

Conversational Artificial Intelligence: Bringing the Library to Your Living Room

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Based on a work at www.kcls.org/voice.



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Project Goal

The King County Library System (KCLS) received a LYRASIS Catalyst Fund grant to pilot the development of an AI voice assistant service as a new method for patrons to access library services and manage their accounts. Our goals were to:

- Learn from patrons what a library voice assistant needs to provide for them to use it regularly.
- Learn from libraries experimenting with voice assistant to understand the staffing and resources costs.
- Learn from vendors what options are available, and how they compare to patron needs.
- Evaluate the vendor-provided solution, myLIBRO from Converstight.ai, for long-term feasibility.

1. Project Process

A. What We Did

Policy Review

Libraries are passionate about privacy and the implementation of an Artificial Intelligence (AI) product required a review of existing KCLS policies with our Strategy Department. KCLS found that nothing in the Patron Confidentiality and Privacy Policy, Information Security Policy, or Privacy Statement, precluded moving forward with the project or would require the creation of a new policy.

Contract Review

Converstight.AI, the provider of LIBRO (later rebranded as myLIBRO), provided KCLS with a Software as a Service (SaaS) contract. During the contract review, the KCLS attorneys reviewed Standard Procedures for SaaS Agreements. KCLS made several modifications to the contract to clarify patron data use and include accessibility requirements from our Vendor Relations Coordinator.

KCLS Community Input and Feedback

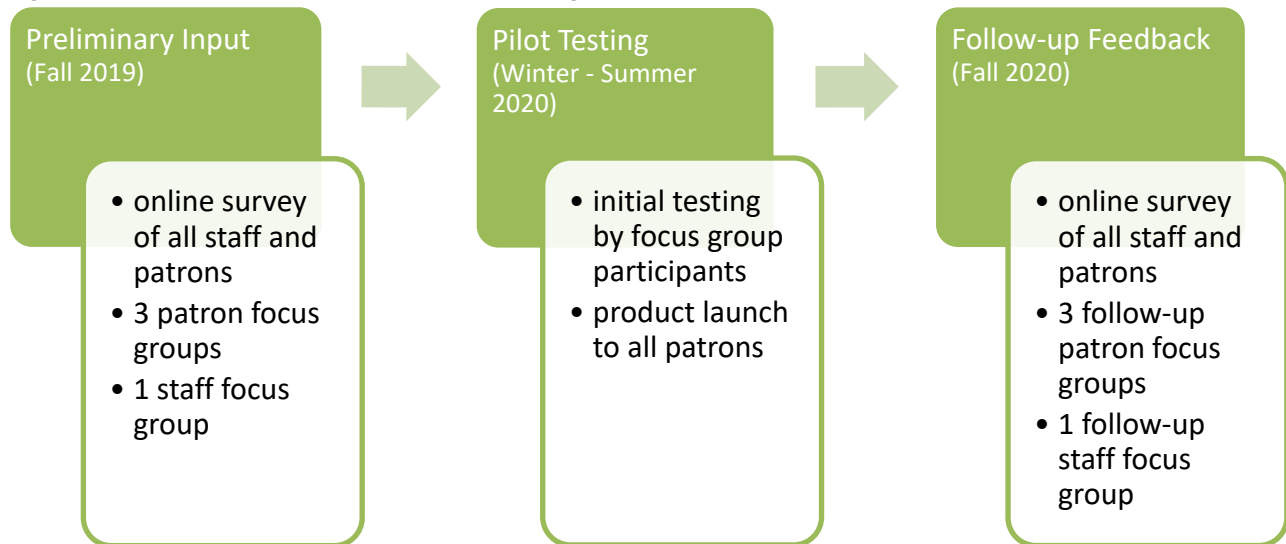
A benefit to using a SaaS solution like myLIBRO is quickly getting a voice assistant up and running on the three big platforms, Amazon, Apple, and Google.

But KCLS needed to make sure the myLIBRO solution meets our patron's needs and expectations to determine whether KCLS should build our own voice assistant service.

To that end, a large portion of our project was finding out what our patrons think. KCLS accomplished this by launching two online surveys and holding a total of eight focus groups both before and after the myLIBRO service launched. KCLS interviewed five consultants and chose [Crux Consulting Consortium](#) to provide focus group facilitation and advise on survey

design. We knew this would be important to ensure the focus groups were run in an expert and unbiased way.

Figure 1. Patron Input and myLIBRO Testing Timeline



KCLS purposefully sought feedback from a variety of perspectives, by screening for

1. Digital natives, who tend to default to digital assistants (e.g., Alexa, Siri, Cortana, etc.) as their first resource for information;
2. Sight-challenged and older-adult populations for whom looking at a computer screen and/or visiting the library is difficult; and
3. Members of the public at large who have simple questions related to their library account or their local library's public service offerings or want to access the benefits of their library card without making a dedicated trip to their nearest library.

We offered a \$40 Visa gift card incentive for (non-staff) participation in the first focus group and \$80 for the second follow-up focus groups. This was more than we had initially budgeted, but we were asking the participants to use the myLIBRO app for approximately 6 months and report back about their experiences. We also wanted to limit the financial or time burden as a limiting factor for focus group participation.

Focus groups lasted roughly one hour and were held at libraries representing a wide geographic scope of King County, including Kent, Issaquah, and Kirkland¹. Focus group

¹ King County Library System (KCLS) and its 49 libraries serve a population of more than 1.4 million residents across 36 cities and 2,200 square miles of King County, WA. This diverse population spans rural, suburban, tribal, and urban communities with more than 26% of residents speaking a language other than English at home.

participants were drawn from roughly 400 survey applicants and selected to represent a variety of perspectives as outlined above.

The Fall 2019 survey surpassed our goal of 1,000 responses and we closed the survey at 1,400 responses. For voice assistant users, we wanted to know things like platforms, frequency of use, and the tasks they think they would use in a library setting. For non-users, we wanted to know about their awareness of voice assistants, tasks they would be interested in, and the likelihood they would use one in the future.

Results from the 2019 survey helped guide the development of the myLIBRO application and informed the questions for the four preliminary focus groups. The purpose of the preliminary focus groups was to engage patrons and staff in the development of a KCLS Voice Assistant service and gather detailed baseline feedback to inform KCLS Voice Assistant Service design and delivery.

The focus group participants had early access to test the first version of the myLIBRO app in Winter 2020. Throughout their use they provided invaluable feedback that helped to improve what was later rebranded as the v2 myLIBRO app that launched to all KCLS users in the Spring of 2020.

Follow-up feedback from the myLIBRO pilot was gathered from another round of focus groups with the same participants, and another survey of all library patrons. Our goal of the follow-up focus groups was to collect feedback on the myLIBRO features and refine the definition of an ideal AI voice assistant product for the KCLS community.

Survey and focus group results and methodologies are provided in [Appendixes A - C](#).

Library Interviews

As part of the project, KCLS also wanted to explore what would be required to build a voice assistant in-house. We searched Amazon skills and Google actions to identify libraries that were experimenting with voice assistance. We interviewed the following library systems to gather their experience and perspective on developing voice assistant services.

- Broward County Library
- Calgary Public Library
- North County Library System
- Purdue Libraries
- Worthington Libraries

See [Appendix D](#) for the full set of interview questions and responses.

Vendor Interviews

KCLS also identified four vendors providing a range of voice assistant services, including Conversight.AI (the KCLS pilot), Sonnar, Pellucet, and Elf. Conversight.ai and Sonnar were

the only vendors that responded to our request for an interview. The main goal of the interviews was to find vendors that could provide as many services identified by the focus group feedback as possible.

See [Appendix E](#) for the full set of interview questions and responses from the two vendors that responded to our interview request.

B. What Worked and Didn't Work

Promotion Worked

A challenge to the project was generating enough participation to provide viable results. The King County Library System's 49 libraries serve a population of more than 1.4 million residents across 36 cities and 2,200 square miles of King County, WA. While some of these cities are technology hubs for the region, KCLS serves a variety of technology needs. Ensuring an equitable representation of users across the county was identified as a key priority. To reach as many people as possible KCLS created a multi-prong marketing plan:

- Posters and flyers sent to all community libraries
- Print pieces sent out in 1000 holds
- <https://kcls.org/voice/> webpage
- System message on the KCLS website
- Promotional "card" on the KCLS website
- Social media posts with ad buys
- Direct email to patrons that had taken a previous accessibility survey
- Promotion from Older Adult Coordinator
- Staff service alert communication

Patron Focus Groups and Surveys Worked

We cannot stress enough how valuable our patron feedback was, especially the focus groups that provided testing feedback over many months. We heard different perspectives that would have been difficult to organize and act on without structured and intentional data collection. Examples include specific syntax for voice commands, and prioritization of myLIBRO feature and tutorial development.

Vendor Integration Worked

KCLS has strong relationships with BiblioCommons and OverDrive and both were supportive of this project.

BiblioCommons moved forward some planned work to build out relevant APIs. This allows myLIBRO to pull events and real time branch hours from our modules.

OverDrive was also excited to integrate and we already see OverDrive content in myLIBRO. Additionally, work is currently underway to allow patron to listen to their OverDrive

audiobooks directly in the myLIBRO app. This was a request we heard matched repeatedly in the patron focus groups.

Audio Only Didn't Work

During the v1 testing, it quickly became clear that end users don't have the patience to listen to long lists of information being read to them. This was further reinforced by sessions at the January 2020 [Project Voice conference](#), where the current research showed that users like to ask questions verbally, but it is much faster to consume the answers visually. For example, if you placed a pizza order using voice, you would not like to sit and listen to all your toppings being read back to you. You would like to glance at a visual list or representation that show your toppings were heard correctly. The v2 update of the myLIBRO app applies these principles so patrons can use voice or text to search, and pulls in book covers from the ILS to be more visually interesting.

Amazon Skill Integration with Apple and Android Didn't Work

The v1 LIBRO app used an Amazon skill that was then skinned to Apple and Android. We found that the Apple and Android users reported that it was easier to get started and use LIBRO through the mobile app. Conversight.ai ended up moving away from the Amazon skin so app users wouldn't have to create an Amazon skill account to log in. We do still hear that it is frustrating to sync using an authentication code or "invoke" myLIBRO on Alexa.

C. Modifications

ILS Integration

KCLS uses Evergreen, an open source ILS. We were the first Evergreen library to go through Conversight.ai's implementation process and our ILS Team warned this could be difficult since we do not have similar APIs used by other ILSs. This turned out to be correct, and due to implementation delays our contract was extended to September of 2020. The v2 myLIBRO app wasn't promoted to patrons until February 2020, right as COVID-19 was starting to gain momentum in King County.

COVID-19

KCLS closed its libraries on March 13, 2020 and pivoted to online only resources. Curbside pickup began at 16 locations on July 1, 2020 and patrons could finally place new holds starting July 15, 2020. This further impacted the focus group testing timeline since it was very difficult to test when they couldn't place new holds and their accounts weren't changing. This did reinforce that they were looking to do quick account management through myLIBRO.

Conversight.ai was the fastest of our digital vendors to pivot during COVID-19 to add a curbside pickup option for library patrons. This quick pivot benefitted from having completed our ILS integration. Using the curbside module, patrons are only able to schedule a pickup when myLIBRO sees there are items ready for pickup in Evergreen. This prevents patrons from

booking appointments when they have no items to pick up. The curbside module includes a web-based portal where staff can schedule pickups on behalf of patrons.

3. Accomplishments

KCLS is very pleased with the tangible results of this project.

- 8 hours of focus groups with 29 library patrons and 10 library staff provided detailed, unbiased, and data driven feedback that details what the KCLS community needs in a voice assistant to use it regularly, what concerns them, and where we should be prioritizing.
- Over 3,000 survey responses further confirmed focus group findings.
- 5 interviews with other libraries experimenting with voice assistants. This was integral for confirming that we did not want to pursue creating something new in-house.
- 2 Interviews with voice assistant vendors that confirmed myLIBRO best meets the needs detailed by our focus group participants.
- Substantially improved the functionality of the myLIBRO application from v1 to v2 based on patron and staff feedback.
- Renewed our contract with ConverSight.ai's myLIBRO product.

4. Lessons Learned

Patrons prioritize basic search, account management and few voice-recognition errors

The preliminary round of focus groups highlighted the following opportunities and challenges anticipated with the development of a KCLS voice assistant.

Opportunities to Build Upon

- **Prioritize executing basic functions:** increase the ease of searching, placing holds, attending library events, and checking item due dates
- **Expand equity of access:** for sight-impaired, low dexterity, and English as a second language users (depending on language availability)
- **Setting notifications or reminders:** for when existing items are ready for pick-up or due and new item are announced or available.
- **Offer advanced search customization:** adding search filters for recommended or award-winning titles, parental controls, and the ability to set custom or personalized search

Challenges to Overcome

- **Poor ease of use:** voice recognition errors, unintuitive search commands, too many search results, lack of integration with other search methods or library services
- **Privacy and security concerns:** being unsure how, when, or why, and for whom device access and personal data is used or shared

- **Lack of pre-communication/support:** library staff lack the preparation, buy-in and support necessary to improve the patron experience
- **Integration with library staff roles:** lack of clarity around the trade-offs and overlapping roles between the voice assistant and library staff

The voice assistant was identified as enabling more equitable library access for certain subgroups, including sight-impaired, low dexterity, and English as a second language users (depending on language availability). Staff also recommended seeking advice from the KCLS Ability and Inclusion Committee to ensure the service fully aligns with the KCLS strategic goals of diversity and inclusion.

At the end of the first-round focus group, participants were asked to provide KCLS with six words of advice to help guide the piloting of a KCLS voice assistant. Figure 2 shows a word-cloud is a compilation of the top six words of advice from the focus groups.

Figure 2. Word-cloud of Advice for Library Voice Assistant Development



There is a clear theme among advice to **prioritize the development of a simple and easy to use voice assistant service** that is timesaving relative to alternative approaches to accessing library services. An additional theme is **to ensure transparent, flexible, and customizable options for the security of personal information** that may be collected or compromised by the voice assistant service.

These findings were confirmed by our preliminary survey which found **that nearly half of respondents would like to use a voice assistant for checking library item pick-up availability and due dates.**

In the follow-up focus groups, participants prioritized the features that would make a KCLS voice assistant application most useful. The list of features draws on the initial round of focus groups, with additions based on participants' testing experience.

The following features were prioritized by at least one follow-up focus group participant and are ranked by the number of participants that prioritized the feature.

1. Basic search: library info, holds, and checking due dates
2. Reasonable response times / Easy to narrow search results
3. Few voice recognition errors/intuitive search commands
4. Advanced/custom search with personalized rec's and preferences
5. Easy to install/set-up
6. Audio book play-back
7. Offering a "One-stop-shop" library app experience
8. Personal data security (while this was not highly rated, some participants indicated that data security needed to be a "given")
9. Inviting learning/feedback from users
10. Integration with curbside pick-up
11. Library staff are engaged and support the application

myLIBRO is good for casual search, account management and scheduling curbside-pickup

Follow-up focus group participants also noted the following strengths and weaknesses of the myLIBRO app.

