# Amazon "Alexa" Pilot Analysis Report

Front Porch Center for Innovation and Wellbeing

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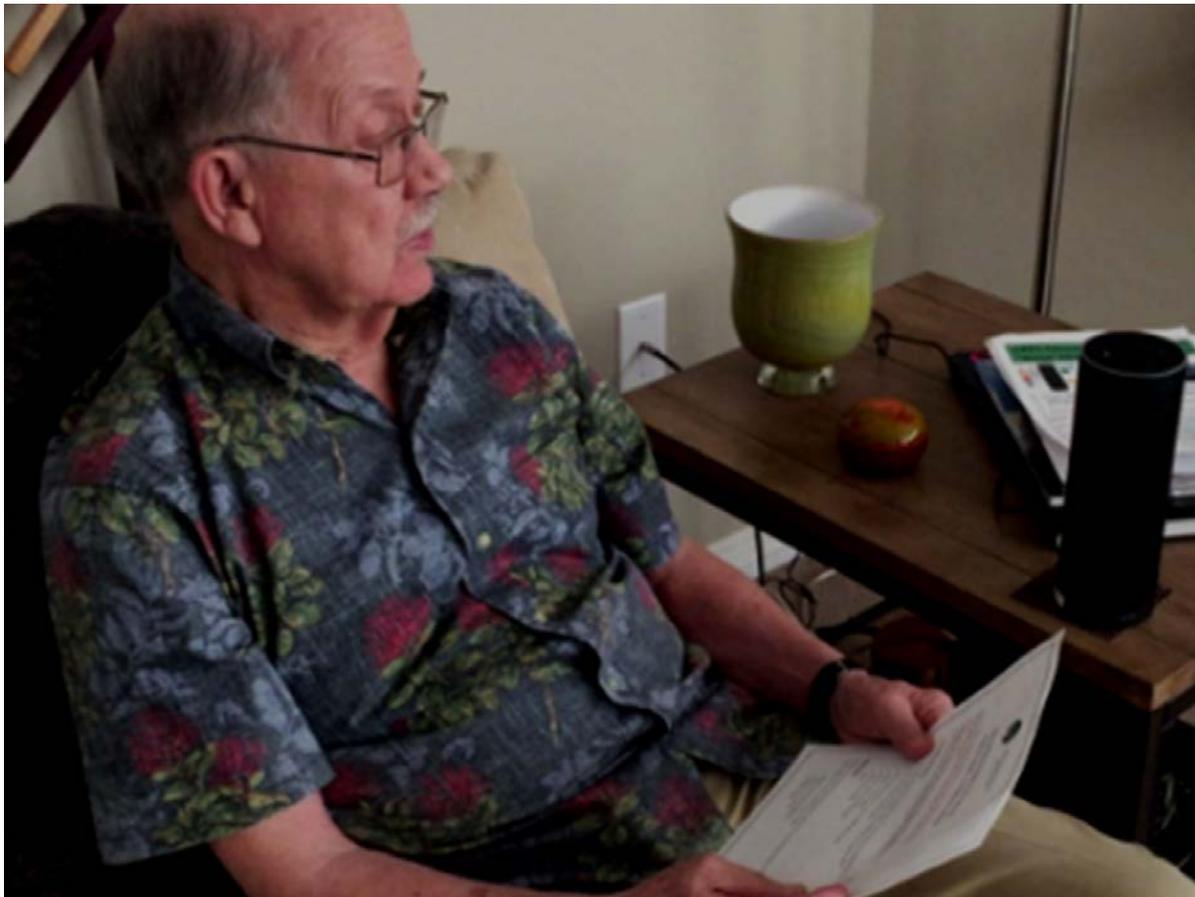
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Executive Summary

The Front Porch Center for Innovation and Wellbeing (FPCIW) launched the Amazon Alexa Pilot in February 2017 at Carlsbad By The Sea (CBTS), a Front Porch community. FPCIW designed the pilot based on initial focus group feedback and interest from the community's residents and their Technology Committee on "Voice First" technologies.

Amazon Alexa is a home speaker and "virtual assistant" personified by its call-name "Alexa." It responds to voice commands to perform a wide range of functions such as playing music, providing news and weather updates, managing daily reminders and alerts, and working with a host of other subscription-based services and "smart home" devices. Voice First technologies such as the Amazon Alexa represent "a large and growing market", as evidenced in a recent report by [VoiceLabs](#), that will see continued growth in new capabilities in the year ahead.

FPCIW developed a pilot to test the Amazon Echo and Dot at CBTS with the goal of better understanding how voice assistance and home automation technology may help promote greater convenience, independence, and wellbeing for older adults. The pilot's specific objectives sought to:

- Evaluate Voice First technology and its capabilities for relevance, effectiveness and ease of use for the older adult.
- Determine whether Voice First technologies promote independence and self-management by allowing older adults voice control and automation of their environment.
- Determine whether Alexa devices facilitate effective and convenient solutions for staff, family members, and caregivers in providing better care and communication with older adults.
- Assess whether Alexa devices help increase social interaction and engagement levels among older adults.
- Develop a model for the future deployment of Voice First technologies to additional senior living communities and older adults in general.
- Measure the impact of the project on participants through a series of baseline and post intervention surveys, focus group discussions, and interviews.

Results from the CBTS pilot reflected high satisfaction and engagement levels:
- 75% used their smart devices at least once a day.
- 100% felt the Alexa overall made their life easier.
- 71.43% felt more connected to family, friends, and the community since the start of the Alexa pilot.

The pilot attracted an enormous amount of attention from the media based on [a story from the MIT Technology Review](#), which in turn attracted a diverse audience of companies (from startups to well-established firms), senior living communities, service organizations, and groups representing national and international interests. The potential of Voice First and smart home technologies to impact the lives of older adults has awakened the public imagination. The positive results from the pilot suggest that Voice First innovations warrant further exploration in the promotion of independence and wellbeing of older adults.

Acknowledgements

FPCIW would like to thank the staff and residents of Carlsbad By The Sea retirement community for participating in and contributing to this project. We especially would like to thank Joan Johnson (Executive Director) and John Sanders (CBTS Technology Committee Chairman), who through his generous contribution and influence, made it possible for more older adults to experience Voice First innovations.

Introduction

Since Amazon first introduced Alexa in late 2014, the Front Porch Center for Innovation and Wellbeing (FPCIW) has been exploring Alexa's potential impact for addressing the independence and aging-in-place needs of older adults as an affordable and accessible consumer-based solution. At the same time older adult interest in "Voice First" technologies also began to peak. As a result of this, FPCIW in partnership with residents and staff at Carlsbad By The Sea (CBTS), a Front Porch community, launched the Front Porch Amazon Alexa Pilot in February 2017.

The value proposition of voice assistants such as the Amazon Alexa to address the needs of older adults with physical challenges were clear from the beginning. Stories on user forums and blogs of how people have been using their Amazon Echo devices to help a family member with Parkinson's, remotely care for a loved one, or simply to access music and contribute to an older adult's independence began to emerge soon after the Amazon Echo become commercially available.

Generally known as "Voice First" technologies, consumer-based products such as the Amazon Alexa which provide a voice input and output interface, are increasingly commonplace platforms that are inspiring imaginations. In their recent assessment of voice-based technologies, VoiceLabs published a report that remarked upon the impact that Amazon Alexa and Voice First innovations are having on "a large and growing market" which will see continued growth in new capabilities in the year ahead. In fact, according to Gartner, 30% of internet browsing will be conducted without a screen by 2020, thanks to Voice First technologies. While artificial intelligence (AI) assistants such as Apple's Siri and Microsoft's Cortana have been available over the last few years and continue to innovate, device-specific platforms such as the Amazon Echo and Google Home have helped mainstream the technology.

When the leadership and residents of CBTS expressed interest in introducing the Amazon Echo to the community, FPCIW initiated focus group sessions with CBTS residents to learn more about their attitudes and ideas about Voice-First solutions. The data from those initial meetings provided the basis for the pilot's design (see Appendix A). The FPCIW Amazon Alexa 6-month pilot program included a Phase 1 staging of community engagement, adoption and training of the Amazon Alexa, followed by a Phase 2 integration of "smart home" devices with the Alexa platform. The pilot began with 12 households, but the adoption of Alexa devices expanded to 90 homes in the community by the end of the project due to the proactive leadership and support among CBTS staff and residents. This report outlines the Amazon Alexa Project's goals, implementations and findings.

Product Overview

The Amazon Alexa is a hands-free, virtual personal assistant that responds to voice commands and questions. It is a cloud-based AI engine that learns a user's speech and language patterns. The Amazon Alexa comes in a variety of device forms that include the Echo, Echo Tap, and Echo Dot. Over the last few months, Amazon released additional and revamped Alexa-based products with retail price points starting at $29.99 for the Dot up to $229.00 for the video-based Echo Show (Amazon has frequently provided special pricing offers throughout the year).

Though Amazon Prime's fee-based membership offers a wide range of services such as unlimited streaming music and audio books, a Prime membership is not necessary to operate an Alexa device. A user may still access a number of free programs through the expanding marketplace of "Skills," Alexa's third-party app platform. Skills enable a user to command Alexa to perform a wide range of tasks including accessing information, playing games, meditating, exercising, listening to music, managing simple tasks, and connecting with caregivers and loved ones. As of the writing of this report, there are over 25,000 Alexa Skills, and the list grows daily.

The Amazon Alexa can also integrate with a growing variety of "smart home" products such as house lights, thermometers, and any appliance that can connect to a smart outlet plug. These solutions represent a burgeoning category of connected devices known as the Internet of Things (IoT). Over the course of the pilot, other technology companies have released or announced plans to launch similar Voice First devices such as the Google Home and the Apple HomePod that also integrate with smart home appliances.

Though there are few differences between the Echo, Tap, and Dot aside from their price points and sizes, FPCIW ultimately selected the Echo for our pilot based on its louder and richer speaker capabilities and feedback from initial focus group discussions. For our smart home phase of the pilot, we additionally selected TP Link Smart Plugs ($30) to control lights and other electrical appliances, Honeywell Smart Thermostats ($159), and Alexa Voice Remotes ($30) to control devices from anywhere in the home. The selection of these smart home devices were based on the fact that older adults were able to directly connect to the community provided Wi-Fi network and therefore did not require a separate network hub device.

Pilot Design

Focus Group Discussions

Our pre-pilot focus group discussions with 25 older adults in July 2016 explored ideas, needs, and expectations around Voice First technologies, and were met with high enthusiasm. While the groups skewed to the more tech savvy, the conversations reflected a diversity of physical abilities, interests, and daily routines (see Appendix A). Feedback from these focus group meetings provided the basis for our pilot design.

Some of the hopes and desires that focus group participants expressed with Voice First technology included:
- General news, weather and sports updates
- Managing personal calendars
- Receiving emails and messages
- Controlling home appliances
- Not having to use a keyboard
- Intercom and phone capabilities
- Setting reminders
- Requesting community services
- Reading with audiobooks

We learned from our focus group discussions that most of the participants tend to stay in a main room or location while in their homes. A portable/mobile voice-activated solution was considered convenient, but they didn't see the need for such an option. Music and reading figured prominently among the group, and many sourced their news from print, television, or websites. Some, however, noted physical limitations as challenges to accessing such content and information, especially when using computers.

