities, and threats) analysis of Apple Inc., two significant weaknesses are observed: a lack of advertising to consumers 65 years of age and older (“seniors” for purposes of this study) and limitations of on-site support. The literature shows that seniors control nearly a third of the total U.S. net wealth (Jack, 2012) and are the demographic with the most available free time. However, it also shows that a significant percentage of people who do not use the Internet are aged 65 and older (Anderson & Perrin, 2016). Therefore, it would be interesting to see whether or not showing seniors how to use the Internet, how to use an Apple device (specifically an iPad or MacBook Pro for this study), and the relevancy of owning an electronic communication device affect their interest in purchasing an iPad or MacBook Pro. Is Apple missing a prime market by not advertising to them?

Literature Review

According to a recent Pew Research Center poll (Anderson & Perrin, 2016), 13 percent of Americans do not use the Internet; 41 percent are people 65 years of age and older. Barriers to those using the Internet, or technology in general, include physical challenges, no interest in doing so, not feeling it is relevant to their lives, or feeling they are too old to learn. Relevance and usability, in fact, account for 66 percent of the reasons this demographic have decided not to use the Internet. This is unfortunate because getting the 65-plus age group “connected” would be highly beneficial to them.

A 2011 report by the Administration on Aging showed that 58 percent of women (and 29 percent of men) 65 years of age and older were widowed, divorced or separated, or single (never married); and according to a 2012 AgingCare.com article (Botek), there is an epidemic of loneliness among the elderly. Eighteen percent live alone, and 43 percent feel lonely on a regular basis. Lonely seniors are at higher risk for a rapid decline in health and early death.

Seniors are more and more concerned about their risk of Alzheimer's disease or dementia. By 2050, as many as 7 million people age 85 and older may have Alzheimer's disease, accounting for half (51%) of all people 65 and older with the disease (Alzheimer's Association, 2016). It is currently the fifth leading cause of death for those age 65 and older. However, lifelong learning and cognitive training may reduce the risk of cognitive decline. According to a 2012 report from the National Institute on Aging, "staying cognitively active throughout life—via social engagement or intellectual stimulation—is associated with a lower risk of Alzheimer's disease" (Preventing Alzheimer's Disease: What Do We Know?, p. 14). Formal cognitive training (i.e., memory training, reasoning training, processing-speed training) also seems to help.

The aim of this field experiment is to determine whether or not showing relevancy of and providing personal training on an iPad or MacBook Pro has any bearing on the desire of seniors, aged 65 and older, to own one of the devices. It is hypothesized that personal training on an iPad or MacBook Pro will increase the desire of seniors to own one. To test this hypothesis, the following three research questions, each of which builds upon the one preceding it, will be addressed: (RQ1) if seniors are shown how relevant owning an iPad or MacBook Pro is to them personally, will they be more interested in learning how to use one; (RQ2) if seniors are provided hands-on instruction in learning how to use an iPad or MacBook Pro, will they be more interested in learning to use the Internet; and (RQ3) once seniors are shown how relevant owning an iPad or MacBook Pro is to them personally and once they are provided with hands-on instruction on how to use one, will they be more likely to own one?

Method

Participants

Participants were 300 seniors (age 65+) from Oregon, Arizona, South Dakota, Florida, and New Hampshire. With the exception of New Hampshire, these states were randomly chosen from an Internet search of the top places for retirees. New Hampshire was chosen because it was the top New England state for retirees. The intent was to gather a sample from a highly generalizable population. Because there is a wide range of physical and mental ability across this demographic, participants were selected from a variety of environments. One-third (34%) lived independently in their own home, one-third (33%) lived in assisted-living facilities, and one-third (33%) lived in nursing homes. Half of the participants (150) were men, and the other half (150) were women.

Half of the participants (treatment groups) were educated on the relevancy of having an electronic device, taught the basics of using the Internet, and instructed in the basic functions of using an iPad or MacBook Pro. The treatment groups consisted of a total of 150 participants [30 participants from each state; 10 participants from each living environment (independent living, assisted living, nursing home)].