Strengths of myLIBRO

- Easy set-up and account syncing;
- Well-designed and navigable user interface; and
- Using it for casual or spur of the moment account management and catalogue searches.

Weaknesses of myLIBRO

- slow search returns due to errors in voice-recognition or syntax;
- difficulty narrowing initial search results;
- lack of consistent search returns across KCLS access points; and
- lack of integration with digital content and audio book playback.

These findings were also supported by the second survey of all patrons. Table 1 shows that search functions, and voice-recognition errors were the least popular aspects of myLIBRO, especially among English language learners, sight limited, and physically limited respondents.

Table 1. Net satisfaction with myLIBRO features by sub-group

	curbside pick-up	place holds	check due dates	catalog search	events search	few voice errors	easy search filtering	ease of set- up	helpful tutorials	easy user feed- back
All myLIBRO users	61%	17%	19%	1%	-1%	-4%	1%	20%	0%	0%
Digital native	60%	17%	20%	1%	-1%	-4%	3%	21%	1%	1%
Sight-limited	50%	33%	17%	-4%	-8%	-8%	-13%	-4%	-4%	8%
Physically-limited	64%	23%	18%	-14%	-5%	0%	0%	5%	-5%	9%
English Language Learners	15%	10%	3%	-5%	-15%	-13%	0%	-3%	-8%	0%
Member of Public	62%	15%	16%	1%	-1%	-4%	0%	19%	-1%	-1%

Source: [KCLS Voice Assistant Survey 2](#)

Tutorials and staff-engagement are integral to voice assistant adoption and use

The focus groups identified some key recommendations on how to best support patron use and adoption of a KCLS voice assistant service. KCLS staff and close friends or family were identified as the most trusted and helpful source for information regarding AI voice assistants or technology in general.

In developing support materials/strategies, patrons and staff expressed the need to recognize varying capacity among different sub-groups (particularly generational divides) by providing an array of support options. These could include:

- **Self-directed tutorials** – with a mix of video and written on-line content that is tailored to user profiles, such as “existing Alexa user” or “new to voice assistants”.
- **Short videos** – 2-5 minute tutorial videos that provide overview, context, “how-tos” and answer frequently asked questions.
- **Staff-led tutorials** – KCLS staff were identified as an integral and trusted source for support and guidance in the adoption of a voice assistant service.

KCLS patrons and staff support continued development of a voice assistant service

Overall, 56 percent of follow-up focus group participants supported the continuation of a KCLS voice assistant and further support of the myLIBRO app. 35 percent of participants were unsure, noting that while it may not currently meet their needs, myLIBRO would be valuable for patrons with sight-impairment. Many of those unsure expressed a desire to see the functionality of myLIBRO continue to improve (especially audiobook playback), and for KCLS to make a strategic case for additional investment in myLIBRO by presenting alternatives and clearly identifying the target audience.

This support was echoed in the follow-up survey of 1,787 patrons and staff. Table 2 shows that KCLS staff, English language learners, sight-limited, and physically-limited respondents are

more likely to strongly support a KCLS voice assistant. Across all subgroups, there is little to no disagreement with continuing to develop a voice assistant service.

Table 2. Do you agree KCLS should continue to develop a voice assistant service?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
All respondents	19%	32%	43%	5%	3%
Non-staff	18%	32%	43%	5%	2%
KCLS Staff	28%	32%	32%	3%	4%
Digital natives	21%	29%	37%	4%	2%
Sight-limited	38%	10%	28%	7%	0%
Physically-limited	28%	16%	34%	3%	0%
English language learner	24%	26%	30%	7%	0%
Member of Public	16%	29%	40%	4%	2%

Source: [KCLS Voice Assistant Survey 2](#)

ConverSight.ai provides more functionality than alternatives

While we found many library related voice assistant skills or actions, most of those options were extremely simplistic, usually pulling information in from an RSS feed. These did not meet the base functional requirements that the KCLS focus group participants reported that they are looking for to commit to using a voice assistant regularly.

KCLS interviewed five libraries with stronger skills or actions to identify staffing and resourcing themes for success. We found that of the five, two created their own skills or actions in-house, but neither are doing the in-depth account actions that our focus group participants were looking for.

Given the currently shifting availability of voice assistant developer tools for non-coders, creating a voice-assistant in-house is an especially skill-intensive approach. For example, [Google has announced](#) it will be ending support for the Template Actions for Google Assistant feature at the end of March 2021. The Template Actions feature supported the development of Google Assistant Actions without needing in-depth coding skills.

Based on our patron input and interviews with other libraries and vendors, we decided that continuing with a vendor-supported option is preferable for our organization given the skill-intensity of voice recognition software development.

Communicate expectations with your ILS Team

Our ILS Team is passionate about contributing to the Evergreen community. We did end up scheduling a few calls to clarify how KCLS could assist Conversigh.ai with development. It was not as simple as connecting Conversight.ai developers to a third-party Evergreen developer for

help writing the integration code, and we needed to clarify where requests crossed over into a conflict of interest. This required a frank conversation with all parties involved when the ILS Team raised concerns about creating code for a SaaS product versus code shared with the community. The ILS Team has a high workload, and they didn't have capacity to be as involved with the process until later in the process. In hindsight, we should have set up a call to clarify this earlier.

5. What's Next

Adaptation to the new normal of COVID-19 has further increased the need for robust and inclusive digital library access. The curbside integration through myLIBRO is proving to be popular with patrons and we hope it will encourage them to explore the voice assistant features of the app. The [blog post](#) article explaining how to use myLIBRO to schedule a holds pickup has comprised **20 percent of all blog traffic** on kcls.org since March 1.

We have already negotiated a renewal of our myLIBRO contract. We see the curbside component being especially important until a vaccine is available and libraries in Washington fully open again. The myLIBRO application functionality continues to improve so we expect patrons to increase their engagement with the voice assistant service. We are also very interested in adding the expected Spanish language module for myLIBRO.

6. Resource Links

[KCLS.org/voice](https://kcls.org/voice)

We've updated this page a few times to communicate with patrons the scope of the grant and to answer FAQs.

[KCLS.org/curbside](https://kcls.org/curbside)

Promotes the myLIBRO app and links to [this blog post](#) on how to set up a curbside pickup.

[Evergreen Code](#)

The KCLS ILS team mainly sent the myLIBRO developers sample code that myLIBRO then built upon. However, our ILS team did need to make a change to an Evergreen API related to looking up items patron have checked out.

<https://github.com/berick/Evergreen/commit/11f671b0f0e1244f4c14ae4406f323f2a93de3ee>

[Project Voice](#)

In January 2020, KCLS sent a representative to the [Project Voice conference](#).

7. Presentations and Marketing Materials

Presentations and marketing materials for the project are included in [Appendix F](#).

Appendices

Appendix A: Detailed Focus Group Feedback and Methodology

KCLS Voice Assistant Focus Group Report

Themes from all 8 focus groups (Fall 2019 - Summer 2020)



Executive Summary

KCLS received a grant to pilot the development of the LIBRO app, a voice assistant service that would provide a new method for library patrons to access services and manage accounts. Adaptation to the new normal of COVID-19 has further increased the need for robust and inclusive digital library access. As part of the LIBRO app development process, KCLS received community feedback through surveys of over library patrons and staff, as well as a series of focus groups with library patrons and staff From Fall of 2019 to Summer of 2020.

Focus Group Results

In the first round of focus groups, prior to release of the LIBRO app, 30 patron and staff participants identified the following key opportunities and challenges for the development and integration of a KCLS voice assistant.

Opportunities to Build Upon

- *Prioritize executing basic functions:* increase the ease of searching, placing holds, attending library events, and checking item due dates
- *Expand equity of access:* for sight-impaired, low dexterity, and English as a second language users (depending on language availability)
- *Setting notifications or reminders:* for when existing items are ready for pick-up or due and new item are announced or available.
- *Offer advanced search customization:* adding search filters for recommended or award-winning titles, parental controls, and the ability to set custom or personalized search

Challenges to Overcome

- *Poor ease of use:* voice recognition errors, unintuitive search commands, too many search results, lack of integration with other search methods or library services
- *Privacy and security concerns:* being unsure how, when, or why, and for whom device access and personal data is used or shared
- *Lack of pre-communication/support:* library staff lack the preparation, buy-in and support necessary to improve the patron experience
- *Integration with library staff roles:* lack of clarity around the trade-offs and overlapping roles between the voice assistant and library staff

KCLS staff and the LIBRO development team used these baseline findings to support the development and refinement of the LIBRO app. Staff and patron focus group participants beta-tested the LIBRO app throughout development and shared their feedback on the strengths and weaknesses of LIBRO in follow-up focus groups.

Participants also shared their recommended next steps for KCLS.

Strengths and Weaknesses of the LIBRO App

The second-round focus groups highlighted the following strengths of the LIBRO app:

- *Easy set-up and account syncing;*
- *Well-designed and navigable user interface; and*
- *Using it for casual or spur of the moment account management and catalogue searches.*

Commonly identified weakness of the LIBRO app included:

- *slow search returns due to errors in voice recognition or syntax;*
- *difficulty narrowing initial search results;*
- *lack of consistent search returns across KCLS access points; and*
- *lack of integration with digital content and audio book playback.*

Next Steps for LIBRO and KCLS

Overall, 56 percent of follow-up focus group participants supported the continuation of a KCLS voice assistant and further support of the LIBRO app. 35 percent of participants were unsure, noting that while it may not currently meet their needs, LIBRO would be valuable for patrons with site-impairment. Many of those unsure expressed a desire to see the functionality of LIBRO continue to improve, and for KCLS to make a strategic case for additional investment in LIBRO by presenting alternatives and clearly identifying the target audience.

Project Overview

The King County Library System received a grant to pilot the development of an AI voice assistant service as a new method for patrons to access library services and manage their accounts. As part of this development process, KCLS solicited community feedback through a survey of library patrons and staff, as well as a series of focus groups with library patrons and staff.

Initial focus groups occurred in the fall of 2019 and included three with a total of 29 KCLS patrons and one with a total of 10 staff members. Focus groups lasted roughly one hour and were held at libraries representing a wide geographic scope of King County, including Kent, Issaquah, and Kirkland. Focus group participants were drawn from roughly 400 applicants and selected to represent a variety of perspectives, including:

4. **Digital natives**, who tend to default to digital assistants (e.g., Alexa, Siri, Cortana, etc.) as their first resource for information;
5. **Sight-challenged and older-adult populations** for whom looking at a computer screen and/or visiting the library is difficult; and
6. **Members of the public at large** who have simple questions related to their library account or their local library's public service offerings or want to access the benefits of their library card without making a dedicated trip to their nearest library.

Follow-up focus groups were held in the summer of 2020 with the same participants, after they have had a chance to test the LIBRO App. Follow-up focus groups were conducted via video conference call due to COVID-19 stay at home orders.

Focus Group Methodology

The purpose of the initial focus groups was to engage library patrons and staff in the development of a KCLS voice assistant service. **The intended outcome** was to gather baseline feedback to inform the design and delivery of a KCLS voice assistant service. Focus groups were roughly one hour in length and held at regionally distributed KCLS libraries.

The purpose of the follow-up focus groups was to refine our definition of an ideal library voice assistant. **The intended outcome** was to inform the future development of library voice assistants. Focus groups were roughly one hour in length and held via video conference due to COVID-19 stay at home orders.

Initial Patron Focus Group Questions

- In a perfect world, what features would you want in a KCLS voice assistant?
- What are your biggest worries or challenges when using a voice assistant?
- Is it important for you that KCLS is branded in the voice assistant service?
- What is your experience with linking voice assistant accounts to other accounts or services?
- If you or someone you know is hesitant to use an AI voice assistant, who would they trust the most to make them feel more comfortable?
- What are your top six words of advice as KCLS pilots a voice assistant service?
- Following a product demo: Do you have any suggestions for natural language/syntax you would use for interacting with a KCLS voice assistant?

Initial Staff Focus Group Questions

- Looking at the key opportunities identified by the community member focus groups, what changes or additions you would make to these? Are there any surprises?
- Looking at the key challenges identified by the community member focus groups, what changes or additions you would make to these? Are there any surprises?
- Think of any new service or product that you felt was rolled-out well. What in particular contributed to success with staff and patrons?
- KCLS staff were identified as a trusted source for support and guidance in the adoption of AI technologies. How do you see KCLS staff filling that role?
- What are your top six words of advice as KCLS pilots a voice assistant service?

Follow-up Focus Group Questions

- What are the strengths of Libro?
- What does Libro do well, compared to other applications?
- Do you use Libro frequently?
- What are the main weaknesses of Libro?
- How does Libro compare to other ways to connect to KCLS?
- Do you prefer other methods of connecting to KCLS?
- Should KCLS continue to offer a voice assistant after the Libro pilot ends?
- Should KCLS continue working with Libro?
- What are the top 3-5 features that are your priority in an ideal KCLS voice assistant?

Focus Group Results

The initial focus groups highlighted the following opportunities and challenges anticipated with the development of a KCLS voice assistant.

Opportunities to Build Upon

- *Prioritize executing basic functions:* increase the ease of searching, placing holds, attending library events, and checking item due dates
- *Expand equity of access:* for sight-impaired, low dexterity, and English as a second language users (depending on language availability)
- *Setting notifications or reminders:* for when existing items are ready for pick-up or due and new item are announced or available.
- *Offer advanced search customization:* adding search filters for recommended or award-winning titles, parental controls, and the ability to set custom or personalized search

Challenges to Overcome

- *Poor ease of use:* voice recognition errors, unintuitive search commands, too many search results, lack of integration with other search methods or library services
- *Privacy and security concerns:* being unsure how, when, or why, and for whom device access and personal data is used or shared
- *Lack of pre-communication/support:* library staff lack the preparation, buy-in and support necessary to improve the patron experience
- *Integration with library staff roles:* lack of clarity around the trade-offs and overlapping roles between the voice assistant and library staff

Additional opportunities and challenges are detailed in the following sections

KCLS Voice Assistant Opportunities

Prioritize executing basic functions:

Patrons and staff recognized that a KCLS voice assistant service has the potential to increase patron ease of use, especially for catalogue search and account management on small-screen devices, and when on-the-go. There was strong agreement that it is more important for the voice assistant to excel at executing basic functions rather than including many additional features. The following are the key baseline functions identified by participants that a voice assistant would be useful for:

- searching the catalogue for item availability (by key word, type, subject, author, and location)
- placing item holds
- checking items out (by location)

- placing item renewals
- searching item due dates
- finding and registering for library events (by category, location, and age group).

The ability to adjust the speed of the voice of search returns is another key functionality. Many patrons expressed a desire to be able to speed up results while some appreciated a slower cadence. Additionally, some patrons hoped the voice assistant would be able to seamlessly switch between voice and text return. (with an option for large print)

Expand equity of access:

The voice assistant was identified as enabling more equitable library access for certain sub-groups, including sight-impaired, low dexterity, and English as a second language users (depending on language availability). As mentioned above, the speed of the voice assistant should be customizable to allow for differing preferences. Staff also recommended seeking advice from the KCLS Ability and Inclusion Committee to ensure the service fully aligns with the KCLS strategic goals of diversity and inclusion.