Pilot Structure and Enrollment

FPCIW formally launched the 6-month Amazon Alexa pilot in February 2017, and installed Amazon Echo devices in 12 resident homes with a total of 18 participants. Phase 1 focused on the onboarding of participants with basic Alexa use, an overview of Skills, and general training and adoption of the devices. Phase 2 began in June 2017, and introduced smart home integration that included smart outlet plugs, thermostats, and Alexa remote controls.

Interest among CBTS residents to participate in the project was high: 22 volunteers applied for 12 Echo devices. In consultation with the CBTS resident technology chair and the executive director, FPCIW selected a group of individuals with a cross section of technology backgrounds,

age ranges (from 79 to 100, with an average age of 87 years), single and couple-based households, individuals with caregiving roles for their partners, and physical abilities such as vision and mobility. The pilot also enrolled 3 additional participants who already owned and used Alexa devices in order to study the impact that expanding their knowledge base through the pilot activities could have on their satisfaction and experience with the device.

To accommodate the demand for participation among other residents who applied but were not able to participate in the pilot, the CBTS technology chair and executive director handed out Alexa Dots to additional residents (GROUP DOT). GROUP DOT users were not formally a part of the pilot, but were allowed to participate in the project's activities, such as trainings and workshops, alongside the selected pilot participants (GROUP ECHO).

Goals and Outcomes

The overarching goal of the pilot was to understand how voice assistance and home automation technology can promote greater convenience, independence, and wellbeing among older adults. FPCIW designed the pilot with this vision in mind, supported by the following objectives and desired outcomes:

Objectives:
- Evaluate Voice First technology and its capabilities for relevance, effectiveness and ease of use for the older adult.
- Determine whether Voice First technologies promote independence and self-management by allowing older adults voice control and automation of their environment.
- Determine whether Alexa devices facilitate effective and convenient solutions for staff, family members, and caregivers in providing better care and communication with older adults.
- Assess whether Alexa devices help increase social interaction and engagement levels of older adults.
- Develop a model for the future deployment of Voice First technologies to senior living communities and older adults in general.
- Measure the impact of the project on participants through a series of baseline and post intervention surveys, focus group discussions, and interviews.

Desired Outcomes:
- Increased older adult engagement.
- Increased social connectedness among older adults, staff and family.
- Increased engagement among older adults with limited vision or mobility.

Phase 1: Project Training, Adoption and Implementation

Network Infrastructure and Project Deployment

Alexa Echo devices require wireless connectivity, and the importance of adequate coverage and sufficient bandwidth were considered. The CBTS community was equipped with Wi-Fi throughout its buildings, and prior to the project deployment, CBTS upgraded its broadband circuit. The increased bandwidth was critical to accommodate the rapidly rising demand for bandwidth in support of all connectivity needs at the community as well as the streaming load of devices in the pilot. Some building locations, however, did experience variation in Wi-Fi signal strength which posed some challenges with positioning select devices.

Key to FPCIW's adoption strategy during Phase 1 was the initial installation of the Echo devices in participant's homes. Based on an intake survey of interests and technology skills, FPCIW staff interviewed individuals to further understand tastes, preferences, and desires. Whether it was a classical radio station that a person had long since listened to, a favorite news program, a basketball team, or a preference for theatrical music, each installation focused in on 1 to 2 preferences that helped personalize each participant's experience and fast-tracked the engagement with the technology.

During installation, each individual received a simple FPCIW created "cheat sheet", which outlined basic Alexa commands, and a voice training exercise to help their devices better respond to their requests. The training also included instructions on accessing weather, news, and music. When possible, participants used their own computers to set up their Alexa accounts. While a handful of participants already had Amazon and Amazon Prime accounts, some didn't have email. In those cases, a FPCIW staff member created accounts, and additionally enrolled them into free services such as Pandora for music streaming.

As with all FPCIW projects, the team maintained an "issues log" that documented technical problems, resolutions if any, and desired features. While Amazon was not involved with the pilot design and implementation to help address some of the technical issues that arose during the project, the issues log will be shared with the company.

Training and Support

To support the ongoing adoption needs of the pilot participants, FPCIW organized twice a month "Alexa 101" workshops to cover basic use of their devices, answer questions, and

address technical support issues. The following are topics that were discussed during the workshops:

- Workshop 1: Adding & Using Skills to the Echo
- Workshop 2: Open Q&A/ Drop-in Support Hour
- Workshop 3: Linking 3rd Party accounts to Echo (music, ebooks, etc.)
- Workshop 4: Reading Kindle & Audiobooks with Alexa
- Workshop 5: More Alexa Skills to try
- Workshop 6: About Marvee: A Care Companion Skill & Setup Guide
- Workshop 7: Alexa Calling & Messaging
- Workshop 7: How to Set Reminders with Alexa

These workshops were open to members of both GROUP ECHO (formal pilot participants) and GROUP DOT (participants who received a Dot but who were not enrolled in the pilot). Though some of the trainings repeated material covered in previous discussions, participants welcomed the refresher content to help remind them of how to operate their Alexa devices. We also learned these meetings served as important community-building events, as participants used these opportunities to connect with one another and share their new experiences with their technology. Participants generally appreciated the workshops, and often looked forward to the next training meeting.

One of the pilot's objectives was to determine whether Alexa could facilitate effective and convenient solutions for staff, family members, and caregivers in providing better care and communication with older adults. To this end, FPCIW used the workshops as an opportunity to introduce a Skill to connect older adults with their remote caregivers. We selected Ask Marvee, an Alexa Skill that lets a user "check-in" with a relative or loved one. With the help of family members, some of whom attended the workshops, FPCIW provided pilot participants with the opportunity to sign up members of their close social contacts.

CBTS staff also attended Alexa trainings. FPCIW organized in-service meetings to go over the device with department heads from life enrichment, marketing, and administrative staff. To further encourage the participation and engagement of staff, the executive director gave Echo Dots to all of her department heads which increased the awareness of the project and built enthusiasm in the community.

The FPCIW team also regularly checked in with pilot participants during the first crucial three weeks of the program. While some of the technical issues we encountered were related to dropped Wi-Fi signals, participants eventually came to understand that their devices would automatically re-establish connections and simply needed to wait for their device signals to return. On the whole, however, many of the weekly check-in calls centered on reminders about

basic functions such as volume control, properly using the "Alexa" wake word, and accessing their device Skills. A FPCIW staff member made house call visits every one to two weeks. Over time, these visits were not needed and became less frequent. Extra copies of the workshop materials were made available to both GROUP ECHO and GROUP DOT participants, and the community retained a library of the content for future Alexa device adopters.

To keep members of the community engaged and connected with the project, FPCIW sent out regular weekly emails to participants about their devices, reminders of Alexa Skill commands that were covered during the workshops, and notices of upcoming events (See Appendix B). While Amazon sends out regular bulletins to its users on things to try with Alexa, the newsletters were sometimes confusing and met with suspicion. FPCIW's weekly messages helped keep participants engaged with their Alexa devices and were well received by the community. For individuals who didn't have email, neighbors printed out the content for them.

To provide additional engagement opportunities and further embed the technology in the community, FPCIW worked with the staff and residents to identify public locations to install Alexa devices in high traffic areas. The community placed an Amazon Echo by its transportation desk, which was frequented by residents, and an Echo Show in the main lobby. The visibility of these devices lent the opportunity for older adults and staff to share their experiences with their Echos and Dots, provide one another with support, and learn new ways to interact with Alexa. It was not uncommon to see people huddled around a community Echo playing an Alexa Skill game.

Phase 1 Findings

Upon completion of Phase 1 of the Alexa pilot, FPCIW collected surveys from 17 of 18 pilot participants. Following were some of the findings from the survey:
- Participants used their devices for:
    - Weather & temperature (67%)
    - Alarm & timers (53%)
    - Music, date, & time (40%)
    - News (27%)
    - Search information (20%)
- Satisfaction with the Amazon Echo: 8.9/10
- Satisfaction with Phase 1 of the pilot project: 9.3/10

Open-ended responses from pilot participants included the following:

"The workshops have been very helpful and have encouraged me to find new ways to use her and to try new skills. I feel more confident because of the workshops."

"So much fun! [Alexa] opens up many new thoughts about improving the way we use technology on a daily basis."

"Skeptical of joining because of vision, family encouraged and I'm glad I did."

The Phase 1 focus group discussions produced similar results. Many participants markedly expressed fascination and wonderment with their devices:

"To look at it from a human standpoint, what do we use to get messages across, to communicate?—it's your voice. Yes, we have learned to write, how to type, how to use a computer, but voice is the first and will be there forever, and that's what the Alexa offers us—it's a natural thing."

"I thought it was primarily an item that would help you do things like turn on lights—this is far exceeding what I was expecting; you have opened the whole world; it's not just a vehicle to accomplish something, but you can do anything that you want to do."

"It is a lifeline, a way of communicating—so you have our blessing."

A number of the pilot's focus group members pointed out the practical conveniences newly afforded to them:

"I have a genetic tremor. So entering data is a pain in the butt. The ability to speak a command and get something to happen is a wonderful thing."

"It's readily available for information and keeping up with the news."

"For me, it's communicating with family and friends, and my son's wife is in Indonesia."

"I use the [Alexa] timer because I take pills not always the same time of the day."

Feedback on how their devices and experiences with Alexa could be improved varied, and have been noted in the project's issues log. A few participants pointed out some its shortcomings:

"I have difficulty in getting less bass and more treble [because I wear a hearing aid], so it's more understandable like with the Dot."

"[I want the] voice to say 'time to get up' instead of the 'bloop bloop bloop.'"

"The volume control could be improved; it's a nuisance to have to change it all the time."

The focus group conversations also revealed some important and interesting attitudes among older adults about Voice First technologies. Clearly understanding that their artificially-intelligent devices were continuously learning, the participants tended to be more forgiving of its failed or incorrect responses:

"If I don't get the answer to what I'm asking for, I ask it in a different way."

"[I like] the immediacy of the answers, if you can phrase your question right through trial and error."

Finally, participants also most wanted to learn about and access the following features:
- Smart Home control
- Adjusting Alexa voice & speaker sound
- Reminders
- Utilize Alexa as a community communication tool

In summary, the key factors in driving high approval of the pilot project during Phase 1 were confidence in the technology, consistent reminders & support, and diverse opportunities for further learning. Some of the minor shortcomings that were discussed included: volume/speaker issues; the complicated process of integrating personal calendars; and keeping track of the expanding and overwhelming library of Alexa Skills. The reception of Alexa as a whole in their lives were, however, positive and enthusiastic, and even hopeful.

Throughout the course of Phase 1, the CBTS resident technology committee and the executive director diligently fundraised for donations to purchase Echo Dots, and distributed them to residents who were interested in participating but could not afford one themselves, and also targeted residents who were at risk from experiencing social isolation. Members of the technology committee played a key and important role in overseeing the installation of Echo Dots to these residents, and provided troubleshooting and technical assistance to the users.