The other half of the participants (control groups) were given no instruction regarding relevance, Internet use, or using an iPad or MacBook Pro. The control group consisted of a total of 150 participants [30 participants from each state; 10 participants from each living environment (independent living, assisted living, nursing home)].

Procedure

Recruitment. Flyers were placed in churches, grocery stores, pharmacies, assisted-living facilities, and nursing homes in Portland, OR; Mesa, AZ; Sioux Falls, SD; Cape Coral, FL; and Nashua, NH. Volunteer sampling was the main source of recruitment, although snowball

sampling was also considered. Inclusion criteria included age 65 or older and living independently in own home, in an assisted-living facility, or in a nursing home. Exclusion criterion was if they already owned an electronic tablet or laptop computer. From the list of volunteers, simple random sampling (random numbers table) was used to select participants. Participants' cognitive ability was assessed using the Mini-Mental State Examination (MMSE) (Appendix A) in order to ensure participants had the cognitive ability necessary to participate in the study. Potential participants were required to score ≥ 20 out of 30. Participants were randomly selected until the quota of 60 per state was met [20 from each living environment (independent living, assisted living, nursing home) and a gender ratio of 50/50]. Participants were evenly divided into treatment groups and control groups prior to the initial sessions (Table 1). In order to keep the groups to a manageable size, there were two treatment groups (TG1 and TG2, 15 participants each) and two control groups (CG1 and CG2, 15 participants each) per state. Every effort was made to keep the male/female ratio as close to 50/50 as possible per group.

Table 1

Participant Recruitment by State

	Independent Living		Assisted Living		Nursing Home	
	TG	CG	TG	CG	TG	CG
Arizona	10	10	10	10	10	10
Florida	10	10	10	10	10	10
New Hampshire	10	10	10	10	10	10
Oregon	10	10	10	10	10	10
South Dakota	10	10	10	10	10	10

TG = treatment group; CG = control group

Pretest Assessment. Prior to the initial session, participants in both the treatment groups and the control groups were given a self-administered baseline questionnaire (Appendix B), which assessed their feelings toward using the Internet, electronic devices in general, and

willingness to learn how to use an iPad or MacBook Pro. It also requested demographic information and where they would rate themselves on a loneliness and personal satisfaction scale.

Treatment: Initial Session. Participants in the treatment groups (TG1 and TG2) took part in an informal 90-minute presentation educating them on the relevance of using an iPad or MacBook Pro. Subject matter demonstrations included communicating via email and messaging; social media (Facebook); Pinterest; connecting to a health-care provider (e.g., eConsult and patient portal); an online initiative called [Speaking Exchange](#) (Brasil, 2014), a program that connects retirees in the United States with kids who are learning English in Brazil; downloading books from the local library; watching old television shows on Netflix; and online brain games, exercise programs, education, and shopping (e.g., Peapod, Amazon, JCPenney). A complete list of computer applications that were introduced can be found in Appendix C. Participants were encouraged to ask questions and provide feedback during the demonstrations.

Participants in the control groups (CG1 and CG2) met in another location during the same 90-minute time periods as TG1 and TG2 but were given their choice of a movie to watch on either an iPad or MacBook Pro. Research assistants started the movies and assisted with troubleshooting.

Month 1: TG1 and TG2 participants received face-to-face training three times per week (90 minutes per session) on basic computer use, how to use the Internet (e.g., email, Skype, Google, Facebook), and how to store and retrieve items (e.g., photographs, music, videos) that could be shared online. An Apple trainer conducted the training with two assistants in the room to help participants as needed. TG1 participants met on Monday, Wednesday, and Friday mornings; TG2 participants met on Monday, Wednesday, and Friday afternoons.