It was also noted by participants that the addition of a voice assistant service should not come at the expense of existing KCLS services. It is important to continue providing equitable service to patrons that do not have access to smart phones or voice assistant devices. Patrons suggested setting up voice assistants in libraries to potentially widen their accessibility. These “voice assistant stations” could provide basic library information and help setting up accounts, particularly if there is language support besides English.

Set reminders and notifications:

Patrons expressed interest in using the voice assistant to quickly set reminders or notification for when item holds are ready for pick-up or when items are due. An additional useful alert would be for when items on order have arrived or when new items of interest have been announced.

Offer advanced search functions:

In addition to providing basic search and account management functions, patrons were interested in having access to advanced search options that they could customize.

Patrons thought the following advanced functions would be especially helpful:

- seamlessly add additional search filters for recommended titles, best sellers, or award-winners

- parental controls that filter content when children are talking to the voice assistant
- setting custom search criteria such as a “home library” that would eliminate the need to specify on every search.

Provide a tailored patron experience:

Suggested searches or item recommendations based on preferences is another feature than many participants would find useful for the voice assistant. Ideally, the user would be able to set their own preferences or choose to let the application use past search or check-out data to make suggestions. There could also be an opportunity for the voice assistant to connect the user directly to a librarian or Ask KCLS staff.

Integrate the library into user’s everyday life:

KCLS staff highlighted the opportunity to increase regular voice assistant user’s everyday interaction with the library. The voice assistant service could build in library determined prompts, library fun facts, or announcements that engage users in creative ways besides search and account management. Voice assistant integration with library blogs and social media is another avenue for this opportunity.

Offer New Ways to Access Library Content:

Many patrons expressed a strong desire to search for, check-out and play audiobooks with the KCLS voice assistant. The goal would be to reduce the need to switch between different applications through an established connection with the Overdrive or Libby applications. One patron brought up the potential for seamless integration with other devices in their home such as a smart TV, phone, computer, smart watches, or tablets.

Options for multiple account families

Patrons were curious how multiple family members would interact with the voice assistant. Some expressed the desire to use the voice assistant as a single access point for family accounts. This would hopefully allow for someone to place multi-account holds or check-outs. Another option identified by patrons was the potential for differentiated voice identification for users in the same household that want to access separate accounts with the same device.

KCLS Voice Assistant Challenges

Overly complicated/difficult to use:

A major challenge identified by the groups is voice assistant competition with existing search options. If the voice assistant is not faster and easier than text search than many people would not use it. (though this likely would not be the case for specific sub-populations such as the sight impaired)

Particular concerns for voice assistant difficulty include not understanding commands due to the wrong syntax, too much background noise or the user's accent. Difficulty for people with accents or lack of multi-lingual support is a key challenge identified by some participants that would hinder their use.

Some focus group participants have had challenges with account linking in the past, especially when managing the linking across multiple services such as Google and Amazon. There was an expressed desire that the account linking be managed within the KCLS system (without the use of third parties) to reduce confusion and the possibility of linking failure. Another suggestion is to provide the option of not linking your KCLS account with the voice assistant service.

Account security and privacy:

There is a concern about who and how people will be able to gain access to KCLS account information through the voice assistant. Patrons would like the ability to choose who is able access their account, and how or if their account information is collected or shared. In general, there is likely to be confusion over how security and privacy are handled with the voice assistant service, so clear and extensive pre-communication about this issue would be helpful during service roll-out.

Another identified aspect of security is the ability of children to access content that is not age appropriate through the voice assistant. A few parents were worried they would not be able to control or set limits on their children's searches.

Lack of pre-communication/support:

Patrons and staff worried that KCLS staff would lack the preparation, buy-in and support necessary to ensure patron adoption. KCLS staff were identified as a trusted source for support and guidance in the adoption of AI and voice assistant technologies. This suggests that both patrons and staff will need access to training on AI in general and the voice assistant services in particular.

Staff noted the trust divide between the public and “big-tech” that the library will have to navigate. **Further guidance on communication and support is provided in the “Supporting Voice Assistant Use and Adoption” section.**

Integration with library staff roles:

Staff identified a potential challenge in the lack of clarity around the trade-offs and over-lapping roles between the voice assistant and librarians. The staff expressed a desire for clearly articulating how the voice assistant will be integrated into existing services and how it might expand librarians’ capacity to provide additional or higher-value services to patrons.

Providing complete information:

Some patrons wanted to be sure that the voice assistant search would offer all available library items, and events. If there are items that do not appear in voice assistant search, then people will be less likely to make regular use of the service as an alternative to other search methods. An example of this is making sure the voice assistant provides access to the library’s collection of non-English language items.

Invocation Word Preferences

What is an invocation word?

Voice assistant users must first "wake" their devices by using the device name. Alexa, Ok Google, Hey Siri, are examples of using a "wake" word. Then, users tell their voice assistant what they want to do by using the "invocation word", in this case, to open the Libro "skill".

When these actions are combined, the phrase "Alexa, open Libro" wakes the device and opens the skill for them to use.

Participant preferences:

Focus Group participants were largely split on the perceived need to have the KCLS brand represented in the application "invocation" word. Some would prefer the name to have some attachment to KCLS while many had no strong opinion either way.

There was agreement that if there are other existing library voice assistant options available, it may reduce confusion to have the service branded as affiliated with KCLS.

There was also a common preference for an "invocation word" with a minimal number of syllables that is relatively informal or friendly. Examples given include: "Ask KCLS", "Go King", or "Hello Libro".

Supporting Voice Assistant Adoption and Use

For Patrons:

The focus groups identified some key recommendations on how to best support patron use and adoption of a KCLS voice assistant service. KCLS staff and close friends or family were identified as the most trusted and helpful source for information regarding AI voice assistants or technology in general.

In developing support materials/strategies, patrons and staff expressed the need to recognize varying capacity among different sub-groups (particularly generational divides) by providing an array of support options. These could include:

- **Self-directed tutorials** – with a mix of video and written on-line content that is tailored to user profiles, such as “existing Alexa user” or “new to voice assistants”. Additionally, chat or a call options for real-time support has been helpful for participants in the past.
- **Short videos** – 2-5 minute tutorial videos that provide overview, context, “how-tos” and answer frequently asked questions. Participants expressed that spending longer than 10-15 minutes troubleshooting problems with the voice assistant service would discourage them from adopting the service.
- **Staff-led tutorials** – KCLS staff were identified as an integral and trusted source for support and guidance in the adoption of a voice assistant service. Patrons expressed a desire to be able to join staff-led small-group tutorials or sign up for 1:1 support from staff.

Staff recommended that KCLS clearly communicate and emphasize *why* voice assistants are being integrated into KCLS services. They are worried that without a clearly highlighting the benefits of the voice assistant, patrons may not see its relevance to the library.

For Staff:

Patrons and staff worried that KCLS staff would lack the preparation, buy-in and support necessary to improve the patron experience. The staff focus group highlighted the following strategies for success from past rollouts of new services:

- Hold empathy for the impact of additional information and communications on library patrons—don’t expect everyone to have the same experience
- Having staff be honest about what they can –and can’t– do
- Understand and balance the trade-off between quantity and quality of the service

- Communicate thoroughly about the Voice Assistant service with both staff and community members *prior to launch*
- Communication materials should be short and simple, including videos, handouts, and trainings
- Designate an internal team of experts that staff can quickly turn to with questions

The 2019 summer reading program was highlighted as a positive example of KCLS program roll-out. This roll-out did a good job of setting expectations and staying aware of how much time staff tasks would take. Specifically, there was proper consideration for the amount desk time that would be required for patron questions.

Six Words of Advice

Based on the conversation, participants were asked to provide KCLS with six words of advice to help guide the piloting of a KCLS voice assistant. The following word-cloud is a compilation of the top six words of advice that participants gave to KCLS at the conclusion of the first-round focus groups.



There is a clear theme among advice to **prioritize the development of a simple and easy to use voice assistant service** that is timesaving relative to alternative approaches to accessing library services.

An additional theme is to **ensure transparent, flexible, and customizable options for the security of personal information** that may be collected or compromised by the voice assistant service.

KCLS staff and the LIBRO development team used the initial focus group findings to support the development and refinement of the LIBRO app. Staff and patron focus group participants beta-tested the LIBRO app throughout development and shared their feedback on the strengths and weaknesses of LIBRO in follow-up focus groups. Participants also shared their recommended next steps for KCLS.

Strengths of the LIBRO app

Easy set-up and account syncing

Participants generally had positive experiences setting up the LIBRO app and syncing it with their existing library account. Set-up was easiest for android and iOS devices, with authentication challenges noted by Amazon Echo users. Users also noted that it was easy to add additional patron accounts within the LIBRO app, which was helpful for families.

Well-designed and easily navigable user interface

Participants noted that the LIBRO user interface was well-designed and easily navigable. The “suggested phrasing menu” was helpful as a jumping off point for new users.

Casual or spur of the moment library account management and catalogue searches

Multiple participants expected voice assistants to become increasingly central to digital service delivery and see the LIBRO app as a first step in the right direction for KCLS. This was most evident in participants use of LIBRO for “spur of the moment” library account management and catalogue searches.

Weaknesses of the LIBRO App

Slow search returns in general and due to errors in voice recognition or syntax

The most cited weakness of the LIBRO app is *slow search returns in general and due to errors in voice recognition or syntax*. This was highlighted as especially challenging for users with accents or when searching for non-English language titles or authors. The result is that alternative KCLS digital access points (including the KCLS website and Libby App) are faster and preferable for most searches. However, many participants noted that the voice recognition had improved considerably over the course of development, and some participants found it to be working well. It was noted that LIBRO's visual component of showing the transcription was helpful in identifying voice recognition errors.

Lack of consistent search returns across KCLS access points, and lack of integration with digital content and audio books

Other common weaknesses included lack of consistent search returns across KCLS access points, and integration with digital content and audio books. Both concerns are related to the development process of the LIBRO application which did not always return the most up to date catalogue information and did not initially have Overdrive integration. Further development of the LIBRO app addressed these weaknesses.

Lacking features of alternative KCLS access points

The LIBRO app also lacked specific features of alternative KCLS access points. patrons highlighted the following missing features:

- The ability to create a reading list
- Showing the series name in item info
- Providing “tappable” links on items for author & series

Difficulty narrowing initial search results

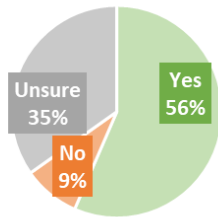
Finally, *difficulty narrowing initial search results* was a common challenge. One participant noted that LIBRO offers “weak” or “narrow” artificial intelligence focused on automating a highly prescribed and narrow set of tasks. Because of this, LIBRO cannot distinguish when a statement is a continuation/refinement of the previous, or a change to a new context.

Next Steps for LIBRO and KCLS

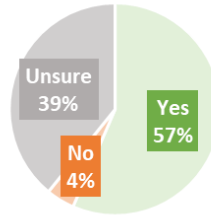
Figure 1 breaks down the participant responses to questions regarding next steps for KCLS and the LIBRO app. Overall, 56 percent of follow-up focus group participants supported the continuation of a KCLS voice assistant and further support of the LIBRO app. 35 percent of participants were unsure, noting that while it may not currently meet their needs, LIBRO would be valuable for patrons with site-impairment. Many of those unsure expressed a desire to see the functionality of LIBRO continue to improve, and for KCLS to make a strategic case for additional investment in LIBRO by presenting alternatives and clearly identifying the target audience. These results largely extended to the follow-up question of whether KCLS should continue working with LIBRO, with 57% of participants responding “yes”.

Figure 1. Focus Group Participants Largely Support LIBRO Continuation

Should KCLS continue to offer a voice assistant after the Libro pilot ends? (n = 23)



Should KCLS continue working with Libro? (n = 23)



Features of an Ideal KCLS Voice Assistant

In the follow-up focus groups, participants prioritized the features that would make a KCLS voice assistant app most useful. The list of features draws on the initial round of focus groups, with additions based on participants' beta-testing experience.

The following features were prioritized by at least one participant and are ranked by the number of participants that prioritized the feature.

12. Basic search: library info, holds, and checking due dates
13. Reasonable response times / Easy to narrow search results
14. Few voice recognition errors/intuitive search commands
15. Advanced/custom search with personalized rec's and preferences
16. Easy to install/set-up
17. Audio book play-back
18. Offering a "One-stop-shop" library app experience
19. Personal data security (while this was not highly rated, some participants indicated that data security needed to be a "given")
20. Inviting learning/feedback from users
21. Integration with curbside pick-up
22. Library staff are engaged and support the application

Other useful features that were not prioritized by participants include:

1. Set notification or reminders
2. Expand beyond English language search
3. Connecting with the library community/events

Focus Group Detailed Data

Community Member: Six Words of Advice for Voice Assistant Development	
<ul style="list-style-type: none"> • Simple, easy to use, clean interface • Functional, easy, glitch-free, user-friendly, safe, compatible • Don't spend too much money on the app at the expense of other library goals • Spell out steps, keep trust of patrons, partner with 3rd parties, ease • Simple, private, family link, single app • Clarity, timesaving, parental controls, account linking, flexible • Customize preferences, not getting personal data • Don't ask repetitive annoying questions, simplicity • No advertisements, suggestions based on the books I've read, privacy, online chat/call for help • Proceed with user focus not monetary • Useful, informative, convenient, easy, secure, clean, simplicity • Have community buy-in, not just for the already well-connected • Comprehension, Syntax, Security, ease, helpfulness, timesaving • Keep it simple • Simplicity, educational, instructional, search, security, downloads 	<ul style="list-style-type: none"> • Include the kids, provide tutorials, read to me, teens too, events • Simplicity, friendly, understandable, efficient, reliable, timely • Keep it simple, do it well • Ease of use, accuracy, actually works • Subject choices, simplicity, comprehensive, flexibility, security, adjust speed • Simplicity, Efficiency, Accuracy, Usability, Better than existing services • Make sure the basic features work (account management, due dates, renewals) • Make it simple and test it lots • Don't publish until it is ready, and staff is trained • Don't leave behind patrons that only use computers and not smart phones/devices • Staff training, accuracy, security, quick bug fixes • Ease of use, integration, trustworthiness, accuracy • Keep it simple, dynamic, and useful • Be able to play audiobooks

Staff: Six Words of Advice for Voice Assistant Development	
<ul style="list-style-type: none"> • Multi- generational buy in • Promote to public, educate staff, intuitive • Don't over promise on the possible functionality • Communicate, even venture to overcommunicate. Exude excitement and commitment • Transparency, accessibility, start again if necessary (don't be afraid to scrap failures but fight on until it is right) 	<ul style="list-style-type: none"> • Make it easy and useful • As security increases, convenience decreases, and vice versa • Remain transparent w/ staff and patrons throughout the entire process. Inclusion/ accessibility. Buy-in at different levels • Let patron be curious to learn about AI • User friendly, applicable, accessible

Natural Language Recommendations

The following are recommendations for the language/syntax patrons would use with a KCLS voice assistant for catalogue search, account management, and other potential features.