Through a "pay it forward" model, residents with means who were pleased with their new devices had the opportunity to donate funds to help purchase Dots for their neighbors. Whenever an Amazon sales event took place, word quickly spread and community members would immediately purchase them in bundles to build their inventory. By the end of Phase 1 in July 2017, the GROUP DOT membership had grown to over 38 homes.

Phase 2: Smart Home Deployment

Planning, Installation and Deployment

In June of 2017, four months after the project started, FPCIW initiated Phase 2 of the pilot. Based on participant feedback, pricing considerations, and technical requirements, FPCIW installed and deployed Alexa-compatible smart plugs and thermostats. We also distributed Alexa remotes to pilot participants who requested one, particularly targeting individuals who had mobility challenges and difficulty reaching their Alexa devices with their voice. Pilot participants had the freedom to choose which devices they wanted to test. Four households decided to accept all of the devices, while 11 only wanted to install one or the other. Additionally, three participants dropped out of the pilot citing time constraints or other pressing obligations.

Installation visits included a home assessment and the identification of ideal locations for the install of smart plug outlets. In configuring the smart devices, FPCIW helped participants personalize their experience. For instance, one couple who were actors decided to name their living room lamp "Happy" and their bedroom lamp "Sleepy" in homage to Snow White.

The nine smart thermostats FPCIW deployed to the community were compatible with the facility's HVAC system. However, the community's HVAC vendor was required to specially install the device and thus required some additional technical assistance.

One technical challenge during Phase 2 of the pilot was the sensitivity of the smart plug devices to Wi-Fi signal strength variations in the home. While this issue only occasionally presented a problem for the Echo devices, it was less forgiving for the smart plugs which proved to have weaker Wi-Fi antennas and were not as easy to relocate as the Alexa equipment.

FPCIW continued its training and technical support activities, and maintained our weekly distribution of newsletters via email updating participants of both GROUP ECHO and GROUP DOT on product updates, new skills to try, the status of Phase 2 implementation, and notices for additional training workshops.

<u>Phase 2 Findings</u>

At the end of Phase 2, FPCIW distributed post-pilot surveys. Full survey responses are available in Appendix C. The summary findings of the smart home project based on 11 responses were as follows:

- 75% used their smart devices at least once a day
- 82% reported that using a smart plug/lamp with Alexa was "very easy"
- 6 of 9 participants (67%) believed that smart temperature control with Alexa was "helpful"; an additional 33% found it "very helpful"
- 93% felt their smart devices increased their overall enjoyment of using the Alexa device
- 100% felt Alexa overall made their life easier
- 100% said they were likely to recommend the Amazon Alexa to a friend or colleague
- Satisfaction with Phase 2 of the pilot project: 9.3/10

The project's survey results provide important evidence in demonstrating the impact of Voice First technology and its capabilities for relevance, effectiveness and ease of use for the older adult consumer. The high satisfaction marks reflected in the post-pilot surveys showcase the deep level of engagement that participants experienced.

Feedback from pilot participants also suggested that Voice First devices help increase social interaction and engagement levels of older adults. 60% felt more connected to family, friends and their community since starting the pilot.

Much more can be learned from the potential for Voice First to increase social engagement and connection with peers, loved ones and family members. These findings provide an important basis to explore the impact of these technologies to address the public health challenge of social isolation and loneliness among older adults.

If participants expressed some concerns about internet safety, security, and privacy during our pre-pilot focus group discussions, few if any made mention of this issue throughout the pilot. However, the FPCIW team also did not actively seek out additional feedback on this topic.

While our survey findings generally reflected a high level of satisfaction, we were genuinely surprised with the enthusiastic feedback we received during our final focus group discussion. The pilot participants expressed great concern with the prospect of losing their technology.

> *"If you were to take it away, I'd miss it"*

FPCIW specifically reached out to five individuals who we believed could benefit from the use of Alexa remotes based on mobility challenges. All but one found the convenience of being able to

voice-control their devices important, noting that they didn't have to speak loudly across the room to communicate with their Alexa:

> *"I loved the remote; in the beginning I didn't use it."*

> *"I liked the remote for the volume control; the switch is by far the most valuable."*

> *"I liked the remote because I can speak softly into it; with the remote, you can just push the button."*

Being able to control their room temperature with their voice offered participants a new and important way to live comfortably in their homes. While only two individuals didn't care much for the device, the Alexa-enabled smart thermostats provided the other participants with an empowering ability with their voice:

> *"I think it's very useful to control my thermostat; every night I had to [get up to] change the temperature, [so] I find this very helpful. The last thing I want to do is patter off in my feet and change the thermostat."*

> *"Sometimes I wasn't able to change the thermostat, I never seemed to be able to handle it very well, but now I can regularly change the temperature."*

The impact of simply controlling a thermostat through voice was meaningful to many. One participant, who had low vision due to macular degeneration and frequently had trouble reading her thermostat, found that her new device was "very helpful because I struggle to get the right temperature." Another, who was a caregiver for his partner, recounted: "It's always been me setting the thermostat for the last 4 years, but now [my partner] can control it." These experiences have establish the project's objective to understand how Voice First technologies promote independence and self-management by allowing voice control and automation of their environment.

Participant responses over their experiences with controlling their lamps through Alexa were profound, and helped to highlight the important role of technology in promoting independence. Many pilot participants cited the importance of being able to conveniently light their rooms during the evening, and especially in the middle of the night; they often spoke of their smart-enabled lamps as a "safety" issue:

> *"I absolutely feel safer, I wouldn't want to be without [my smart plug/light]."The automated lamp is absolutely helpful; it took me a little while to get used to it; it definitely is a safety help."*

> *"It's more than just a toy, at first I thought it was going to be a toy. I'm not one for doing a lot of games. It's more than a toy for aging in place--you can do so much more!"*

Alexa's messaging feature, which allows users to call and leave messages between devices, tended to be well-received among those who used it. One participant stated, "I message Alexa all the time now" with other residents.

When asked during the focus group discussions about their experiences with Ask Marvee, the reaction was mixed. While a couple of participants reported that they weren't interested in using it, another individual enthused that she "sent a message to my kids saying 'I'm OK' using the Ask Marvee." This participant had a particularly involved family member who was enthusiastic about her mother's involvement, and encouraged her mother to regularly check in with her. One of our important takeaways from introducing caregiving Skills was that, coupled with participant interest, family member engagement is critical to promoting care. Further discussion and research are necessary to better understand the potential for social caregiving skills such as Ask Marvee in senior living environments.

On the whole, our final focus group discussions were lively, animated, and revealing, reflecting an overall enthusiasm for Voice First technologies. One notable statement from an individual, who initially expressed some doubts about the pilot project and who was under the care of her spouse, appropriately summarizes the intent of the Alexa pilot project and the potential to use technology as a tool for independence, self-empowerment, and inspiration:

> *"When I'm reading a book and want to ask Alexa a question I get it right away—this is MY interest, rather than the games that [other] people play. I'm learning more and more of things I like. I'm exploring more now than before. These are things more that I need to live happier, I'm amazed with what I can find."*

Sustainability through Staff and Community Engagement

Efforts to sustain and continue to expand the Alexa project at the CBTS community beyond the pilot have been spearheaded by both staff and residents. During the course of the project, the executive director hired a new chaplain who happened to have an information technology background. This staff member expressed an interested in supporting the Alexa project, and soon began overseeing the installation and technical support of Echo Dots throughout the

community. While the chaplain took on this role, he discovered the opportunity to reach out to the community members who were socially isolated and who would otherwise refuse to receive his visits and spiritual/emotional guidance. The chaplain's technical support house calls have been providing the staff an important means of helping older adults stay socially connected to the community.

Another important development towards the sustainability of the program that emerged during the pilot was the formation of an "Alexa Club." Jointly coordinated and organized between the resident technology chair and the resident services director, the quarterly meetings have offered residents the opportunity to discuss new Alexa Skills, share experiences, host presentations, and provide the community with status updates on the adoption of Alexa at CBTS.

The Amazon Alexa pilot at CBTS has produced a number of key program components that we believe are important to a successful deployment of Voice First into a community. As we move forward in developing a diffusion program to continue to introduce Voice First innovations to older adults, FPCIW will assemble an "Alexa in a Box" toolkit that will outline adoption strategies, technical support protocols, educational programs, and staff engagement opportunities to replicate the adoption model that has proven successful at CBTS.

Media Attention

In the middle of the Amazon Alexa pilot at CBTS, a story of the project was written up by the online MIT Technology Review that interviewed our staff and participants. Since the publication of that feature, FPCIW and CBTS have been inundated by startup companies, Fortune 500 firms, other senior living providers, community- based service organizations, researchers, and groups representing national and international interests. Many of the queries centered on how we designed our project, how others could get involved, and how to replicate similar efforts in other communities. The pilot clearly produced a newfound appreciation for the power of Voice First technologies and their potential to impact the lives of older adults, and FPCIW hopes that this report will further inspire others to investigate voice assistants in the promotion of independence and wellbeing.

Conclusion

Based on survey results, focus group discussions, and anecdotal reports from community members, FPCIW found that participants of the Alexa Project felt more independent, safer, and satisfied with their pilot experience. Participants displayed high levels of engagement with the technology solution, and reported feeling more connected to their community.

In summary, the Amazon Alexa pilot set out to accomplish several objectives to better understand how Voice First and home automation technology can help promote greater convenience, independence, and wellbeing for older adults. FPCIW was able to achieve this goal by evaluating Voice First technology and its capabilities for relevance, effectiveness and ease of use for the older adult:

- 100% of respondents felt that their device overall helped make life easier
- 82% reported that using a smart plug/lamp with Alexa was "very easy"

The pilot also explored how Voice First technologies could promote independence and self-management by allowing older adults voice control and automation of their environment. We found that:

- Participants submitted a 9.4/10 satisfaction rating of their smart home experience.
- 6 of 9 participants (67%) believed that smart temperature control with Alexa was helpful; an additional 33% found it "very helpful".
- Through focus group discussions, older adults also revealed the importance of Voice First and smart home innovations in not having to rely on others to control temperature or lighting.

The Alexa pilot sought to evaluate whether Voice First could facilitate effective and convenient solutions for staff, family members, and caregivers in providing better care and communication with older adults. FPCIW worked with Ask Marvee, a care companion Alexa Skill, to evaluate its effectiveness with caregivers and loved ones. While participant feedback on using this service was mixed, we believe that it deserves further attention and research alongside a growing number of similar Skills designed to connect older adult users with their family members and caregivers.

FPCIW used the Alexa pilot to investigate whether Voice First devices help increase social interaction and engagement levels of older adults. 60% of individuals said that they felt more connected to family, friends and their community since starting the pilot. Some residents even reported calling each other through their devices once the feature became available, and mentioned calling family members outside the country.

The learnings, lessons and results from the Alexa pilot helped produce an important set of strategies that we believe is important to scalability and diffusion. The FPCIW "Alexa in a Box" program is a replication model that FPCIW is developing to further introduce Voice First innovations to older adult users and their caregivers.