CG1 and CG2 participants met three times per week (90 minutes per session) and were given the following options: on Mondays, their choice of a movie to watch on either an iPad or MacBook Pro; on Wednesdays, their choice of playing a card game or reading a book/magazine; on Fridays, their choice of doing puzzles or working on brain games (e.g., search-a-word, crossword puzzles, etc.). CG1 participants met on Monday, Wednesday, and Friday mornings; CG2 participants met on Monday, Wednesday, and Friday afternoons.

Month 2: Training for TG1 and TG2 participants continued as in Month 1, but face-to-face sessions were decreased to once a week, every other week, supplemented with telephone and email contact in alternate weeks to monitor progress. Supplemental assistance was limited to no more than one hour per participant.

CG1 and CG2 participants continued as in Month 1, but face-to-face sessions were decreased to once a week, every other week. Participants were given the choice of watching a movie, reading a book or magazine, playing a card game, doing a puzzle, or working on brain games.

Month 3: Independent use for TG1 and TG2 participants was supplemented with telephone and email support as required (no scheduled visits).

CG1 and CG2 participants were encouraged to continue with the same activities they had been doing during Months 1 and 2. Research assistants telephoned participants at Week 2 to see how things were going and emailed participants at Week 4 to touch base and follow up.

During the three months of training, TG1 and TG2 participants were not required to persist with a specific application if they were not interested in it. They had only to receive the basic training in how to use the application in case they found a use for it at a later time. If participants were interested in learning a different application than what was being offered, the

research assistants made every effort to help them if the opportunity presented itself (e.g., slow periods of assisting others during training sessions).

The independent variable is training (or lack thereof) associated with using or owning an iPad or MacBook Pro. The dependent variables are relevancy of owning or using an iPad or MacBook Pro, interest in learning how to use one, attitudes toward using the Internet, personal sense of well-being (e.g., connected, respected, fulfilled), and likelihood of wanting to buy an iPad or Macbook Pro.

Posttest Assessment. At the end of the training period, all participants in both the treatment groups and the control groups were again given the self-administered questionnaire (Appendix B) that they completed prior to the study. Findings for such things as relevancy, interest, Internet use, personal satisfaction and loneliness, as well as the likelihood of wanting to buy an iPad or MacBook Pro were computed using a series of 2 (condition: training, control) x 3 (population: independent living, assisted living, nursing home) x 2 (time: baseline, follow-up) ANOVAs. Statistics are reported in Table 2 (or would be had the study actually been conducted).

Upon completion of the study, control group participants were given the option of receiving the same training as treatment group participants had received, with instruction to be provided by a local Apple trainer.

Materials. Apple iPads or MacBook Pros were provided to training group participants for a period of six months (three months of training plus an additional three months following). At the initial training session, participants were encouraged to try out both devices to get a feel for which one they might prefer. If participants did not have Internet access at their home, any necessary broadband infrastructure was also provided for a six-month period. After completion of the six months, participants were given the option of purchasing the device of their choosing

for a reduced rate. Broadband costs were then at the participants' expense. A user manual was also provided to each participant.

Discussion

Limitations

Recruitment. Although the intent was to choose a sample that was highly generalizable to the population being studied, it is possible that focusing strictly on top destinations for retirees will not give completely valid and reliable results. Participants from assisted-living facilities and nursing homes (as well as those who live independently) in communities known to attract retirees could potentially receive more social stimulation in their daily lives than, for example, someone living alone in a rural area or a metropolitan area not geared as heavily toward retirees. It is also possible that the sample chosen for this study does not adequately represent less educated adults, who may not be able to afford to retire in one of the top retirement destinations.

Assessments. This study assumed that participants would be capable of self-administering the pretest and posttest questionnaires. A more reliable method might be to have the questionnaires administered by the researchers on the day of the initial session. It is important to note that the questionnaire was not tested prior to the study, which could affect reliability/validity.

In addition to the MMSE, it might be beneficial to discuss potential assisted-living and nursing-home participants with the caregivers in their facilities to further assess their cognitive ability and physical dexterity for adequately participating in the study. It might also be helpful to administer additional assessment tools such as Ed Diener's [Satisfaction with Life Scale](#) (1985) or Sonja Lyubomirsky's [Subjective Happiness Scale](#) (1999) to determine whether or not there has been significant benefit or decline after treatment is completed.