SEARCH	
<ul style="list-style-type: none"> • Search [title] • Search for [title] • Help me find a [format] with title: [title] • Can you help me find [title]? • Does [branch name] have [title]? • Please search for [title] • Find [title] by [author] • Find [title] [author] • Are there recent [formats] by [author]? • Are there [formats] by [author]? • Search for [formats] by [author] • [format] by author [author] • Can you recommend [formats] for me by [author]? • Title search: [title] • Subject search: [subject] 	<ul style="list-style-type: none"> • Limit search to [genre] • Narrow search to books about [subject] • Narrow search to items that include [key word] • [format] that have won the [award name] award • [format] that have been nominated for the [award name] award • List events at [branch name] • What are library hours at [branch name]? • What is the address for [branch name]? • What is the phone number for [branch name]? • Cancel the search • Pause the search

ACCOUNT MANAGEMENT	
<ul style="list-style-type: none"> • Place hold on [title] • What holds do I have? • What is the estimated date on hold for [title]? • Are my holds ready? • What is the due date for [title]? • Check out [title] • Check out this item (after search) 	<ul style="list-style-type: none"> • Do I have anything due soon? • When is my next item due? • List all my [items, books, movies] currently checked out • Renew [title] • Renew all my [items, books, movies] currently checked out

OTHER- MEDIA ACCESS/APPLICATION LINKING	
<ul style="list-style-type: none"> • Play audiobook • Resume audiobook 	<ul style="list-style-type: none"> • Resume audio book at chapter [number] • Open and play in Overdrive

Appendix B: 2019 Survey Detailed Data

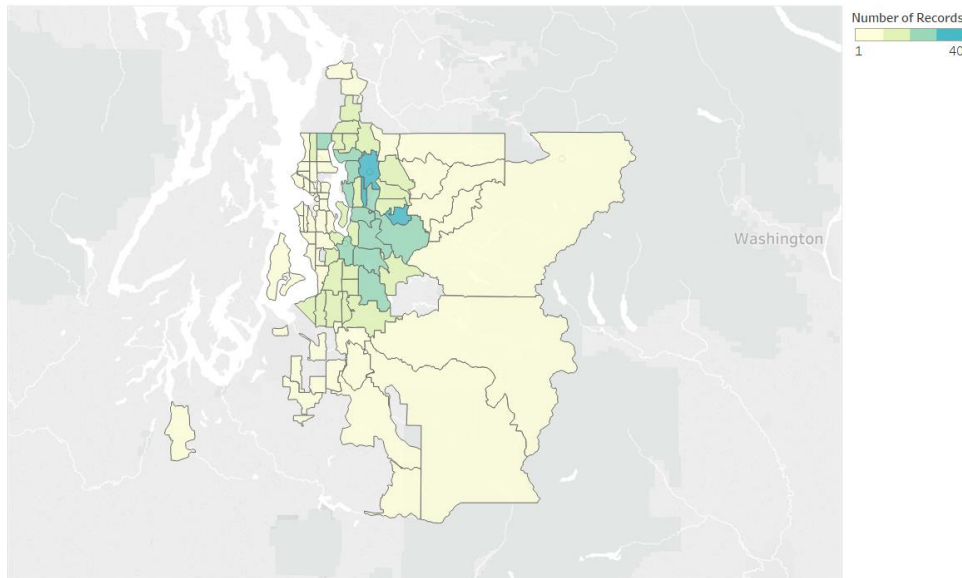
KCLS Voice Assistant Survey 1 Results

File created on: 9/4/2019



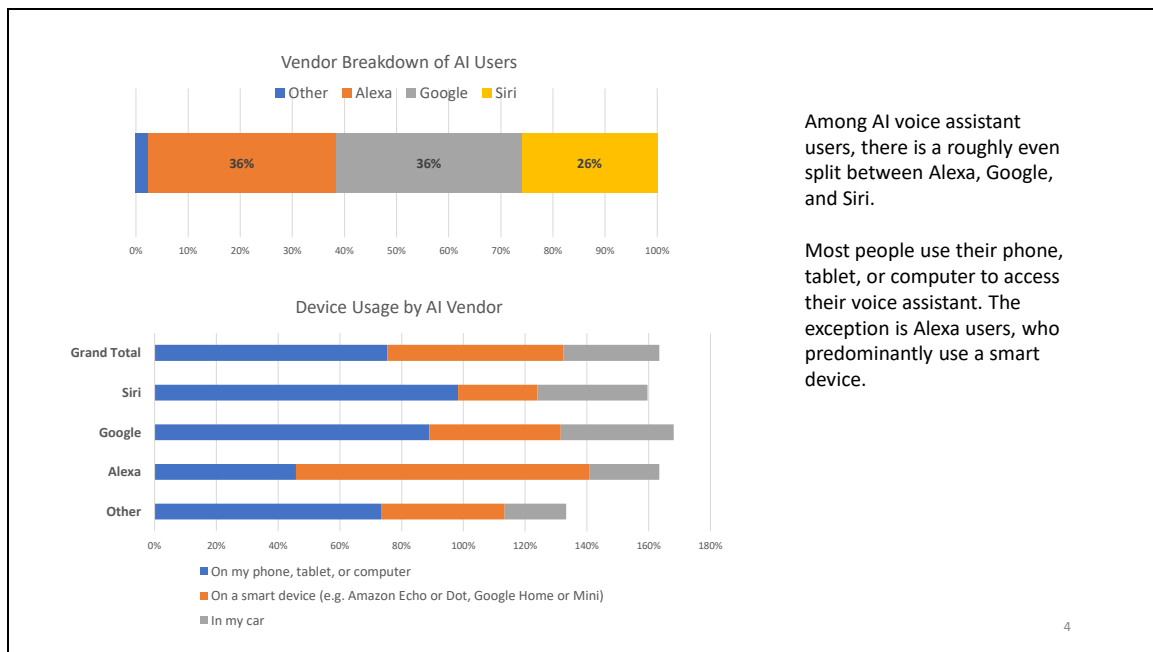
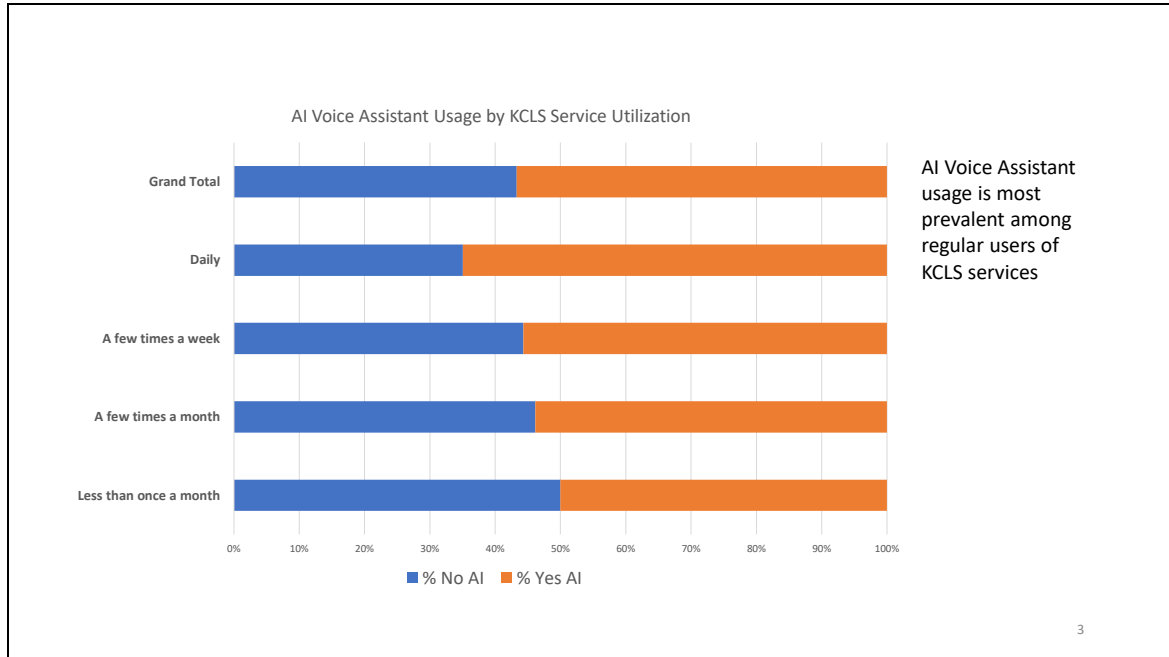
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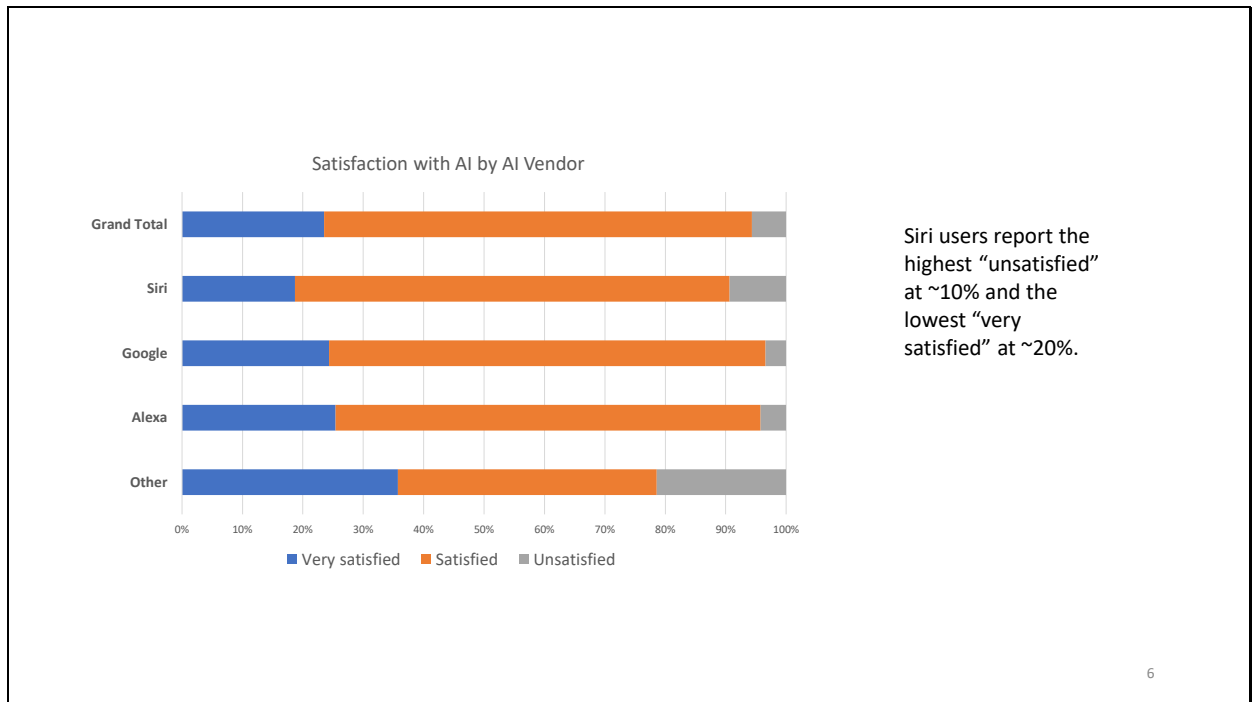
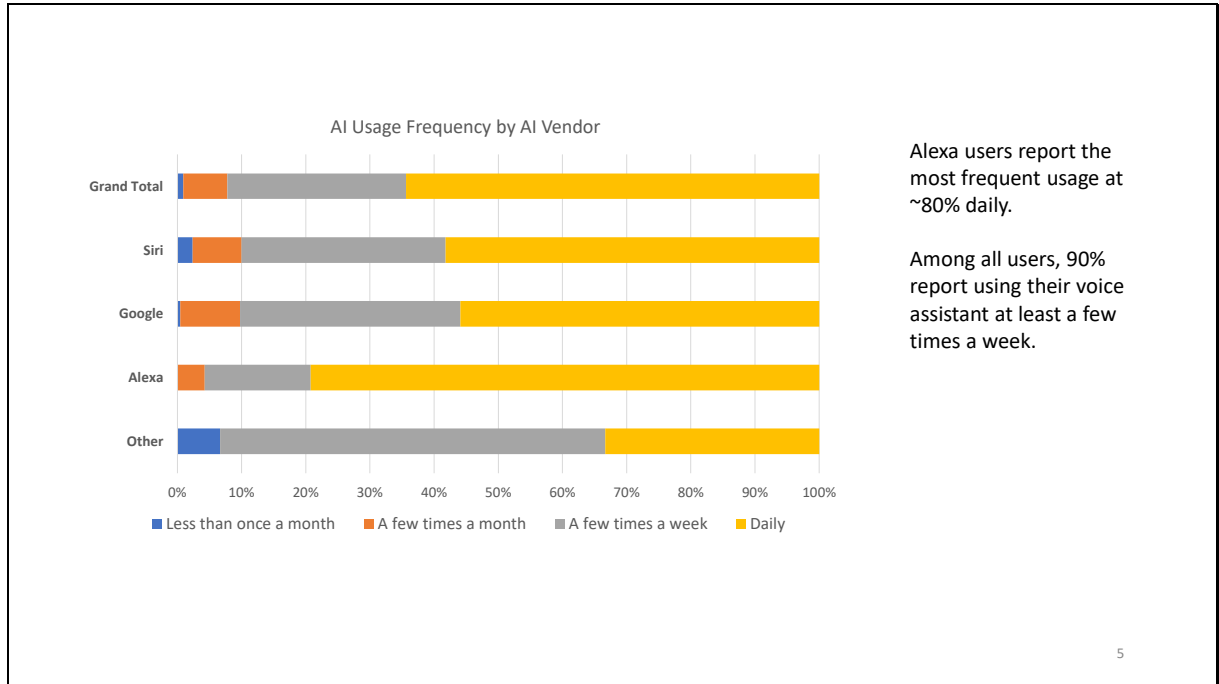
KCLS Voice Assistant Survey Zipcode Heat Map