As Amazon Alexa and other Voice First technologies continue to grow and expand their presence in the marketplace, FPCIW believes that increased opportunities will emerge for older adults to age in place and live more independently. The enormous success of the Alexa pilot was predicated on the partnership and combined efforts of FPCIW, the CBTS management and staff, CBTS resident technology committee, and the CBTS residents. While some of the critical engagement efforts necessary to sustain and grow the project occurred organically, these developments were only possible through a combination of intentional adoption strategies, program design, and staff/older adult involvement.

The lessons, adoption program, and engagement strategies that have emerged from this pilot project will help inform future deployments of voice assistant technologies to additional Front Porch communities and beyond. FPCIW believes that given the appropriate program design, community participation, and leadership involvement, Voice First solutions such as the Amazon Alexa have tremendous potential in facilitating the independence and wellbeing of older adults.

APPENDIX A: CBTS Amazon Echo Pre-Pilot Discovery Focus Group Summary

On July 12, 2016, a series of focus groups were held at Carlsbad By The Sea (CBTS) to gain further insight into designing a potential pilot project to trial Amazon Echo devices at the community. The focus groups were organized in conjunction with Front Porch Center for Innovation and Wellbeing (FPCIW) and the CBTS Resident Technology Committee. A total of 25 CBTS older adults gave their feedback across three focus group sessions. The sessions produced a robust dialogue of older adults' valuable questions, comments, and suggestions, which have been summarized below.

Prior to asking the main set of questions, participants were each asked to describe their amount of prior knowledge and/or experience with using the Amazon Echo/Alexa. Roughly half of the focus group participants (12 out of the 25) reported to have very little to no prior knowledge of the Amazon Echo and its technology, and have not used one before; three participants stated they currently own and actively use the Echo in their homes.

Home Environment

- **Which room do you spend the most time in while home?**
  The overwhelming majority of participants stated they spend the most time in time either their living room or whatever room or area in their home they have personally designated as their "office" or "work space," whether that may be located in their bedroom, living room, or den. Of those who stated they have a laptop and/or desktop computer (almost all of the participants), these participants considered their workspace the same place as where their laptop or desktop is set up and located.

- **What types of tech products/appliances do you currently own/have in your home (i.e., personal computers, smartphones, tablets, streaming media players, etc.)**
  Almost all of the participants (except 3) stated they have either a desktop or laptop computer in their homes. iPads/tablets and smartphones were the next commonly owned technology items, while a select few older adults stated they own an eReader (Kindle or Nook), an Amazon Echo, a smart-home product (such as a smart thermostat) or subscribe to streaming media service such as Amazon Fire, Apple TV, or Roku. One participant with macular degeneration stated she most frequently uses her special reading device.

- **What household appliance(s) do you use most frequently/on a daily basis? What in your home would you like to have be automated (i.e., lights, temperature, coffeemaker)?**
  A majority of participants most frequently use the microwave. Other popular responses were their coffeemaker, television, and lamps around the home. Many miscellaneous kitchen appliances were also mentioned, such as dishwashers, blenders, and toaster ovens.

Daily Routines and Activities

- **How do you remind yourself of appointments, things to do, or maintain lists?**
  Participants had a wide variety of methods they personally use to organize their appointments, reminders, and lists. The overall consensus appeared to be that roughly half used technology (whether in the format of the desktop/laptop, smartphone, tablet, or Echo) to input their calendar schedules or type in reminders, such as syncing their device to a Google Calendar account. The other half primarily still wrote by hand into their paper calendars, planners, notepads, a dry-erase board, or relied on the community-wide bulletin board (TouchTown) or flyer to keep track of events. Several who used traditional written reminders stated they would like to learn how to input and organize their schedules electronically as an alternative.

- **How do you listen to music?**
  5-6 participants also stated familiarity with using streaming music services such as Amazon Music, Pandora, Sirius XM, or Spotify. One stated she preferred to stream music but only recently discovered that doing so used a lot of data on her smartphone. Many also stated they listened to music channels that are part of their cable television package, or had connected their mp3 players to their home speakers. A few stated they still mainly listened to CDs, the radio, or vinyl records.

- **Where do you get your news, and do you prefer reading, hearing, or watching it?**
  Many of the participants primarily rely on traditional print and television news outlets to keep up with current events. However, a majority of the participants also stated they access news online just as often, through news websites on their computers/tablets or apps on their smartphone. At least 3 individuals stated they subscribed to breaking news briefs through their smartphone or has briefs emailed to them. One stated she regularly uses her Echo to hear news updates.

- **Do you prefer reading or listening to books?**
  The large majority participants stated they still prefer reading print versions of books over listening to audio versions or through an eReader. One participant commented she only relies on audiobooks when in a long car ride. However, at least 2-3 participants who stated they own an eReader such as a Nook or Kindle, said they personally are more comfortable with this method. An example one individual gave was that it has become difficult for her to hold up books, so she prefers having her eReader to lessen the stress on her hands. Another with macular degeneration solely relies on the library of cassette tapes loaned through the Braille Institute to have books read to her.

- **How frequently do you use the internet, and what do you use it for? (check email, surf the web, internet shopping, etc.)**
  All focus group members except for one who does not own a computer, stated that they use the internet on a regular basis. The majority stated that on average, they access the internet multiple times each day, while two participants stated they are online once a day or 2-3 times a week, respectively.

  The heaviest areas of internet use was checking emails and surfing the web. Many participants described looking up/researching various questions and topics as the primary function. Some examples given were looking up word meanings, using Wikipedia for light research, health information research such as pharmaceutical information, movie reviews, remembering famous people's names and histories, product search/consumer reviews, and genealogy research.

  A few individuals also cited online games, online shopping, trading/looking up stocks, and online banking as other common usages. Very few stated they use social media (Facebook, Skype, etc.).

Voice Activation

- **If you could have something like this in your world, what type of voice commands would you like to give and have done for you?**
  Participants gave a wide variety of responses in what types of requests they would make, including:
  - Sports updates
  - Manage personal appointments, events, and calendar
  - News briefs
  - What emails came in
  - Weather/temperature (not just current locations but anywhere in the world)
  - Spelling of words
  - Stock prices
  - Traffic information and road conditions
  - Turning on/off appliances
  - Speak instead of typing into a keyboard (difficult to type)
  - Transcribe speech into text message or email
  - Print out something
  - Home intercom capability (answering or opening the door without walking to the front door)
  - Answer and make phone calls
  - Reminder service (sending automatic timed reminders)
  - Community work or meal orders call service
  - Transportation (request a ride)

- Read out audiobooks
- Find movie times for a specific theater

- **What wouldn't you ask it for?**
  A general concern was ensuring the security of personal information and violations of privacy. Several participants were curious if the Echo records your questions, and if there's a way to ensure they are not being recorded or know if Amazon listens to people's conversations through the Echo. Several individuals stated they would not like Amazon to potentially listen in to their history of requests/questions asked to Alexa and use that information for advertising purposes.

Portability

- **If you could have a voice activated mini computer like Alexa with you at all times, where would you use it and what would you ask it for?**
  Several participants overlapped in their responses that if they were to have a mini computer around them at all times, it would have to be in the form a discrete, wearable format such as a watch or pendant. Several others stated they already carry one around in the form of their smartphone. The rest expressed little enthusiasm in the idea of carrying or wearing any type of voice activated technology, due to either not seeing the need for it or would not want to due to security or privacy concerns. The main reason or function cited by those who stated that they would take advantage of a portable voice activated device would be for personal alert and emergency response purposes, such as if they had fallen or injured and needed help.

- **Is the ability to have access to a voice activated computing device at all times helpful?**
  The majority consensus was that voice-activation is overall very helpful, however most did not see a need to have a voice-activated device "around at all times." Reception of the Amazon Tap device and its value proposition as a portable option was much more lukewarm than the original Echo device.

- **Do you use this type of voice assistance on your smartphone/smartwatch now?**
  The current consensus was no, the majority of participants hardly ever or never use this function currently on their smartphone or tablet, and if they currently own a device capable of voice activation (such as Siri) they have not had good experiences with using it. One participant mentioned that Siri is not nearly as easy to use or helpful as Alexa.

Extra Questions/Comments

- Does Echo have motion detection capabilities?
- What is the primary compelling reason for why we should need a device like the Echo?
- What can Echo offer for assisting with vision impairment functions?
- Could Echo replace a wearable pendant-type emergency response system?
- Does Echo have phone call capabilities?
- Can anyone besides me make purchases on my Echo?
- Can someone else using my Echo buy things through it with my personal account/stored credit card? Is there a way to prevent this?
- Can I make purchases via Echo at websites other than Amazon?
- Does it only recognize my voice?
- How much does it cost?
- Why can't the Echo be connected to the current community-wide WiFi network?
- Concern and frustration with constantly receiving too many flyers in mailboxes
- What is the status on Time Warner Cable saying they will increase the community WiFi bandwidth?
- Is there an immediately deployable solution Front Porch could provide for visually impaired older adults, or give priority to these people to trial the Echo in their homes?
- Wouldn't a device such as the Echo that allows home automation possibly risk turning people into couch potatoes and deter them from being more active and independent than they ought to be?

APPENDIX B: Weekly Alexa Newsletter

Sent:	Friday, July 28, 2017 5:20 PM
Subject:	[CBTS Amazon Echo Project] Weekly Alexa newsletter July 22-28, 2017

Dear CBTS Residents and avid explorers of the Amazon Echo & Dot,

Hope everyone is having a spectacular week!

Announcements

- ## A huge THANK YOU for those who attended the first Alexa Club meeting!
  We are so excited about the enthusiasm generated by this first meeting and would like to especially thank those who spoke about their experience with Alexa. We hope more residents continue to join the club and engage with other peers in delving deeper into the world of Alexa! Please contact John S. (CBTS Technology Committee Chairman) or Blanca Z. (Staff Alexa Club Coordinator) for more information and for next regular meeting dates. Chris C., our new Chaplain has graciously offered to also assist with providing first-level technical support.

- ## FPCIW & CBTS Community Echo located at the transportation desk (Main Building Admin Office & Technology Room)
  Now any resident, staff, or visitor at the community can take a moment to experience Alexa's charm! Whether it is having Alexa answer a question, tell a joke, play music, or provide useful information—please take a moment to bring your friends and neighbors to the community Echo and show them how FUN and EASY it is to talk to Alexa!

- ## GROUP CIW-ECHO: Phase 2 of the pilot project has begun! For those in our pilot demonstration project, we hope you are enjoying your experience trialing the newly installed smart plugs

and thermostats. Collection of feedback on your experience will end August 11th, with a post-test survey distributed and focus group meeting to follow soon afterwards. <u>Appointments for the collection/return of all devices (Echo, plugs, and thermostat) is expected to be scheduled throughout the end of August and early September.</u> If at any time you have any questions or experiencing any difficulties, please do not hesitate to contact Jessica Yoon, Project Coordinator. Thank you!

What's new with Alexa?