Participants. There is a distinct possibility that treatment group participants interacted with control group participants away from the study locations. For purposes of this study, there is no way of knowing what effect the social interaction just from being in the study had on participants' loneliness scale as opposed to the interaction they had using their iPad or MacBook Pro. There is also the problem of attrition. When focusing on studies involving the elderly, there is always the possibility that some will pass away before the study is finished; others may decide the study is too time consuming or too overwhelming and ask to be released. Had this study actually been carried out, descriptions of the participants would be given, and a table provided, showing mean age with standard deviation; composition of sex, nationality, race, ethnicity (although not all of these were addressed in the questionnaire and probably should have been); percent with college degrees, percent who still work, marital status, etc. Also, the study aims to get a 50/50 gender ratio, but actual ratios may be approximate.

Directions for Future Research. It was mentioned earlier that 13 percent of Americans, age 65 and older, do not use the Internet. The Pew Research Poll also showed that 57 percent of them have a high school degree or less. Therefore, it would be interesting to repeat this study with a different population aimed at less educated seniors from rural areas. It might also be helpful to modify the Apple devices with a simplified user interface in order to prevent participants from becoming overwhelmed. Future studies could be conducted locally to save on cost. It would also be beneficial to conduct more qualitative research via focus groups to dig deeper into why seniors like (or don't like) certain features of the iPads or MacBook Pros as well as concerns about going online. Future studies should also address online safety concerns and identity theft protection.

References

- Administration on Aging. (2011). *A Profile of Older Americans: 2011*. Retrieved from <http://www.aarp.org/content/dam/aarp/livable-communities/learn/demographics/a-profile-of-older-americans-2011-aarp.pdf>
- Alzheimer's Association. (2016). *2016 Alzheimer's Disease Facts and Figures*. Retrieved from https://www.alz.org/documents_custom/2016-facts-and-figures.pdf
- Anderson, M., & Perrin, A. (Sept 7, 2016). 13% of Americans don't use the internet. Who are they? Retrieved from <http://www.pewresearch.org/fact-tank/2016/09/07/some-americans-dont-use-the-internet-who-are-they/>
- Botek, A.-M. (June 21, 2012). The Elder Loneliness Epidemic. Retrieved from <https://www.agingcare.com/articles/loneliness-in-the-elderly-151549.htm>
- Brasil, F. (May 7, 2014). CNA - Speaking Exchange. Retrieved from <https://www.youtube.com/watch?v=-S-5EfwpFOk&feature=youtu.be>
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71-75.
- Jack, L. (Feb 2, 2012). Rise of the Olds: Advertising Catches Up with a New Demographic. Retrieved from <https://www.fastcocreate.com/1679811/rise-of-the-olds-advertising-catches-up-with-a-new-demographic>
- Lyubomirsky, S., & Lepper, H. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, 46, 137-155.
- National Institute on Aging. (Sept 2012). Preventing Alzheimer's Disease: What Do We Know? Retrieved from <https://www.nia.nih.gov/alzheimers/publication/preventing-alzheimers-disease/search-alzheimers-prevention-strategies>

Appendix A

Mini-Mental State Examination (MMSE)

Patient's Name: _____

Date: _____

Instructions: Score one point for each correct response within each question or activity.