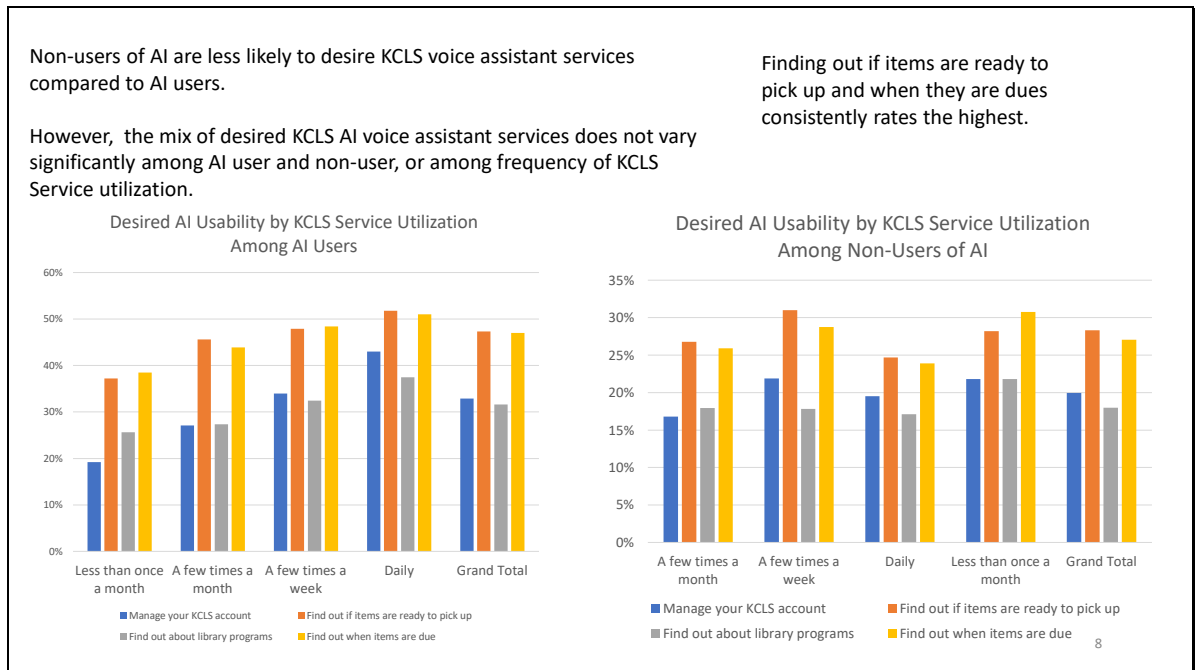
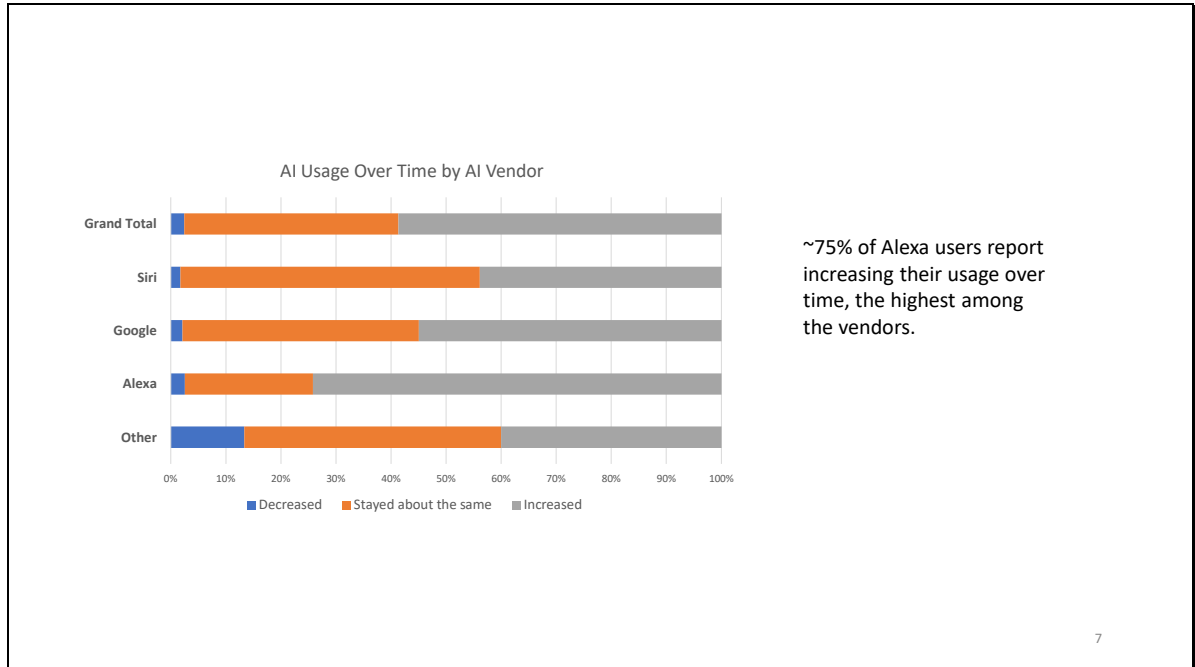


Map based on Longitude (generated) and Latitude (generated). Color shows sum of Number of Records. Details are shown for What is your zipcode?

2



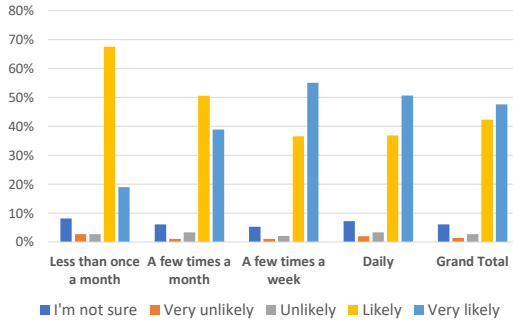




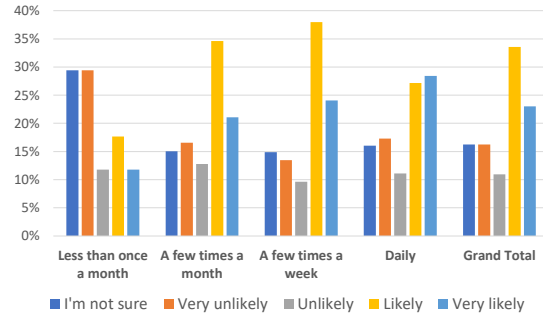
Likelihood of KCLS Voice assistant adoption varies significantly between current AI users and non-users. ~25% of non-users report being “unlikely” or “very unlikely” to utilize a KCLS voice assistant.

Among non-users, regular KCLS service users are more likely to utilize a KCLS voice assistant.

AI Adoption by KCLS Service Utilization Among AI Users

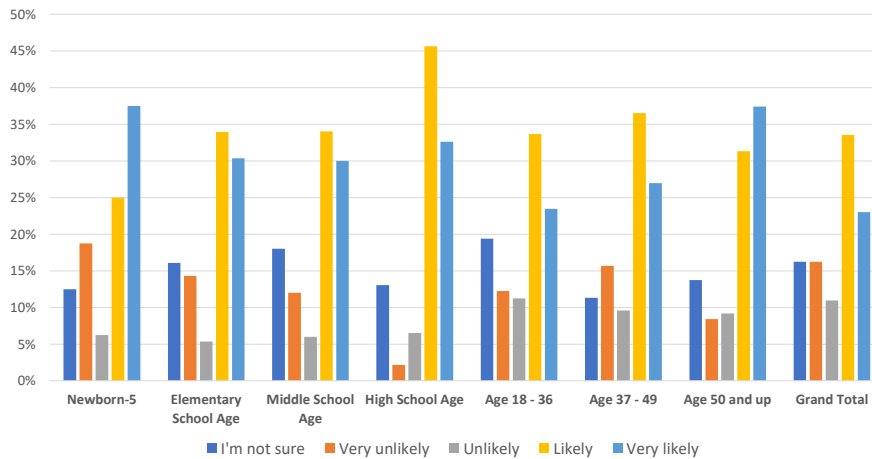


AI Adoption by KCLS Service Utilization Among Non-users of AI



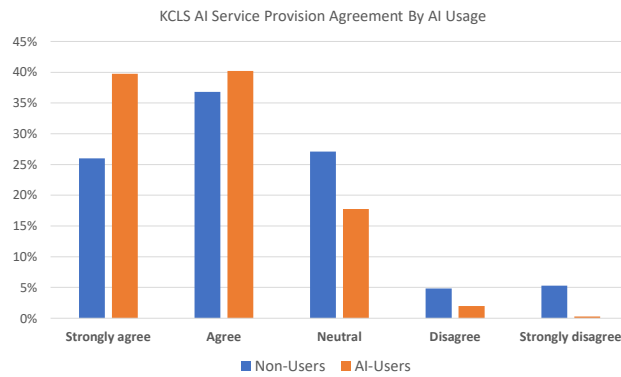
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AI Adoption by Age of AI Users Among Non-User Households



Among non-user households, likelihood of KCLS AI voice assistant adoption is highest among those with children and people Age 50 and up.

10

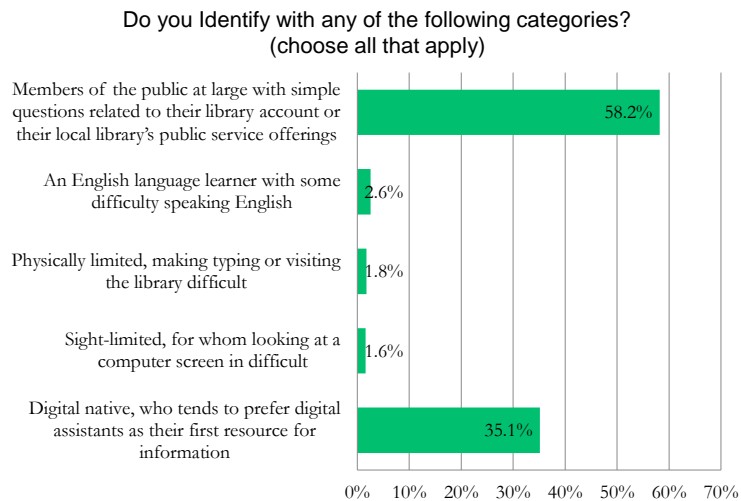


There is major agreement that KCLS should provide AI voice assistant services.

~80% of current voice assistant users “agree” or “strongly agree”. Among non-user that number drops to ~60% with 25% being neutral.

Of 1787 total respondents, there were small but robust samples of English language learners (ELL), physically limited, and sight limited respondents.

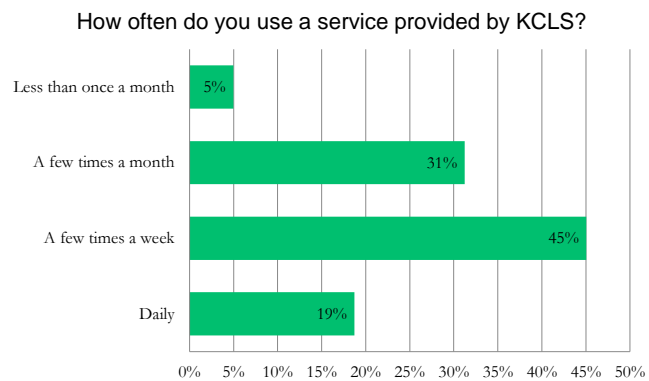
35% of respondents identified as Digital Natives, preferring digital assistants as their first resource for information



3

64% of respondents use a KCLS service a few a times per week or more.

Just 5% report KCLS service usage less than once a month



4

English language learners (ELL), sight limited, and physically limited respondents report the highest consistent KCLS service usage of 72% a few a times per week or more.

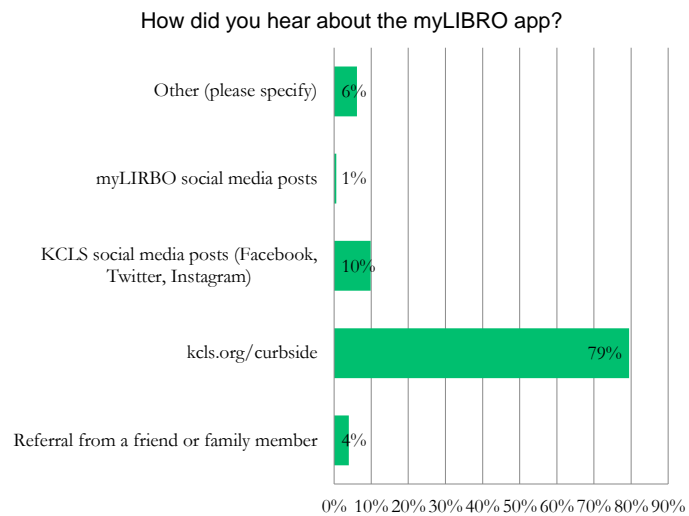
KCLS Service Usage by Sub-group

	Digital native	Sight limited	Physically limited	ELL	Public at-large	All Respondents
Daily	21%	31%	47%	20%	19%	19%
A few times a week	46%	41%	25%	52%	44%	45%
A few times a month	29%	24%	28%	24%	32%	31%
Less than once a month	5%	3%	0%	4%	5%	5%

5

The KCLS website is the major source for hearing about myLIBRO, at 79% of respondents

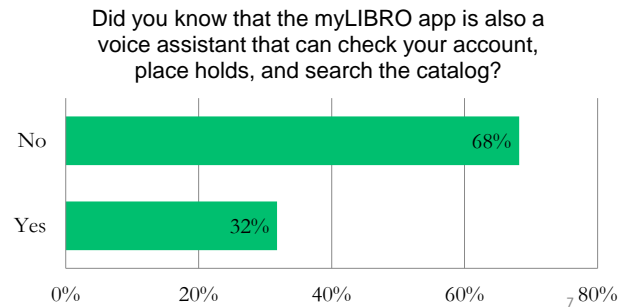
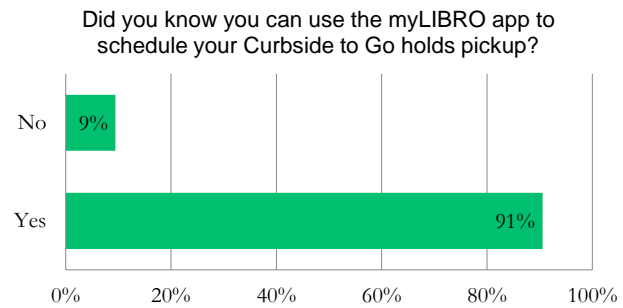
Respondents noted that emails from KCLS and staff referrals were other sources.



6

91% of respondents were aware of Curbside To Go pick-up scheduling through myLIBRO.

Conversely, just 32% were aware of the voice assistant feature



The KCLS website is the best at building awareness of the Curbside Pick-up feature, and the worst at building awareness of the voice assistant features

Awareness of myLIBRO Features by Referral Source		
	Aware of Curbside pick-up	Unaware of Curbside pick-up
All Respondents	90.6%	9.4%
Referral from a friend or family member	81.4%	18.6%
kcls.org/curbside	94.1%	5.9%
KCLS social media posts (Facebook, etc.)	83.8%	16.2%
myLIBRO social media posts	80.0%	20.0%
Other (please specify)	65.0%	35.0%
	Aware of voice assistant	Unaware of voice assistant
All Respondents	31.8%	68.2%
Referral from a friend or family member	46.4%	53.6%
kcls.org/curbside	30.2%	69.8%
KCLS social media posts (Facebook, etc.)	44.5%	55.5%
myLIBRO social media posts	40.0%	60.0%
Other (please specify)	23.3%	76.7%

English language learners (ELL), sight limited, and physically limited respondents are slightly more likely to be aware of the myLIBRO voice assistant features.