- Featured Fun Skill: If you liked playing the [Amazing Word Master Skill](#), you're sure to enjoy another fun Alexa game, [Categories Game](#)! Try this fast-paced game of stating with a word that begins with a certain letter and category Alexa comes up with.
  Just ask: "**<u>Alexa, open Categories Game</u>**" and follow Alexa's voice instructions.

- Ready to have a conversation with Alexa? Try one of the "socialbots" and engage in fun, playful discussion. Your trial and feedback of this feature will help competing university teams to advance research on conversational AI (Artificial Intelligence). Read more about this feature [here](#).
  Just ask: "**Alexa, let's chat.**"

1-minute review: Try this with Alexa

- Link your calendar to Alexa: If you use a calendar through Apple, Google, or Microsoft, you can also connect and manage it through your Echo.
  To get started, go to your [Alexa account](#) <u>Settings → Account → Calendar</u>.
- Voice-manage calendar events/appointments with Alexa:

  Just ask: "**Alexa, how's my day look?**"

  "**Alexa, add a 10AM meeting to my calendar.**"

"Alexa, what's my next appointment?"

Only on Echo Show: **"Alexa, show my calendar."**

As always, we welcome your valuable feedback and suggestions. Please don't hesitate to contact me with questions or concerns.

A heartfelt thank you to everyone for your continued enthusiasm and support for this project!

APPENDIX C: CBTS Amazon Echo Project Phase II Post-Test Survey, Results

Q1

Name:

Answered: 11   Skipped: 0

RESPONSES (11)   TEXT ANALYSIS   MY CATEGORIES (0)

Export ▼

Q2

Date:

Answered: 11   Skipped: 0

Export ▼

ANSWER CHOICES ▼		RESPONSES ▼	
Date / Time	Responses	100.00%	11

How helpful was using a smart plug-controlled home lamp with your Amazon Echo (explain if necessary)?

Answered: 11   Skipped: 0
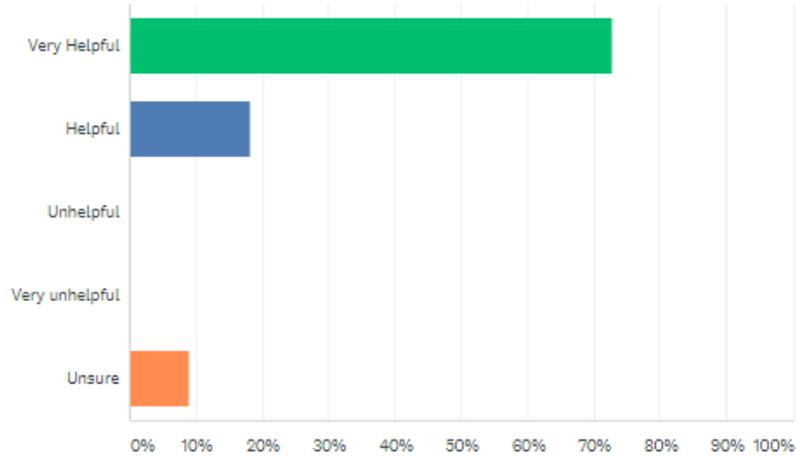
ANSWER CHOICES ▼	RESPONSES ▼	
▼ Very Helpful	72.73%	8
▼ Helpful	18.18%	2
▼ Unhelpful	0.00%	0
▼ Very unhelpful	0.00%	0
▼ Unsure	9.09%	1
TOTAL		11

Comments (7)

Q3 comments: How helpful was using a smart plug-controlled home lamp with your Amazon Echo (explain if necessary)?	
Response	Explain:
Very Helpful	Become part of my daily routine (both).
Very Helpful	Eliminated need to go to another room to turn on light. Also provided light before entering dark room.
Very Helpful	The night light is in a remote corner, not all that easy to get to. Voice control was a huge convenience for me (the night light is a huge safety factor when I return home after dark, but getting to it was so awkward, I didn't use it often. Now I use it all the time).
Unsure	Sometimes it was helpful, especially with the remote. Sometimes it is easier to flip the switch.
Helpful	Plug in attached to the floor lamp near desk. Fun but not necessary.
Very Helpful	I have Alexa turn on my bedroom light before I leave the living room, I then have her turn off my living room. I'm never in the dark. Very good for a handicapped person.
Very Helpful	Increased safety, especially at night.

Customize   Export ▼

How satisfied are you with the current setup and location of the smart plug and connected lamp in your home? If you are dissatisfied in any way or want the location of the plug and/or chosen lamp to be changed in way, please explain below.

Answered: 11   Skipped: 0
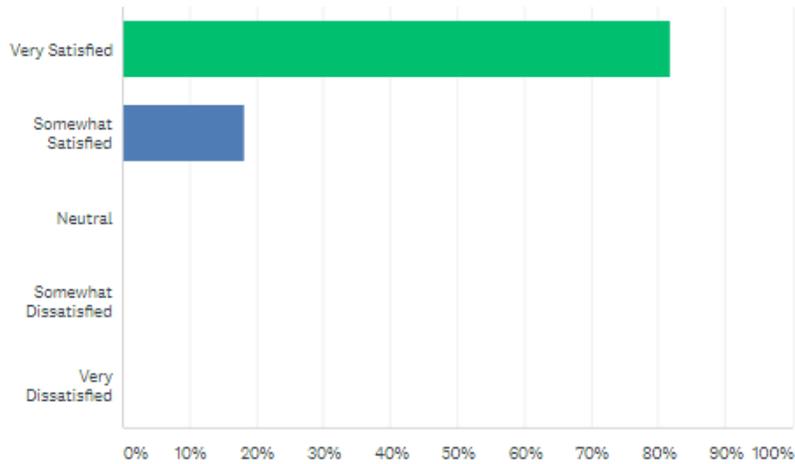
ANSWER CHOICES ▼	RESPONSES	▼
▼ Very Satisfied	81.82%	9
▼ Somewhat Satisfied	18.18%	2
▼ Neutral	0.00%	0
▼ Somewhat Dissatisfied	0.00%	0
▼ Very Dissatisfied	0.00%	0
TOTAL		11

Comments (2)

Q4 comments: How satisfied are you with the current setup and location of the smart plug and connected lamp in your home? If you are dissatisfied in any way or want the location of the plug and/or chosen lamp to be changed in way, please explain below.	
Response	Explain:
Very Satisfied	They are where I need them.
Very Satisfied	See note for #1.

How often, on average, did you use the Alexa-controlled light?

Answered: 11   Skipped: 0
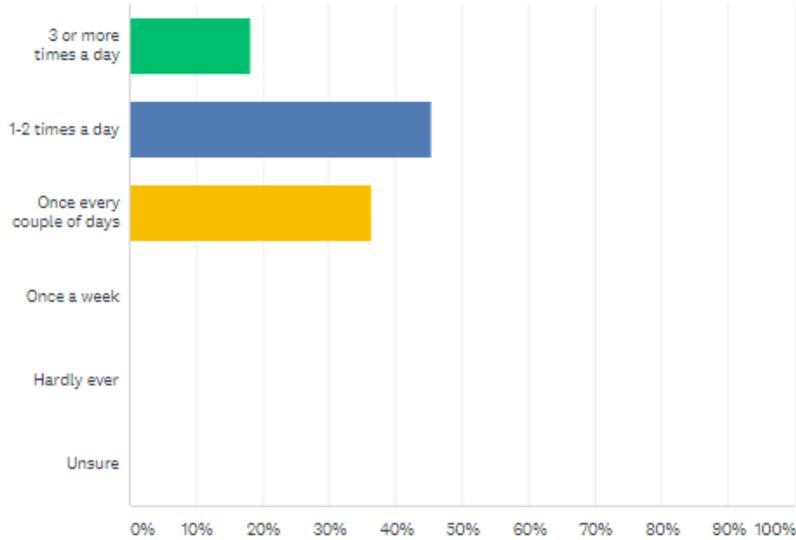
ANSWER CHOICES	RESPONSES	
▼ 3 or more times a day	18.18%	2
▼ 1-2 times a day	45.45%	5
▼ Once every couple of days	36.36%	4
▼ Once a week	0.00%	0
▼ Hardly ever	0.00%	0
▼ Unsure	0.00%	0
TOTAL		11

Comments (3)

Q5 comments: How often, on average, did you use the Alexa-controlled light?	
Response	Explain:
Once every couple of days	The lamp in the office is not used every day since I normally do not use my computer much in the evening.
1-2 times a day	Whenever I return to the apartment after dark.
1-2 times a day	I always use it two times a day & frequently more.

Customize   Export ▼

How would you rate the difficulty level of using the smart plug with your light/lamp and Alexa?

Answered: 11   Skipped: 0
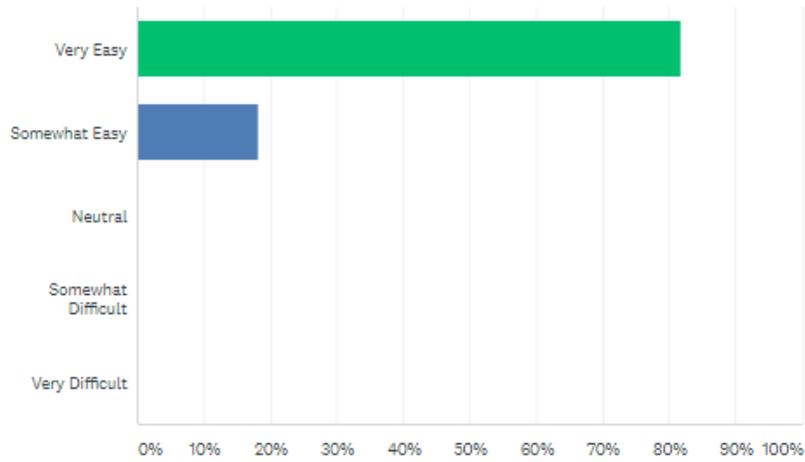
ANSWER CHOICES	▼	RESPONSES	▼
▼ Very Easy		81.82%	9
▼ Somewhat Easy		18.18%	2
▼ Neutral		0.00%	0
▼ Somewhat Difficult		0.00%	0
▼ Very Difficult		0.00%	0
TOTAL			11

Q7

Which of these did you experience difficulties with in using the smart plug with your light/lamp and Alexa? Please check all that apply.