Maximum Score	Patient's Score	Questions
5		"What is the year? Season? Date? Day? Month?"
5		"Where are we now? State? County? Town/city? Hospital? Floor?"
3		The examiner names three unrelated objects clearly and slowly, then the instructor asks the patient to name all three of them. The patient's response is used for scoring. The examiner repeats them until patient learns all of them, if possible.
5		"I would like you to count backward from 100 by sevens." (93, 86, 79, 72, 65, ...) Alternative: "Spell WORLD backwards." (D-L-R-O-W)
3		"Earlier I told you the names of three things. Can you tell me what those were?"
2		Show the patient two simple objects, such as a wristwatch and a pencil, and ask the patient to name them.
1		"Repeat the phrase: 'No ifs, ands, or buts.'"
3		"Take the paper in your right hand, fold it in half, and put it on the floor." (The examiner gives the patient a piece of blank paper.)
1		"Please read this and do what it says." (Written instruction is "Close your eyes.")
1		"Make up and write a sentence about anything." (This sentence must contain a noun and a verb.)
1		"Please copy this picture." (The examiner gives the patient a blank piece of paper and asks him/her to draw the symbol below. All 10 angles must be present and two must intersect.) 
30		TOTAL

Interpretation of the MMSE:

Method	Score	Interpretation
Single Cutoff	<24	Abnormal
Range	<21	Increased odds of dementia
	>25	Decreased odds of dementia
Education	21	Abnormal for 8 th grade education
	<23	Abnormal for high school education
	<24	Abnormal for college education
Severity	24-30	No cognitive impairment
	18-23	Mild cognitive impairment
	0-17	Severe cognitive impairment

Interpretation of MMSE Scores:

Score	Degree of Impairment	Formal Psychometric Assessment	Day-to-Day Functioning
25-30	Questionably significant	If clinical signs of cognitive impairment are present, formal assessment of cognition may be valuable.	May have clinically significant but mild deficits. Likely to affect only most demanding activities of daily living.
20-25	Mild	Formal assessment may be helpful to better determine pattern and extent of deficits.	Significant effect. May require some supervision, support and assistance.
10-20	Moderate	Formal assessment may be helpful if there are specific clinical indications.	Clear impairment. May require 24-hour supervision.
0-10	Severe	Patient not likely to be testable.	Marked impairment. Likely to require 24-hour supervision and assistance with ADL.

Source:

- Folstein MF, Folstein SE, McHugh PR: "Mini-mental state: A practical method for grading the cognitive state of patients for the clinician." *J Psychiatr Res* 1975;12:189-198.



Appendix B

Apple Inc. Survey

On behalf of Apple Inc., thank you for volunteering to be a part of our study. Please answer each question below to the best of your ability.

Q1 Age

- ☐ 65-70
- ☐ 71-75
- ☐ 76-80
- ☐ 81-85
- ☐ 86-90
- ☐ 90+

Q2 Gender

- ☐ Male
- ☐ Female

Q3 Highest level of school completed

- ☐ Less than high school
- ☐ High school graduate
- ☐ Some college
- ☐ 2 year degree
- ☐ 4 year degree
- ☐ Professional degree
- ☐ Doctorate
- ☐ Other _____

Q4 Marital status

- ☐ Single
- ☐ Married
- ☐ Divorced
- ☐ Widow/Widower
- ☐ Other _____

Q5 What is your current employment status?

- ☐ Unemployed
- ☐ Part-time
- ☐ Full-time
- ☐ Retired
- ☐ Volunteer
- ☐ Other _____

Q6 What is your current household income?

- ☐ Less than \$10,000
- ☐ \$10,000 - \$19,999
- ☐ \$20,000 - \$29,999
- ☐ \$30,000 - \$39,999
- ☐ \$40,000 - \$49,999
- ☐ \$50,000 - \$59,999
- ☐ \$60,000 - \$69,999
- ☐ \$70,000 - \$79,999
- ☐ \$80,000 - \$89,999
- ☐ \$90,000 - \$99,999
- ☐ \$100,000 - \$149,999
- ☐ More than \$150,000

Q7 Do you currently own an electronic communication device (e.g., phone, tablet, computer)?

- ☐ Yes
- ☐ No

Q8 If you answered "No" to Question 7, why do you not own an electronic communication device?

- ☐ Not interested
- ☐ No need, not relevant
- ☐ Too expensive
- ☐ Wouldn't know how to use it
- ☐ Other _____

Q9 If you do currently own an electronic communication device, which type of device(s) do you own? (Check all that apply.)