Voice Assistant Awareness by Sub-group

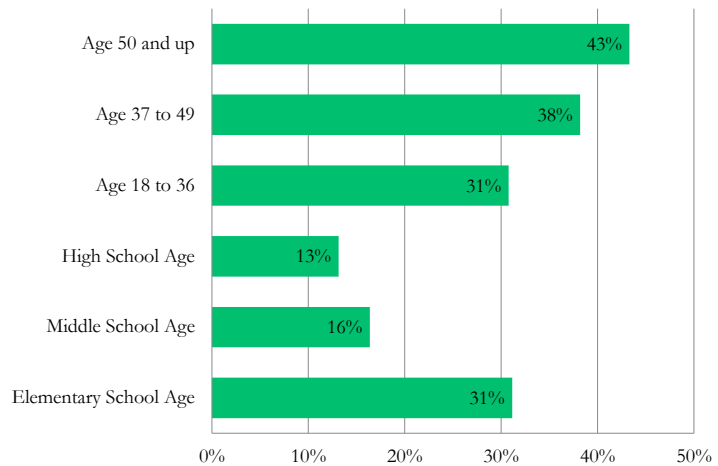
	Digital native	Sight limited	Physically limited	ELL	Public at-large	All Respondents
Aware of voice assistant	32%	41%	41%	50%	32%	32%
Unaware of voice assistant	67%	59%	59%	50%	68%	68%

9

A plurality of households report someone age 50 and up using a voice assistant at least once per month.

High school age are the least likely to report voice assistant usage

My household has people in these ages ranges that use voice assistants (such as Siri or Alexa) at least once a month. (Choose all that apply.)



10

English language learners (ELL) are among the most likely to use a voice assistant across age groups, except age 50 and up.

Sight limited respondents that are age 50 and up report the highest usage within that age group, however the sight limited, and physically limited sample sizes are too small in this breakdown to draw strong conclusions.

Voice Assistant Usage by Household Ages and Sub-group

	Digital native	Sight limited	Physically limited	ELL	Public at-large	All Respondents
Elementary School Age	29%	38%	25%	48%	22%	31%
Middle School Age	15%	21%	9%	35%	11%	16%
High School Age	11%	14%	3%	24%	9%	13%
Age 18 to 36	29%	24%	44%	26%	22%	31%
Age 37 to 49	34%	14%	16%	54%	28%	38%
Age 50 and up	30%	48%	38%	26%	36%	43%

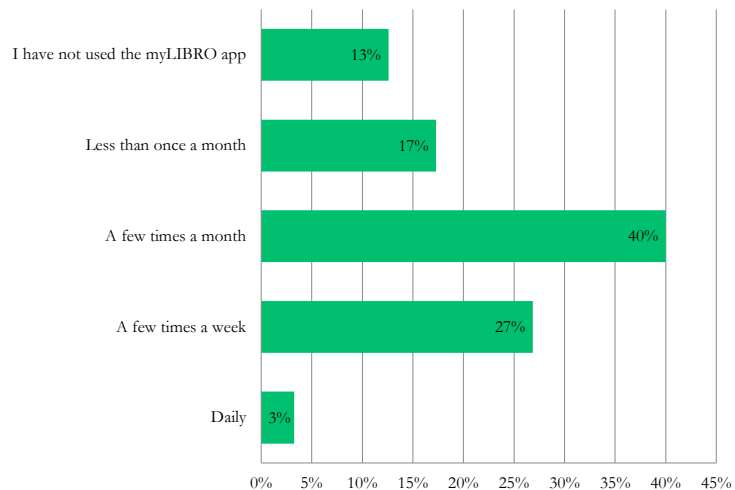
(columns add up to more than 100% because respondents could include multiple household members)

11

A plurality of respondents are using the myLIBRO app a few times a month.

30% of respondents are using the myLIBRO app a few times a week or more

How often have you been using the myLIBRO app?



12

English language learners (ELL), sight limited, and physically limited respondents are more likely to be daily users of the myLIBRO app.

Yet, 31% of physically limited respondents have not used the myLIBRO app.

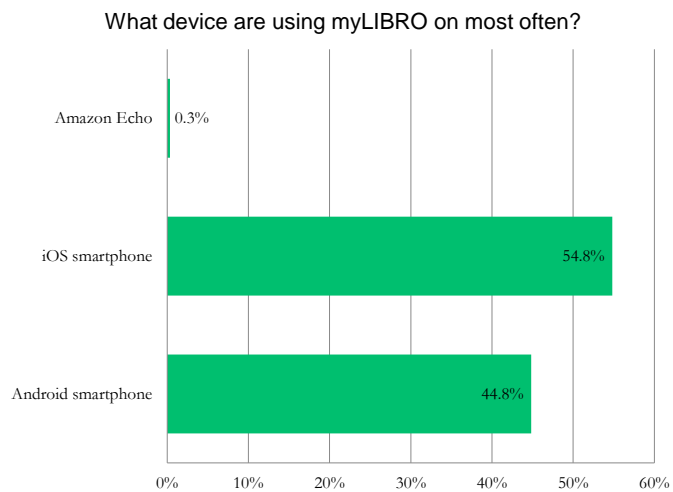
myLIBRO Usage by Sub-group

	Digital native	Sight limited	Physically limited	ELL	Public at-large	All Respondents
Daily	4%	14%	16%	15%	3%	3%
A few times a week	30%	34%	6%	37%	25%	27%
A few times a month	40%	24%	34%	30%	42%	40%
Less than once a month	15%	10%	13%	4%	18%	17%
Have not used myLIBRO	11%	17%	31%	13%	12%	13%

13

A slight majority of respondents are using myLIBRO on an iOS smartphone.

Just 0.3% of respondents are using an Amazon Echo.



14

There is no significant differentiation in device usage by sub-group.

myLIBRO Device by Sub-group

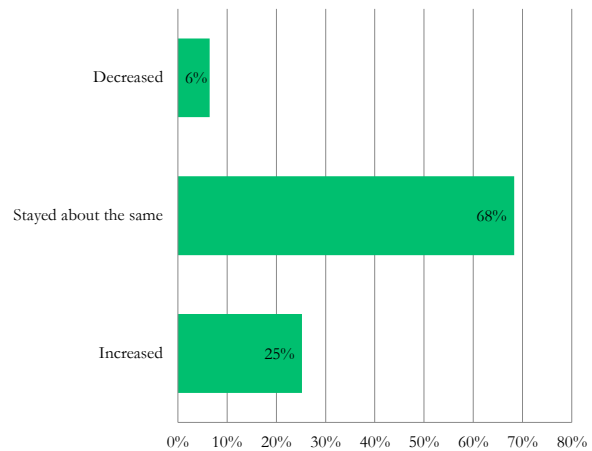
	Digital native	Sight limited	Physically limited	ELL	Public at-large	All Respondents
Android smartphone	46.2%	45.5%	45.5%	38.5%	45.0%	45.3%
iOS smartphone	53.4%	54.5%	54.5%	59.0%	54.8%	54.4%
Amazon Echo	0.4%	0.0%	0.0%	2.6%	0.2%	0.3%

15

Most respondents report their use of myLIBRO staying about the same since starting.

Just 6% of respondents report decreasing use.

Since you started using myLIBRO, how has your use changed?



16

50% of English language learners, and physically limited respondents report increased myLIBRO usage, the highest among all sub-groups.

myLIBRO Usage Over Time by Sub-group

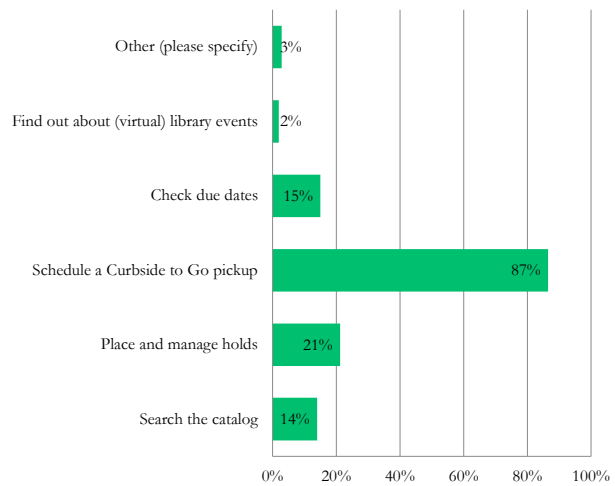
	Digital native	Sight limited	Physically limited	ELL	Public at-large	All Respondents
Increased	27%	36%	50%	50%	24%	25%
Stayed about the same	67%	59%	45%	50%	69%	68%
Decreased	5%	5%	5%	0%	7%	6%

17

87% of myLIBRO users have used the Curbside To Go pickup feature, by far the most used feature.

This result aligns with the findings on respondent's awareness of curbside pick-up relative to the voice assistant feature.

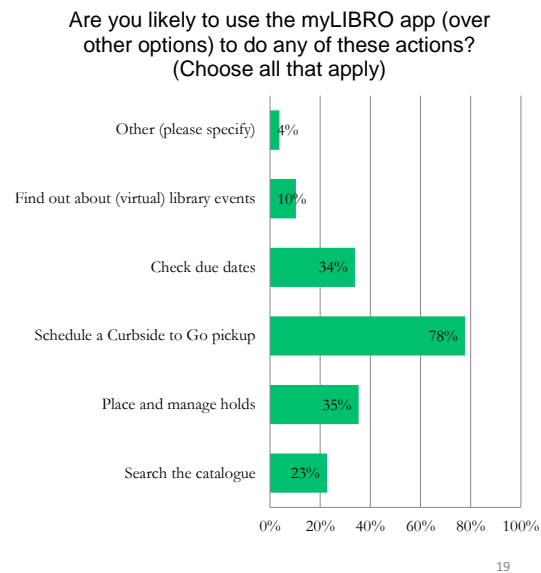
Have you used the myLIBRO app to do any of these actions? (Choose all that apply)



18

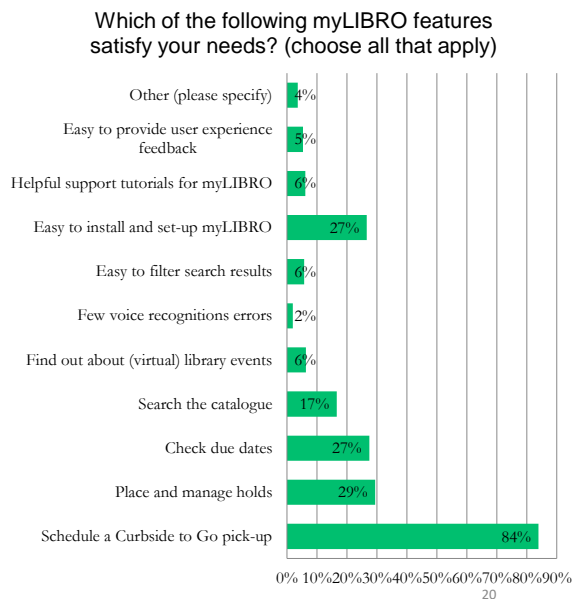
78% of myLIBRO users are likely to use Curbside To Go pickup feature, by far the most likely feature to be used.

Other myLIBRO features are more likely to be used than have been used, suggesting interest in expanded myLIBRO usage.



The Curbside To Go pickup feature satisfied the needs of 84% of myLIBRO users, by far the most satisfying feature.

Few voice recognition errors satisfied the needs of just 2% of myLIBRO users, the least satisfying feature.



Sight limited and physically limited myLIBRO users are more likely to be satisfied with placing holds and checking item due dates.

English language learners (ELL), sight limited, and physically limited myLIBRO users were less likely to be satisfied with installation/set-up. ELL are less likely to be satisfied with curbside pick-up.

Satisfaction with myLIBRO features by sub-group, among myLIBRO users

	curbside pick-up	place holds	check due dates	catalog search	events search	few voice errors	easy search filtering	installation/ set-up	helpful tutorials	easy user feedback
All myLIBRO users	84%	29%	27%	17%	6%	2%	6%	27%	6%	5%
Digital native	85%	31%	30%	19%	7%	3%	8%	27%	8%	6%
Sight-limited	83%	46%	42%	21%	13%	8%	13%	17%	13%	17%
Physically limited	91%	50%	45%	23%	14%	9%	14%	18%	14%	18%
ELL	43%	20%	28%	13%	10%	5%	13%	18%	8%	13%
Public	85%	29%	26%	17%	6%	2%	5%	27%	6%	5%

(rows add up to more than 100% because respondents could choose all that apply.)

21

Satisfaction with myLIBRO features is dramatically higher among users of those features.

Satisfaction with myLIBRO features by reported use, among myLIBRO users

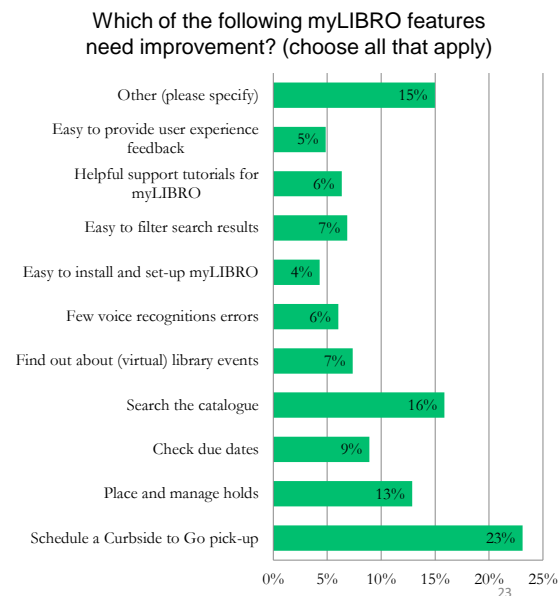
	curbside pick-up	place holds	check due dates	catalog search	events search	few voice errors	easy search filtering	installation/ set-up	helpful tutorials	easy user feedback
All myLIBRO users	84%	29%	27%	17%	6%	2%	6%	27%	6%	5%
Have schedule a pickup	92%	30%	28%	15%	6%	2%	5%	28%	6%	5%
Have placed holds	86%	73%	58%	36%	15%	6%	17%	44%	15%	12%
Have checked due dates	85%	64%	77%	39%	18%	9%	19%	52%	17%	17%
Have searched the catalog	76%	56%	54%	49%	15%	8%	19%	40%	15%	12%
Have searched events	74%	71%	71%	65%	74%	19%	42%	61%	35%	35%

(rows add up to more than 100% because respondents could choose all that apply.)

22

23% of myLIBRO users selected the Curbside To Go pickup feature as needing improvement, higher than any other feature.

Searching the catalog was the next highest feature for improvement at 16%.



English Language Learners (ELL), sight limited, and physically limited respondents reported higher improvement needs among all categories.

Curbside pick-up and catalog search are the most likely to have improvement needs.

Improvement needs of myLIBRO features by sub-group, among myLIBRO users

	curbside pick-up	place holds	check due dates	catalog search	events search	few voice errors	easy search filtering	installation/ set-up	helpful tutorials	easy user feedback
All myLIBRO users	23%	13%	9%	16%	7%	6%	4%	7%	6%	5%
Digital native	25%	14%	10%	18%	8%	7%	5%	6%	6%	5%
Sight-limited	33%	13%	25%	25%	21%	17%	25%	21%	17%	8%
Physically limited	27%	27%	27%	36%	18%	9%	14%	14%	18%	9%
ELL	28%	10%	25%	18%	25%	18%	13%	20%	15%	13%
Public	24%	14%	10%	16%	7%	6%	5%	8%	6%	5%

(rows add up to more than 100% because respondents could choose all that apply.)

Use of myLIBRO features increases the likelihood that respondents identify improvement needs, especially for catalog search, event search, and voice recognition errors.