Answered: 8   Skipped: 3
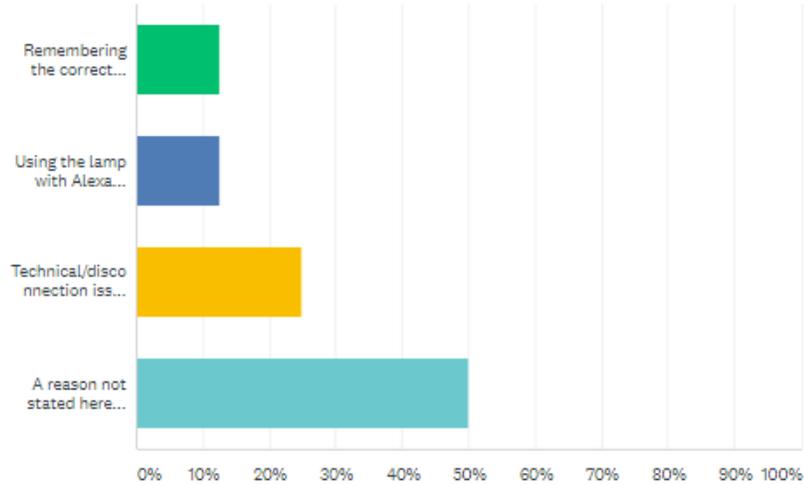
ANSWER CHOICES	RESPONSES	
▼ Remembering the correct command phrase to say to Alexa	12.50%	1
▼ Using the lamp with Alexa voice command in general	12.50%	1
▼ Technical/disconnection issues	25.00%	2
▼ A reason not stated here (please explain below)	50.00%	4
TOTAL		8

Comments (10)

Q7: Which of these did you experience difficulties with in using the smart plug with your light/lamp and Alexa? Please check all that apply.	
Response	Explain:
Technical/disconnection issues	No issues.
	No issues
Technical/disconnection issues	After the power went out, her smart plugged was messed up a bit.
	No problem!
Remembering the correct command phrase to say to Alexa	Blank
A reason not stated here (please explain below)	No problem at all - "easy as pie"
Using the lamp with Alexa voice command in general	Sometimes doesn't respond to voice command but remote worked. Also had two technical/disconnection issues.
A reason not stated here (please explain below)	Blank
A reason not stated here (please explain below)	I don't have any trouble.
A reason not stated here (please explain below)	No problems encountered

Customize   Export ▼

Did your experience with the smart plug help increase your overall use and enjoyment of the Amazon Echo?

Answered: 11   Skipped: 0
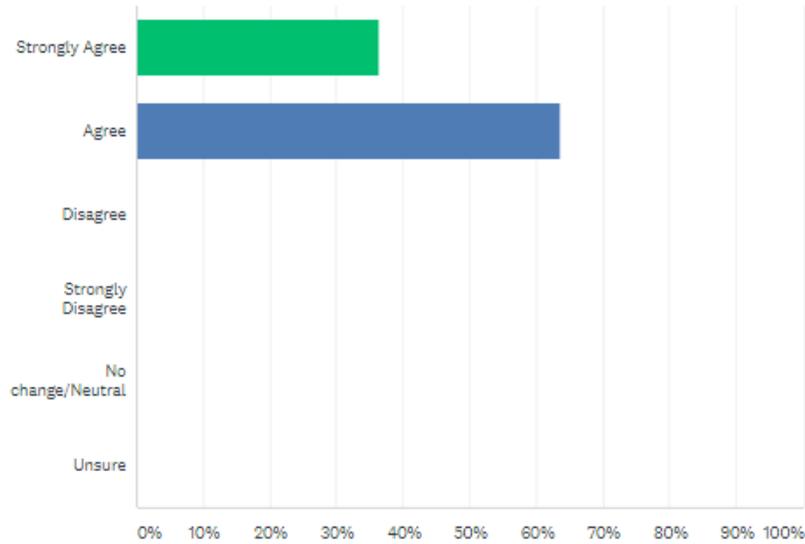
ANSWER CHOICES	▾	RESPONSES	▾
▾ Strongly Agree		36.36%	4
▾ Agree		63.64%	7
▾ Disagree		0.00%	0
▾ Strongly Disagree		0.00%	0
▾ No change/Neutral		0.00%	0
▾ Unsure		0.00%	0
TOTAL			11

Comments (2)

| Q8: Did your experience with the smart plug help increase your overall use and enjoyment of the Amazon Echo?	
Response	Explain:
Strongly Agree	A practical application "justified" my use - before that, it was just great fun and good company.
Strongly Agree	I'm enjoying having the smart plug and I have already added a 3rd one to our apartment.

How helpful was controlling home temperature with your Amazon Echo and smart thermostat (explain if necessary)?

Answered: 9   Skipped: 2
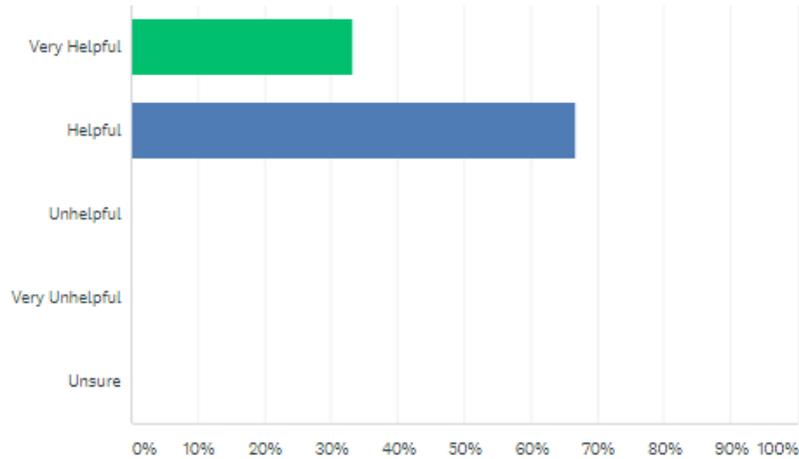
ANSWER CHOICES		RESPONSES	
▼	Very Helpful	33.33%	3
▼	Helpful	66.67%	6
▼	Unhelpful	0.00%	0
▼	Very Unhelpful	0.00%	0
▼	Unsure	0.00%	0
TOTAL			9

Comments (7)

Q9 comments: How helpful was controlling home temperature with your Amazon Echo and smart thermostat (explain if necessary)?	
Response	Explain:
	Blank
Helpful	Alexa responds immediately to change setting of thermostat, but thermostat seems to take a long time for temperature to actually change.
Very Helpful	Use daily.
	Blank
Very Helpful	Old eye don't use thermostat #'s easily - old knee don't let me rise from chair to cross to room to reset the thermostat with my hands. Voice command solved all of those problems of old age.
Helpful	It was very helpful as I have trouble controlling my thermostat.
Helpful	I find it helpful.

Customize   Export ▼

How often, on average, did you use the Alexa-controlled thermostat?

Answered: 9   Skipped: 2
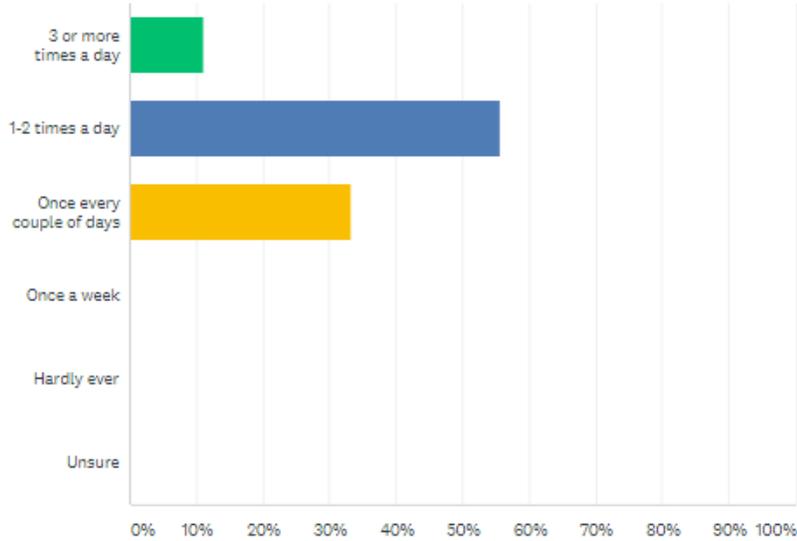
ANSWER CHOICES	▼	RESPONSES	▼
▼ 3 or more times a day		11.11%	1
▼ 1-2 times a day		55.56%	5
▼ Once every couple of days		33.33%	3
▼ Once a week		0.00%	0
▼ Hardly ever		0.00%	0
▼ Unsure		0.00%	0
TOTAL			9

Comments (7)

Q10 comments: How often, on average, did you use the Alexa-controlled thermostat?	
Response	Explain:
	Blank
	Blank
3 or more times a day	Thermostat down at night, up in the morning - plus slight adjustments to components usually warm days (for instance).
Once every couple of days	The thermostat was set to change automatically 2x/day so I only voice/Alexa controlled it when I wanted to deviate from the scheduled settings.
Once every couple of days	I kept it at the same temperature.
1-2 times a day	I see it every night.
1-2 times a day	Use every morning and night.

Which of these did you experience difficulties with in using the smart thermostat with Alexa? Please check all that apply.

Answered: 7   Skipped: 4
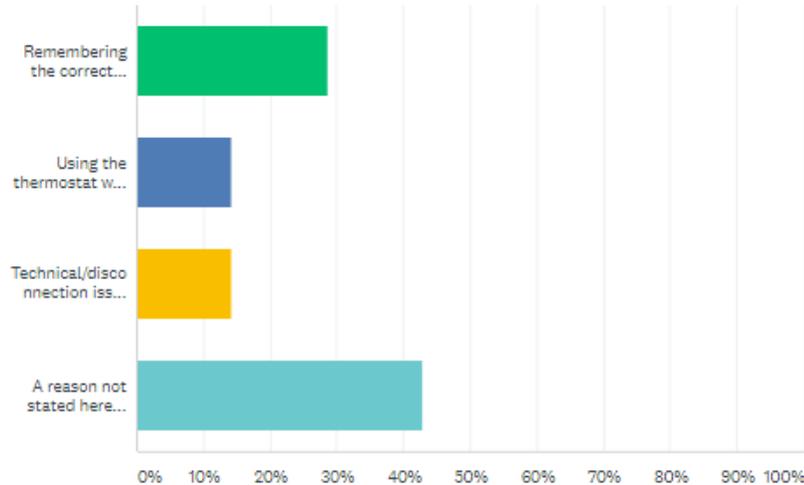
ANSWER CHOICES		RESPONSES	
▼	Remembering the correct command phrase to say to Alexa	28.57%	2
▼	Using the thermostat with Alexa voice command in general	14.29%	1
▼	Technical/disconnection issues	14.29%	1
▼	A reason not stated here (please explain below)	42.86%	3
TOTAL			7

Comments (9)

Q11 comments: Which of these did you experience difficulties with in using the smart thermostat with Alexa? Please check all that apply.	
Response	Explain:
	No issues
	Blank
Using the thermostat with Alexa voice command in general	There are times when it would be nice to just turn the thermostat off, "Alexa unavailable".
	No problem - but I do use it often manually to change up or down.
	Blank
Remembering the correct command phrase to say to Alexa	When I said "change temperature to _____" it didn't work. I had to remember to use the word thermostat - but a few repetitions helped - & now I always communicate commands ok
A reason not stated here (please explain below)	Blank
A reason not stated here (please explain below)	No problem.
A reason not stated here (please explain below)	No problems.

Did your experience with the thermostat help increase your overall use and enjoyment of the Amazon Echo?