- ☐ Flip phone or slide phone (no ability to connect to the Internet)
- ☐ Smartphone
- ☐ Tablet
- ☐ Laptop computer
- ☐ Desktop computer

Q10 What is your preferred electronic communication device? (Choose one)

- ☐ Flip phone or slide phone (no ability to connect to the Internet)
- ☐ Smartphone
- ☐ Tablet
- ☐ Laptop computer
- ☐ Desktop computer

Q11 How confident are you using your preferred electronic communication device?

- ☐ Extremely confident
- ☐ Moderately confident
- ☐ Slightly confident
- ☐ Not at all confident

Q12 How confident are you using the following electronic communication devices?

	Extremely confident	Very confident	Moderately confident	Slightly confident	Not at all confident
Flip phone or slide phone	☐	☐	☐	☐	☐
Smartphone	☐	☐	☐	☐	☐
Tablet	☐	☐	☐	☐	☐
Laptop computer	☐	☐	☐	☐	☐
Desktop computer	☐	☐	☐	☐	☐

Q13 On a scale of 1 to 10, how interested are you in learning to use an iPad (tablet) or MacBook Pro (laptop computer)?

	1	2	3	4	5	6	7	8	9	10
iPad	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
MacBook Pro	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q14 Do you currently use the Internet?

- ☐ Yes
- ☐ No

Q15 If you answered "No" to Question 15 above, why don't you use the Internet?

- ☐ No access
- ☐ Not interested
- ☐ No need, not relevant
- ☐ Too complicated
- ☐ Other _____

Q16 If someone were willing to spend time with you teaching you how to use the Internet, would you be interested in learning?

- ☐ Yes
- ☐ No
- ☐ Maybe

Q17 If you answered "Yes" to Question 15 above, how often do you use the Internet?

- ☐ Multiple times per day
- ☐ Once a day
- ☐ A couple of days per week
- ☐ A couple of days per month
- ☐ Once a month
- ☐ Less than once a month

Q18 On a scale of 1 to 10, how relevant do you think owning an iPad (tablet) or MacBook Pro (laptop computer) is to your life?

	1	2	3	4	5	6	7	8	9	10
iPad	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
MacBook Pro	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q19 How likely are you to purchase an iPad (tablet) or MacBook Pro (laptop computer)?

- ☐ Extremely likely
- ☐ Moderately likely
- ☐ Slightly likely
- ☐ Neither likely nor unlikely
- ☐ Slightly unlikely
- ☐ Moderately unlikely
- ☐ Extremely unlikely

Q20 On a scale of 1 to 10, how often do you feel ...

	Never 1	2	3	4	5	6	7	8	9	Always 10
Lonely	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Respected	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Satisfied with life (fulfilled)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q21 How interested are you in the following:

	Not interested at all	Slightly interested	Moderately interested	Very interested	Extremely interested
Connecting with your health care provider	☐	☐	☐	☐	☐
Learning a foreign language	☐	☐	☐	☐	☐
Learning a new skill	☐	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐	☐
Playing a game	☐	☐	☐	☐	☐
Reading a book	☐	☐	☐	☐	☐
Seeing (and talking to) a friend or family member who lives far away	☐	☐	☐	☐	☐
Teaching/mentoring someone	☐	☐	☐	☐	☐
Watching old movies	☐	☐	☐	☐	☐

Thank you for taking the time to complete our survey!

Appendix C

Computer Applications Introduced to Treatment Group Participants During Initial Session

- App Store*
- Contacts
- Dashboard
- FaceTime*
- iBooks*
- iMovies
- iTunes
- Mail*
- Messages*
- Photo Booth
- Photos*
- Safari*

Note: These applications were touched on briefly when demonstrating to participants how relevant using an iPad or MacBook Pro could be in their daily lives. Participants were informed that they would not be required to learn all of these applications during the training period.

* Applications that were focused on the most.