Improvement needs of myLIBRO features by reported use, among myLIBRO users

	curbside pick-up	place holds	check due dates	catalog search	events search	few voice errors	easy search filtering	installation/ set-up	helpful tutorials	easy user feedback
All myLIBRO users	23%	13%	9%	16%	7%	6%	4%	7%	6%	5%
Have scheduled a pickup	24%	14%	10%	17%	8%	6%	4%	7%	7%	5%
Have placed holds	21%	18%	11%	25%	13%	14%	5%	11%	10%	7%
Have checked due dates	17%	14%	10%	23%	12%	15%	6%	12%	13%	9%
Have searched the catalog	21%	16%	12%	29%	16%	14%	6%	17%	12%	10%
Have searched events	39%	26%	32%	35%	32%	32%	16%	29%	23%	26%

(rows add up to more than 100% because respondents could choose all that apply.)

25

Net satisfaction with myLIBRO features, among users, highlights search, and voice recognition errors as the least popular features, especially among English language learners, sight limited, and physically limited respondents.

Curbside pick-up is the most popular myLIBRO feature, followed by placing holds and checking due dates.

Net satisfaction (minus improvement) with myLIBRO features by sub-group, among myLIBRO users

	curbside pick-up	place holds	check due dates	catalog search	events search	few voice errors	easy search filtering	installation/ set-up	helpful tutorials	easy user feedback
All myLIBRO users	61%	17%	19%	1%	-1%	-4%	1%	20%	0%	0%
Digital native	60%	17%	20%	1%	-1%	-4%	3%	21%	1%	1%
Sight-limited	50%	33%	17%	-4%	-8%	-8%	-13%	-4%	-4%	8%
Physically limited	64%	23%	18%	-14%	-5%	0%	0%	5%	-5%	9%
ELL	15%	10%	3%	-5%	-15%	-13%	0%	-3%	-8%	0%
Public	62%	15%	16%	1%	-1%	-4%	0%	19%	-1%	-1%

(rows add up to more than 100% because respondents could choose all that apply.)

26

Net satisfaction with myLIBRO features is higher among users of those features, especially for placing holds, checking due dates, catalog/event search, and search filtering.

Few voice recognition errors continues to report the lowest net satisfaction.

Net satisfaction (minus improvement) with myLIBRO features by reported use, among myLIBRO users										
	curbside pick-up	place holds	check due dates	catalog search	events search	few voice errors	easy search filtering	installation/ set-up	helpful tutorials	easy user feedback
All myLIBRO users	61%	17%	19%	1%	-1%	-4%	1%	20%	0%	0%
Have schedule a pickup	68%	16%	18%	-1%	-2%	-4%	1%	22%	0%	1%
Have placed holds	65%	55%	46%	11%	2%	-8%	12%	33%	5%	6%
Have checked due dates	68%	51%	68%	15%	6%	-6%	13%	40%	5%	8%
Have searched the catalog	54%	40%	42%	20%	-1%	-6%	13%	23%	2%	2%
Have searched events	35%	45%	39%	29%	42%	-13%	26%	32%	13%	10%

(rows add up to more than 100% because respondents could choose all that apply.)

27

Other areas for improvement highlighted by multiple respondents include:

1. Allow scheduling of surprise bag pick-ups
2. Speed up hold availability notification between kcls.org and myLIBRO
3. Push notifications for when items are available for pick-up
4. Overall speed/performance of the myLIBRO app
5. Explaining what the different KCLS apps are for, and why there are so many
6. myLIBRO updates too frequently, which uses a lot of mobile data
7. Allow one appointment for family pick-ups
8. Able to keep more than 2 accounts in the myLIBRO memory
9. Allow rescheduling or canceling of scheduled pick-ups
10. More/better publicity of the other myLIBRO features besides curbside pick-up
11. Improve the UI for the final step for scheduling, to better highlight the need to scroll down and finalize.
12. Increase the functionality with the audio off or without the voice assistant
13. Increase availability/functionality on desktop computers (can't select I have arrived from a home desktop)
14. Allow switching between library systems without logging out of myLIBRO

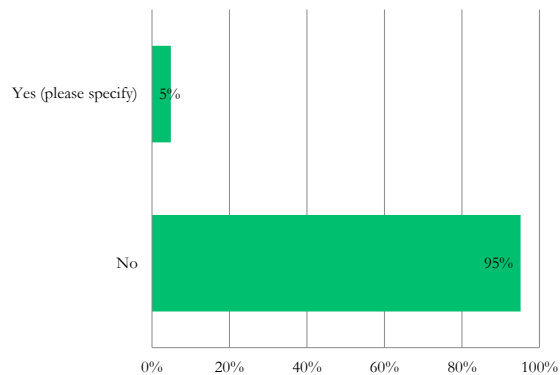
28

95% of respondents do not have additional privacy or security concerns with the myLIBRO app.

Those who did have additional concerns highlighted:

- How is information on what items I have checked out secured?
- I want to sign-up/log-in with only my library card #, I don't trust an app developer with my name, age, or e-mail address

Patron data like Name, Date of Birth or Password/Pin are not captured or stored within the myLIBRO application. Do you have additional privacy or security concerns?

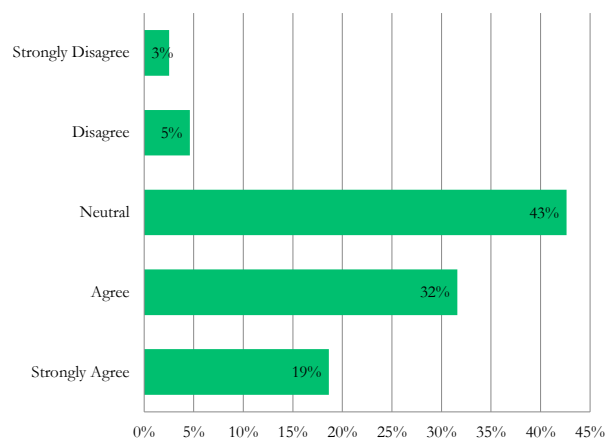


29

51% of respondents agreed or strongly agreed that KCLS should continue to develop a voice assistant service.

Just 8% of respondents disagreed or strongly disagreed.

Thinking about the needs of the whole KCLS community, do you agree KCLS should continue to develop a voice assistant service?



30

KCLS staff, English language learners (ELL), sight limited, and physically limited respondents are more likely to strongly support a KCLS voice assistant.

Support of a KCLS voice assistant is robust across all sub-groups.

Do you agree KCLS should continue to develop a voice assistant service?					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
All respondents	19%	32%	43%	5%	3%
Non-staff	18%	32%	43%	5%	2%
KCLS Staff	28%	32%	32%	3%	4%
Digital Native	22%	32%	40%	4%	2%
Sight Limited	46%	13%	33%	8%	0%
Physically Limited	35%	19%	42%	4%	0%
English language learner	28%	30%	35%	8%	0%
Member of Public at Large	18%	32%	44%	4%	3%

31

Support of a KCLS voice assistant is robust across awareness of the voice assistant feature, frequency of KCLS use, and age of voice assistant users within a household.

Do you agree KCLS should continue to develop a voice assistant service?					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
All respondents	19%	32%	43%	5%	3%
Know about Voice Assistant	21%	34%	37%	6%	3%
Unknown Voice Assistant	17%	31%	46%	4%	2%
KCLS Daily	22%	29%	44%	4%	1%
KCLS A few times a week	19%	32%	42%	5%	3%
KCLS A few times a month	16%	32%	45%	5%	2%
KCLS Less than once a month	18%	35%	36%	6%	4%
Elementary School Age	24%	33%	38%	4%	2%
Middle School Age	24%	32%	40%	3%	1%
High School Age	23%	35%	40%	2%	1%
Age 18 to 36	23%	35%	35%	4%	2%
Age 37 to 49	21%	33%	42%	4%	1%
Age 50 and up	20%	30%	43%	4%	2%

32

Support of a KCLS voice assistant is higher among myLIBRO users that have searched the catalog, placed holds, and found out about library events.

MyLIBRO users that identified areas of improvement still report robust support for a KCLS voice assistant.

MyLIBRO users that selected installation/set-up as needing improvement were the most likely to disagree or strongly disagree with voice assistant development.

Do you agree KCLS should continue to develop a voice assistant service?					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
All respondents	19%	32%	43%	5%	3%
Searched the catalog	25%	38%	33%	3%	1%
Placed and managed holds	30%	35%	30%	4%	1%
Scheduled a Curbside pickup	18%	32%	44%	5%	2%
Checked due dates	29%	33%	33%	3%	1%
Found out about events	45%	21%	34%	0%	0%
Improve curbside pick-up	16%	27%	45%	8%	4%
Improve placing holds	18%	31%	42%	7%	3%
Improve checking due dates	21%	25%	42%	9%	3%
Improve catalog search	20%	30%	42%	6%	2%
Improve event search	29%	31%	30%	7%	4%
Improve voice recognitions errors	32%	25%	35%	6%	2%
Improve installation/set-up	28%	22%	32%	9%	9%
Improve search filtering	26%	27%	35%	7%	5%
Improve support tutorials	25%	28%	34%	9%	4%
Improve user feedback	31%	25%	31%	9%	4%

33

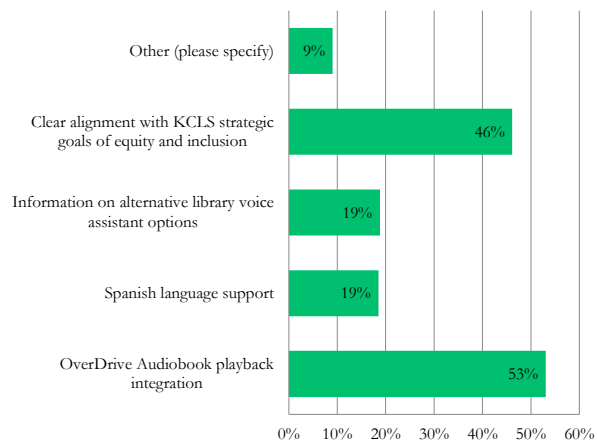
53% of respondents would be more likely to support a KCLS voice assistant service with OverDrive audiobook playback integration.

46% of respondents would be more likely to support a KCLS voice assistant service with clear alignment with KCLS strategic goals of equity and inclusion.

Other factors highlighted by multiple respondents were:

- Integration with other KCLS apps
- Additional language support

Would any of these factors make you more likely to support KCLS continuing to develop a voice assistant service? (choose all that apply)



34

Respondents that already agree with voice assistant development are more likely to increase their support.

Overdrive integration, and information on alternatives is more important to English language learners (ELL), sight limited, and physically limited respondents.

Would any of these factors make you more likely to support KCLS continuing to develop a voice assistant service? (Choose all that apply)

	Spanish language support	OverDrive integration	Alignment with equity and inclusion goals	Information on alternatives
All Respondents	11%	31%	27%	11%
Strongly Agree	23.5%	54.3%	40.2%	23.2%
Agree	14.0%	40.0%	36.1%	12.0%
Neutral	6.3%	21.7%	20.8%	7.2%
Disagree	1.3%	15.6%	18.2%	9.1%
Strongly Disagree	0.0%	16.7%	9.5%	7.1%
Digital native	13.1%	38.9%	30.4%	13.5%
Sight-limited	17.2%	31.0%	17.2%	31.0%
Physically limited	28.1%	50.0%	28.1%	31.3%
ELL	19.6%	47.8%	17.4%	28.3%
Public	11.3%	31.2%	28.9%	11.0%

(rows add up to more than 100% because respondents could choose all that apply.)

35

Respondents with voice assistant users in their household are slightly more likely to support OverDrive integration.

Frequency of KCLS usage has a limited impact on which factors would increase KCLS voice assistant support.

Would any of these factors make you more likely to support KCLS continuing to develop a voice assistant service? (Choose all that apply)

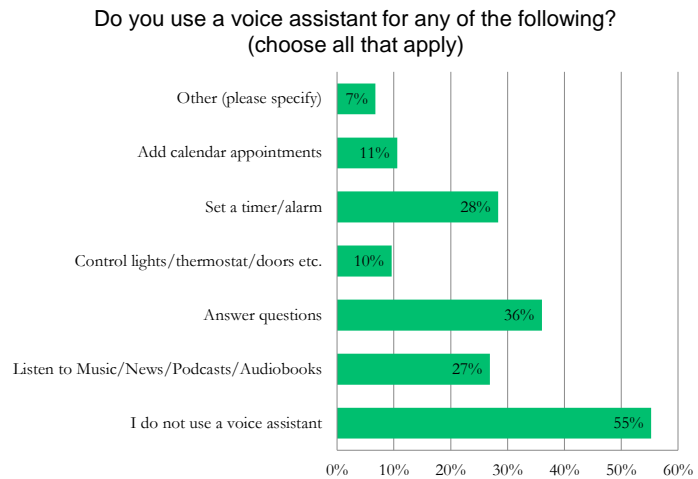
	Spanish language support	OverDrive integration	Alignment with equity and inclusion goals	Information on alternatives
All Respondents	11%	31%	27%	11%
Elementary School Age	12%	39%	29%	14%
Middle School Age	14%	39%	27%	16%
High School Age	15%	39%	24%	13%
Age 18 to 36	16%	42%	33%	14%
Age 37 to 49	13%	38%	30%	15%
Age 50 and up	8%	31%	25%	11%
KCLS Daily	13%	34%	30%	10%
KCLS A few times a week	11%	32%	27%	11%
KCLS A few times a month	10%	30%	26%	12%
KCLS Less than once a month	5%	26%	25%	16%

(rows add up to more than 100% because respondents could choose all that apply.)

36

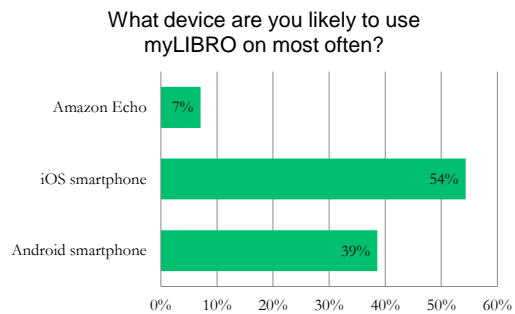
Among respondents that have not used myLIBRO, a majority do not use any type of voice assist

Among those that do use a voice assistant, most use it to answer questions, set a timer/alarm, or listen to music/news/podcasts/audiobooks



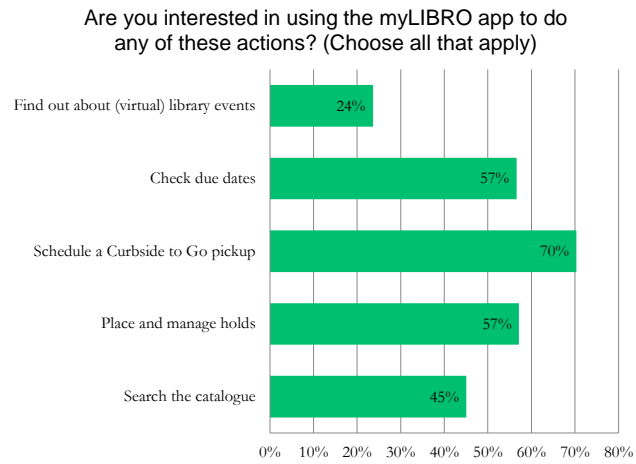
37

Among respondents that have not used myLIBRO, a slight majority expect to use it on an iOS smartphone.