Answered: 9   Skipped: 2
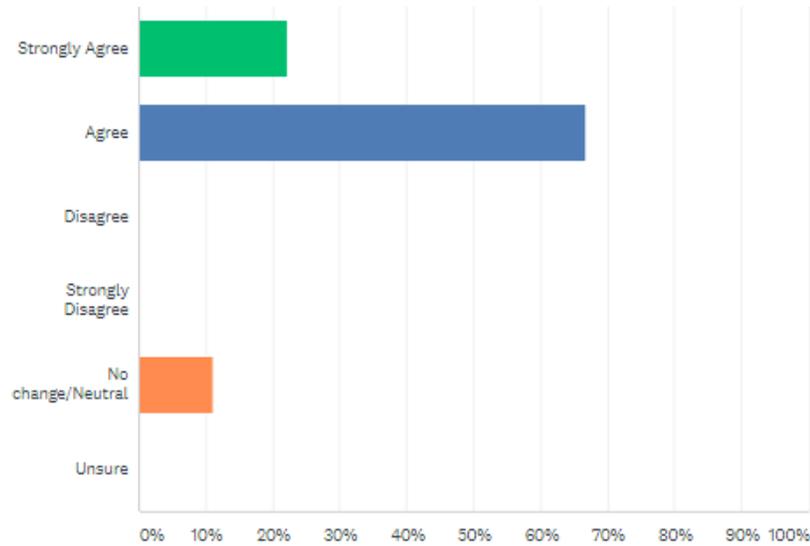
ANSWER CHOICES ▼	RESPONSES ▼	
▼ Strongly Agree	22.22%	2
▼ Agree	66.67%	6
▼ Disagree	0.00%	0
▼ Strongly Disagree	0.00%	0
▼ No change/Neutral	11.11%	1
▼ Unsure	0.00%	0
TOTAL		9

Comments (5)

Q12 comments: Did your experience with the thermostat help increase your overall use and enjoyment of the Amazon Echo?	
Response	Explain:
	Blank
No change/Neutral	The thermostat and I don't get along too well. Don't know i it's programmed, but doesn't seem to stay as requested by Alexa. Maybe it can be checked, otherwise, great.
	Blank
Strongly Agree	Oh yes indeed. Again - what a pleasant to have this useful & practical application to justify the fun I'm having using the Echo.
Agree	Somewhat.

How helpful was using a remote with your Amazon Echo (explain if necessary)?

Answered: 6   Skipped: 5
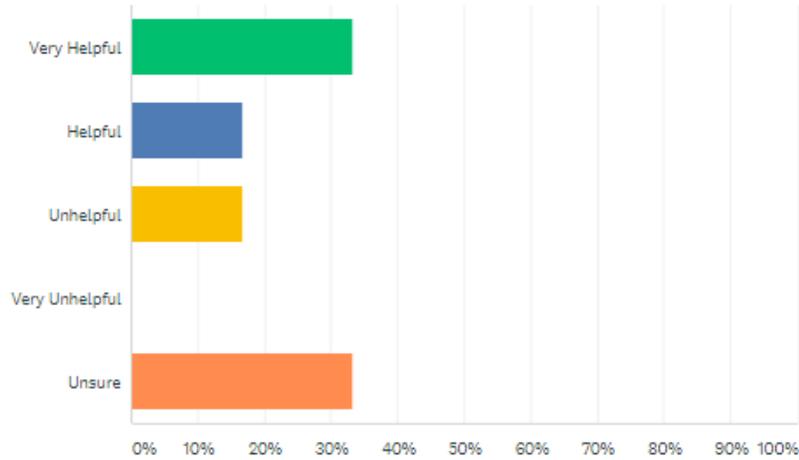
ANSWER CHOICES	▼	RESPONSES	▼
▼ Very Helpful		33.33%	2
▼ Helpful		16.67%	1
▼ Unhelpful		16.67%	1
▼ Very Unhelpful		0.00%	0
▼ Unsure		33.33%	2
TOTAL			6

Comments (10)

Q13 comments: How helpful was using a remote with your Amazon Echo (explain if necessary)?	
Response	Explain:
	Blank
Unhelpful	Did not find it useful.
	Blank
Very Helpful	Love the remote! Able to speak softly - never need to yell at Alexa.
Unsure	Took awhile to use - but I like it.
	Blank
	Blank
	Blank
Unsure	I have not used the remote that often as of now & still like using Alexa so far.
Helpful	Mostly used to control volume.

Customize   Export ▼

How often, on average, did you use the Alexa-controlled remote?

Answered: 6   Skipped: 5
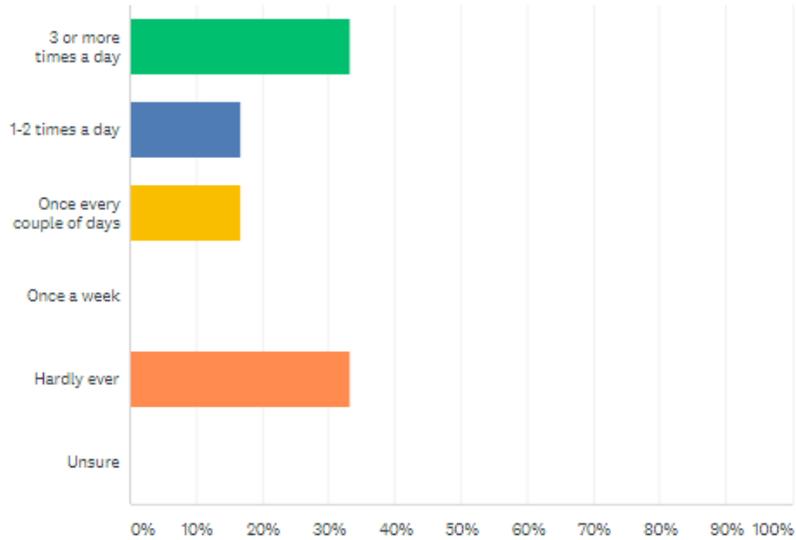
ANSWER CHOICES	▼	RESPONSES	▼
▼ 3 or more times a day		33.33%	2
▼ 1-2 times a day		16.67%	1
▼ Once every couple of days		16.67%	1
▼ Once a week		0.00%	0
▼ Hardly ever		33.33%	2
▼ Unsure		0.00%	0
TOTAL			6

Comments (7)

Q14 comments: How often, on average, did you use the Alexa-controlled remote?	
Response	Explain:
	Blank
Hardly ever	We have a window in our computer room, so we don't need the remote.
	Blank
	Blank
	Blank
	Blank
Hardly ever	I'm still adjusting to using the remote.

Customize   Export ▼

Did your experience with the remote help increase your overall use and enjoyment of the Amazon Echo?

Answered: 6   Skipped: 5
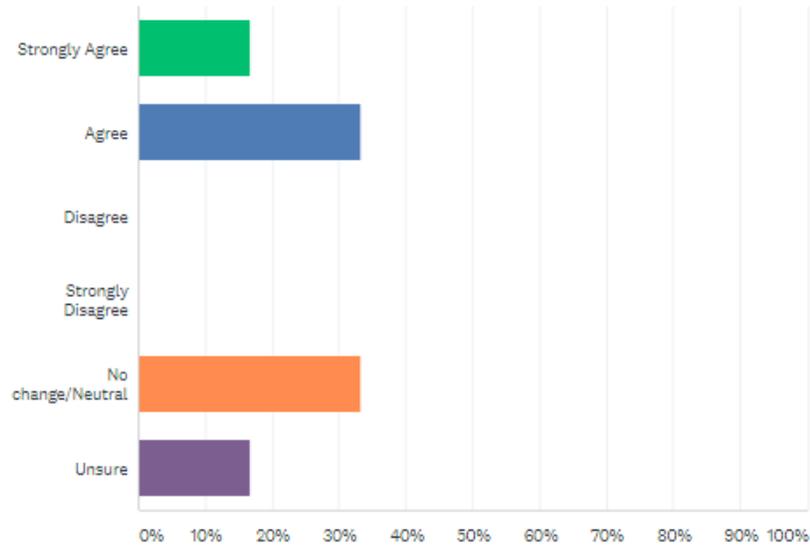
ANSWER CHOICES	▼	RESPONSES	▼
▼ Strongly Agree		16.67%	1
▼ Agree		33.33%	2
▼ Disagree		0.00%	0
▼ Strongly Disagree		0.00%	0
▼ No change/Neutral		33.33%	2
▼ Unsure		16.67%	1
TOTAL			6

Comments (6)

| Q15 comments: Did your experience with the remote help increase your overall use and enjoyment of the Amazon Echo?	
Response	Explain:
	Blank
	Blank
Agree	However, I don't think it is necessary compared to the plugs + thermostat.
	Blank
	Blank
	Blank

Customize   Export ▾

Which of these did you experience difficulties with in using the remote with Alexa? Please check all that apply.

Answered: 11   Skipped: 0
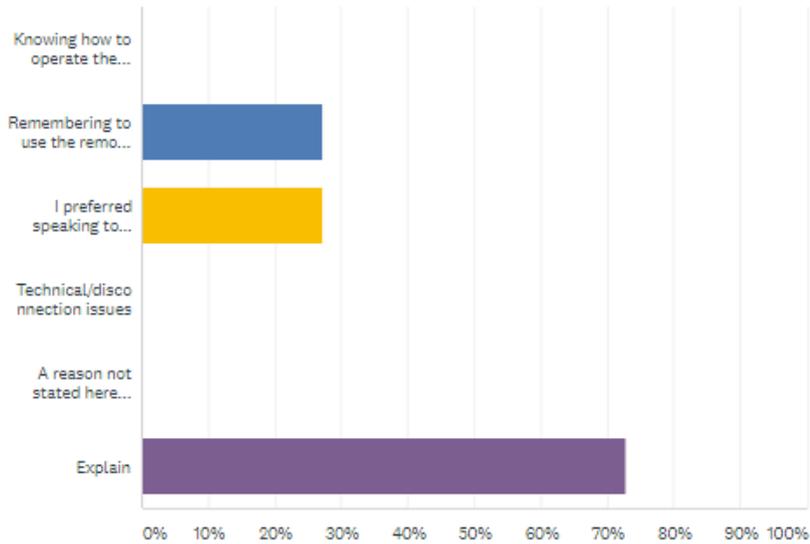
ANSWER CHOICES		RESPONSES	
▾	Knowing how to operate the remote	0.00%	0
▾	Remembering to use the remote in general	27.27%	3
▾	I preferred speaking to Alexa rather than using the remote	27.27%	3
▾	Technical/disconnection issues	0.00%	0
▾	A reason not stated here (please explain below)	0.00%	0
▾	Explain	Responses	72.73%	8
Total Respondents: 11			

Q16 comments: Which of these did you experience difficulties with in using the remote with Alexa? Please check all that apply.	
Response	Explain:
	Blank
	Blank
	I enjoy the remote - still speak to Alexa at times, no difficulty using
	Blank
	Blank
	Blank
	Blank
I preferred speaking to Alexa rather than using the remote	For right now, speaking to Alexa is what I like to do. Maybe in the future I will feel differently.

Please rate the quality of the response taken to troubleshooting requests (remedying the issue as well as timeliness of the response) (1=Unenjoyable, 10=Terrific):

Answered: 11 Skipped: 0
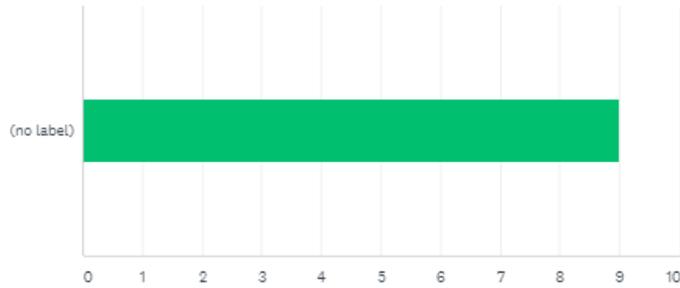
	1	2	3	4	5	6	7	8	9	10	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	36.36% 4	27.27% 3	36.36% 4	11	9.00

Comments (2)

| Q17 comments: Please rate the quality of the response taken to troubleshooting requests (remedying the issue as well as timeliness of the response) (please circle one):	
Response	Explain:
9	Very satisfied - saves steps having lamp connected to Alexa.
8	I really enjoy the smart plugs! Have bought more.

Customize   Export ▼

Please rate your overall level of satisfaction with Phase II (Smart Home) of the Amazon Echo pilot project (please circle one) (1=Unenjoyable, 10=Terrific):

Answered: 10   Skipped: 1
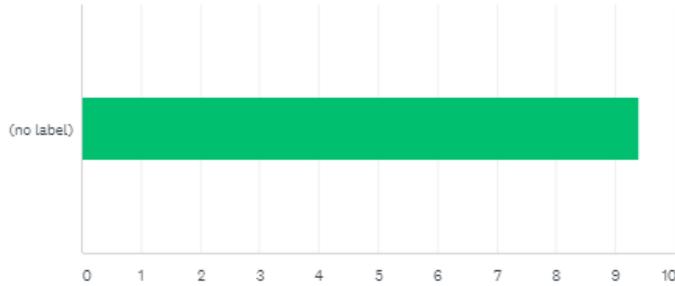
	1	2	3	4	5	6	7	8	9	10	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	20.00% 2	20.00% 2	60.00% 6	10	9.40

Comments (3)

Q18 comments: Please rate your overall level of satisfaction with Phase II (Smart Home) of the Amazon Echo pilot project (please circle one):	
Response	Explain:
9	Not really had problems - or I learned (by trial) to work everything.
10 (Terrific)	Jessica & the team really responded quickly to all of my questions. These were n big problems, but the team all treated my queries & requests with serious efforts to be helpful. And they always were.
	We haven't had any trouble. They were installed & since been off & running with the equipment.

Customize   Export ▼

Are there any other voice-activated devices and technology that you have seen or experienced elsewhere that you would be interesting in trying? If yes, please describe below.

Answered: 10   Skipped: 1
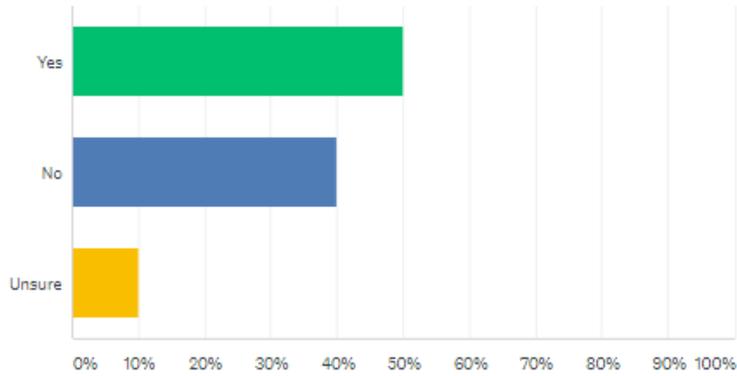
ANSWER CHOICES ▼	RESPONSES ▼	
▼ Yes	50.00%	5
▼ No	40.00%	4
▼ Unsure	10.00%	1
TOTAL		10

Comments (6)

| Q19 comments: Are there any other voice-activated devices and technology that you have seen or experienced elsewhere that you would be interesting in trying? If yes, please describe below.	
Response	Explain:
Yes	TV tuner skill or device.
Yes	Something to help control the TV.
Yes	For those with vision problems, having the ability to change TV channels with Alexa would be a great help. Have not heard of this being available to anyone.
Yes	Don't know much about it, but sounds useful. TrackR on Amazon = bluetooth, tracking devices (keys, phone, wallet, etc) $24.99
Yes	I wish they were a way to get the TV on & off & change channel with a voice command - The old remotes are clumsy and complicated.
	Blank

Has using your Alexa device overall helped make life easier for you?

Answered: 11   Skipped: 0
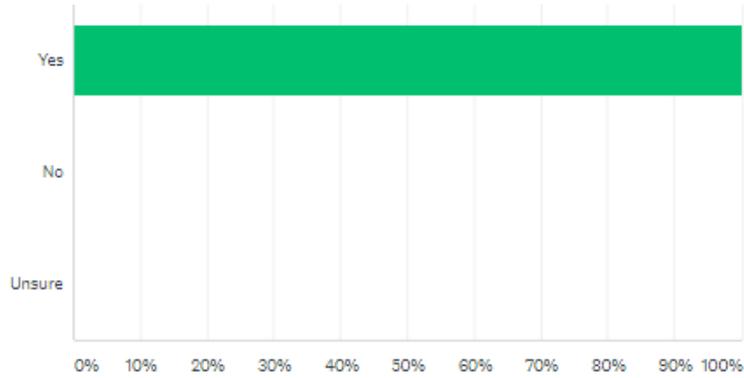
| ANSWER CHOICES	▾	RESPONSES	▾
▾ Yes		100.00%	11
▾ No		0.00%	0
▾ Unsure		0.00%	0
TOTAL			11

Comments (5)

Q20 comments: Has using your Alexa device overall helped make life easier for you?	
Response	Explain:
Yes	Not so much necessary but definitely more enjoyable.
Yes	Convenience of checking/organizing various daily matters such as reminders, news items, etc.
Yes	I check info & spelling - I message friends - I control apartment temperature & a night light without leaving my easy chair - I even play games & listen to "my" music easily - This could have been invented just for this 93-year old lady!
Yes	Because I have low vision it has made my life better.
Yes	I just love having the Echo & being in the pilot program. Thanks very much for including me.

Do you feel more connected with your friends, family and/or the community in general since the start of the pilot?

Answered: 10 Skipped: 1
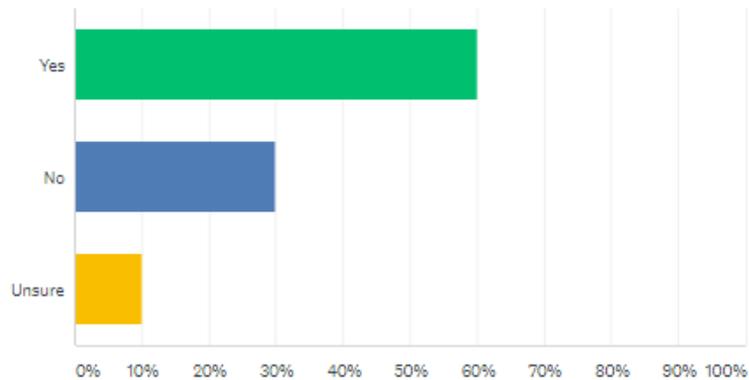
| ANSWER CHOICES ▼	RESPONSES ▼	
▼ Yes	60.00%	6
▼ No	30.00%	3
▼ Unsure	10.00%	1
TOTAL		10

Comments (6)

Q21 comments: Do you feel more connected with your friends, family and/or the community in general since the start of the pilot?	
Response	Explain:
Yes	Not especially.
Yes	Shared interest with many others in the community.
No	"connection" was not a problem for me before. It's more fun this way, yes. And I'm so spoiled now. I can't imagine doing it without my Echo.
	N/A
Yes	I have music, books, and information because of Alexa.
Yes	I talk about using my Echo/Alexa for many things all the time. I couldn't be happier.

Q22

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How likely is it that you would recommend the Amazon Alexa to a friend or colleague on a scale of 0 to 10, with 10 being "most likely"?

Answered: 10   Skipped: 1
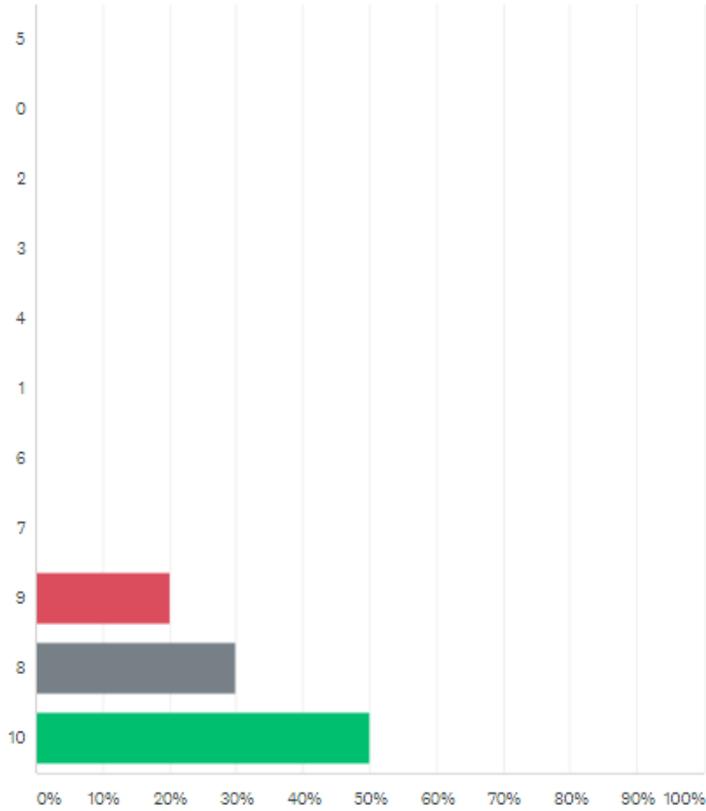
ANSWER CHOICES	▼	RESPONSES	▼
▼ 5		0.00%	0
▼ 0		0.00%	0
▼ 2		0.00%	0
▼ 3		0.00%	0
▼ 4		0.00%	0
▼ 1		0.00%	0
▼ 6		0.00%	0
▼ 7		0.00%	0
▼ 9		20.00%	2
▼ 8		30.00%	3
▼ 10		50.00%	5
TOTAL			10

Do you have any additional comments you'd like to add about this pilot project?

Answered: 8   Skipped: 3

Q23 comments: Do you have any additional comments you'd like to add about this pilot project? (Open-Ended Response)
We are grateful to be a part of the pilot project.
Enjoyed being a part of the pilot program - the Echo is "smart" additions and I am so happy and appreciative that we are able to keep them.
Makes life easier - glad I was in the program.
I'm so grateful you chose us as your "guinea pigs" I've loved every minute of it - & have now added 2 more "Dots" & a "Show" to my "Echo family" - Thank you for introducing me to Alexa.
Blank
Blank
Blank