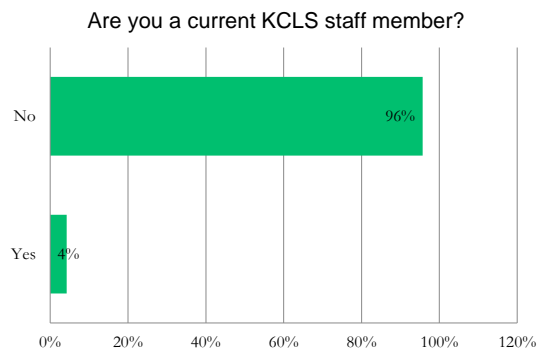
38

Respondents that have not used myLIBRO are most interested in scheduling a curbside pick-up, followed by scheduling due dates, and placing holds.



39

96% of respondents were not KCLS staff members



40

Appendix D: Interviews with Libraries

Interview Dates and Contact Information

Broward County Library November 14, 2019	Roslyn Dean, Ed.D, Community Engagement Manager rdean@broward.org See accompanying BCL Echo Device FAQ and BCL Echo Skill List .
Calgary Public Library October 1, 2019	Stephen Gibbs, Selector, Collections stephen.gibbs@calgarylibrary.ca Carolyn Kelson, Business Systems Analyst, Information Technology carolyn.kelso@calgarylibrary.ca
North County Library System September 10, 2019	Stephen Gaines, Web Services sgaines@ncls.org
Purdue Libraries November 9, 2019	Dean Lingley, Head of Acquisitions and Discovery dlingly@purdue.edu
Worthington Libraries September 10, 2019	Susan Allen, Director of Technology Services jitbit@worthingtonlibraries.org

Did you receive a grant to start the project?

Broward County Library	Yes. We received a grant that allowed us to include the devices as a service. The devices were not the original plan, but they were an idea I came up with as a solution. Project Welcome is a project we were awarded a LSTA* grant to implement enhanced service to newcomers and immigrants in need of transition services that the library can assist with. We wanted to make as many materials, programs and services available in their language as possible to assist with them in arriving and acclimating to the Broward community. (<i>Library Services and Technology Act grants to states via the Institute of Museum and Library Services</i>)
Calgary Public Library	No.
North County Library System	No.
Purdue Libraries	No.
Worthington Libraries	No.

What is the name of your skill/action?

Broward County Library	We do not have a custom Alexa Skill. We selected 21 existing Alexa Skills enabled. Three of which will be available on our Echo Shows.
Calgary Public Library	Alexa Skill: Calgary Library Assistant
North County Library System	Google Action: NCLS Info
Purdue Libraries	Purdue Library News
Worthington Libraries	Alexa Skill: Worthington Libraries Google Action: Worthington Libraries

What does your skill/action do?

Broward County Library	BCL is primarily using Alexa for Business as a language translation tool to bridge the language barrier. When customers come to the library and English is not their native language library staff can use Alexa to communicate with the customers.
Calgary Public Library	<p>Account management is the most important, this is aimed at reaching a user that's already using the library.</p> <p>The Alexa skill is a tree-branch from a larger AI project. The core is a Chatbot used to answer questions at branches. Alexa and future Google/Facebook messenger functionality piggyback on the chatbot.</p> <p>There was a staff contest to name the chatbot, and it is called Scout. AI is run as a separate project, Information Services (email/chat) and marketing (social) are also points of patron contact. They are working on getting their answers consistent, so all three services deliver the same message.</p> <p>A future project is training AI to filter out and answer basic FAQ's (e.g. are you open today?) while leaving more complex questions for staff.</p> <p>The Alexa skill allows patrons to list items checked out, renew, and check for holds. They have also added some personality, "Scout" can answer questions like:</p> <ul style="list-style-type: none"> • What's your name? • What books should I read? • What are you reading?

	<ul style="list-style-type: none"> • How are you? • Where is the parking lot? <p>The Pottymouth filter is a database of questionable content in order to respond to abusive language/behavior.</p>
North County Library System	Allows the user to ask an informational question and receive either an answer or a reply to the fact that we currently don't have an answer but will update the database when we do. The action talks to a Drupal website in the background and searches for an answer. If it does not find one, it creates a question for a staff person to answer.
Purdue Libraries	Reads a library RSS blog news feed.
Worthington Libraries	They focus on library events and programs for patrons and allow library patrons to ask questions and find out what's happening at any Worthington Libraries location. A Daily Flash Briefing Skill for Amazon Alexa allows library patrons to enable one or more feeds for different age groups in their daily news briefings.

What business need is it trying to fill?

Broward County Library	Bridging the language barrier for residents who speak limited or no English. Alexa for Business allows library staff to communicate to customers who speak limited or no English.
Calgary Public Library	<p>Calgary opened an un-staffed branch in a building that services a YMCA. That building is open 24h, so they wanted visitors to be able to ask questions when the closest branch is closed and unavailable for phone calls. The RFP required that the AI be expanded to other platforms.</p> <p>After AI launched in the unstaffed location, it was added to all branches and is available on catalog stations. The catalogue stations have a keyboard interface which our patrons use to interact with Scout. The voice skill is purely for personal use for patrons with Alexa-enabled devices.</p>

	AI will be launching soon on the website for 24 hour help.
North County Library System	Give the ability to ask questions about NCLS through Google assistant rather than calling or emailing, which would require staff interaction.
Purdue Libraries	Notifies people about news and upcoming activities in the libraries.
Worthington Libraries	Over the past couple of years, the adoption of voice assistants and smart speakers has grown steadily and is projected to continue to grow. This gives the library a presence in that space.

Did you create your own skill/action or did you hire an outside contractor?

Broward County Library	There was no need for an outside contractor. Amazon customer account and support worked with them to use the Alexa for Business Admin Console to bundle existing Alexa skills. With input from the County IT department, they selected skills that didn't violate privacy policies. All skills used do not use any personally identifiable information.
Calgary Public Library	Outside contractor. PassageAI was selected from the RFP proposals. They are based out of Silicone Valley and have been working with Calgary for 2 years.
North County Library System	Created internally.
Purdue Libraries	Created internally.
Worthington Libraries	<p>Outside contractor. The Director was interested in using the Echo Dot and wanted to develop an Alexa skill. During the analysis to create an Alexa skill inhouse, they determined that it would be too expensive to develop the skills needed. A few months later the head developer from Pellucet, a local company, contacted them. He is a patron and had developed an Alexa skill for Delaware County District Library. They would have looked for a developer had Pellucet not reached out.</p> <p>Worthington launched with events but also asked for Google and Siri. Their initial contract was for Alexa, then they added Google.</p>

How long have you had your Skill/Action?

Broward County Library	We implemented the devices in late August/early September 2019.
Calgary Public Library	Alexa Skill: June/July 2019, but it hasn't been publicized yet. They were waiting until other website initiatives launch. Unstaffed Brand: We have employed Scout for 21 months at our unstaffed location. Catalog Stations: Gradual rollout expanding from 1 to 21 locations over 19 months. The Central Library was last.
North County Library System	Google Action: 2017
Purdue Libraries	About 1 year.
Worthington Libraries	Alexa Skill: December 2007 Google Action: June 2018

How did you determine the tasks? Did you talk to end-users?

Broward County Library	We wanted to use the skills that would not be privacy invasive, but ones that would provide common services. See attached Echo Skill List for more details.
Calgary Public Library	Tasks were selected by staff based on the assumption that patrons already know about the library and are library users. The goal is to ease account management and increase access points.
North County Library System	No end users were consulted. I wanted to build an action to talk to a server on the backend.
Purdue Libraries	Looked at existing feeds that could be used to run the skill.
Worthington Libraries	Tasks were determined by Pellucant. The initial development work was done with Delaware County District Library. Worthington has not run focus groups with end-users. Pellucant met with Delaware County District Library and Worthington in Q4 2018 for concept work, prioritizing additional features, and what they wanted to add to be more relevant.

Do you advertise your skill/action? How?

Broward County Library	We use our publicity channels, press release, social media posts, and partner advertisement.
Calgary Public Library	Not yet. They will need to work with marketing, but it could also be a softer launch.
North County Library System	No, just for in-house testing.
Purdue Libraries	No.
Worthington Libraries	Yes. The skill and action are promoted in several ways: <ul style="list-style-type: none"> • eNewsletter • article in the local paper • flyer in libraries • Echo dots and Google Minis in the Technology petting zoo • public service areas for limited amounts of time • programs around the holiday season where the patron can try different types of technology

How many staff members worked on the skill? What are their backgrounds?

Broward County Library	Our Digital Initiatives Coordinator worked with Amazon to get our Alexa for Business accounts setup. We also worked internally with our IT Manager and County IT office to insure no privacy policies were being violated, etc.
Calgary Public Library	Three staff members worked with PassageAI to establish the Alexa skill. This entailed going back and forth on the menu and natural language. <ul style="list-style-type: none"> • Manager of IT Interfaces • Business Systems Analyst • Selector (Collections Development)
North County Library System	One staff member. <ul style="list-style-type: none"> • 30 years IT experience, server administration, web programming, etc.
Purdue Libraries	1 staff member. <ul style="list-style-type: none"> • IT System Admin background.
Worthington Libraries	Three Worthington staff members worked with Pellucent.

	<ul style="list-style-type: none"> • Director of Technology Services, main POC and QA • Digital Library Manager, communicating JSON and other information, handles event cancelations • Web Developer, wrote the JSON feed to access calendar data
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Approximately how many hours of staff time did it take to create the skill?

Broward County Library	We did not have to do any custom creation.
Calgary Public Library	It took a few months to work with PassageAI, squeezing in work around other projects. It was a few hours every week for a few months.
North County Library System	8-10 hrs.
Purdue Libraries	5 hrs.
Worthington Libraries	Approximately 20 hours of staff time over several weeks. The bulk of the work was handled by Pellucet.

Do you have an AI team or just one Admin who manages either contracts or codes?

Broward County Library	No. It's myself, the Digital Initiative Coordinator on my team, and the IT Manager who are primarily involved with the backend of the project.
Calgary Public Library	Director of IT.
North County Library System	No. I manage the project.
Purdue Libraries	One admin.
Worthington Libraries	Director of Technology Services is the main point of contact. The summer of 2019 Pellucet started working on adding a My Account catalog connection. Worthington provided access to their Polaris API.

Do you have executive leadership in your AI project?

Broward County Library	I am the representative from the BCL leadership team who is a part of the project. The Library Director is supportive of the initiative.
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Calgary Public Library	<p>Yes. Mark Asberg, the new CEO was the head of the project. The new head is Heather Robertson, Director of Service Design.</p> <p>There was interest in the idea of a conversational interface and expanding platforms to where patrons were. This led to an RFP.</p>
North County Library System	No.
Purdue Libraries	No.
Worthington Libraries	<p>The Director has a high level of interest in the project. He was involved in the Pellucet meeting to plan for future features along with the Director of Technology Services and Digital Library Manager.</p>

How many staff members maintain the skill? How often is it updated and how much time does that take?

Broward County Library	<p>Three of us monitor the dashboard. The Director has access to it as well. The skills are not updated.</p> <ul style="list-style-type: none"> • Digital Initiative Coordinator is the main point of contact. They look at the dashboard 3 –5 times a week to make sure there are no devices offline. • Community Engagement Manager looks at the dashboard 1 –2 times a week. • The County IT Manager looks at the dashboard as needed.
Calgary Public Library	<p>There is a larger AI team of 6 – 8 members that are constantly updating the AI base that the Alexa skill is drawing from.</p> <ul style="list-style-type: none"> • Representatives from IT, Selection/Collections, Circulation, Policy, Marketing, and Front-Line staff. • 5 - 6 staff are specialists that write and maintain content. <p>Two staff alternate weeks as “trainers”. Each week they review 20% of queries and run a training algorithm to correct mistakes. Trainers squeeze this in between other tasks, but it usually takes about an hour. Training can happen anytime once the report is run. A report for any date range can be run anytime,</p>

	<p>meaning you can run this week's training a month from now. Best practice is to keep up with the training in order to continuously improve accuracy.</p> <p>Staff meets bi-weekly with PassageAI to work on the programming and functionality, but Calgary staff is responsible for the content. PassageAI is available to help with "training" questions.</p>
North County Library System	Not currently maintained.
Purdue Libraries	2-3. Since it runs off an existing RSS blog news feed the only updating required is the news blog feed being live.
Worthington Libraries	<p>Two staff members spend minimal time maintaining the skill and action.</p> <ul style="list-style-type: none"> • Director of Technology Services, QA/beta testing • Librarian - leader of the Zookeepers (technology petting zoo) <p>Pellucet sets the frequency and handles updating. Once the work is done, they email the Director of Technology Services for QA testing.</p>

If applicable, what scripting/coding language did you develop your skill/action in?

Broward County Library	N/A.
Calgary Public Library	Web service and API call to the ILS (Symphony).
North County Library System	N/A.
Purdue Libraries	Used the amazon web service interface (templates).
Worthington Libraries	JSON script was the only thing written in house.

What skill sets did you use in developing your AI program?

Broward County Library	<p>The Digital Initiatives Coordinator is responsible for monitoring emerging technology that may be beneficial to the community that the library can be information providers of, testers for, and a petting zoo for. With my experience and time in the software industry, 14 years with SirsiDynix, I also look for tech</p>
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	programming ideas and ways to emerge technology into the staff and public library services.
Calgary Public Library	Web service for account management and making the web service call to the ILS.
North County Library System	Actions.intent.Main, conversational, diagflow.
Purdue Libraries	General IT skills.
Worthington Libraries	JSON, beta testing, QA.

Did your AI program compete with other projects for funds and staff time?

Broward County Library	Somewhat, because this was a grant designed to provide specific programs, services, and enhancements, we were prepared to carve out most of the time. However, we did find that we needed to include the Digital Initiatives Coordinator after we had to adjust the original plan.
Calgary Public Library	Competed for time, but not funding.
North County Library System	No.
Purdue Libraries	No, more of a hobby project.
Worthington Libraries	<p>No, this project did not compete for funds or staff time. It was initiated by the Director and had executive support. While it wasn't included in budget planning for the initial year, there were miscellaneous budget funds for the Director of Technology Services to use.</p> <p>Pellucet provides the option to pay monthly or annually, Worthington uses the annual option and budgets for their contracted services.</p>

Did you set metrics for success for your project? What were they?

Broward County Library	We base the metrics for success on the number of device interactions. We have had over 6,000 interactions in the last 30 days. We realized that the way we are using the Alexa devices is new and different for the library staff and the public. However, we feel, bridging the language barrier necessary and using the devices this way is not a foolproof solution, but it is a start and it seems to be working well.
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Calgary Public Library	<p>No metrics have been set yet. The goal is for accuracy and customer satisfaction, but the Alexa skill hasn't been promoted yet.</p> <p>At the end of each transaction, there is a feedback question that has not generated any responses. From August – September there were 14k questions asked from the catalog AI.</p>
North County Library System	Only that it worked.
Purdue Libraries	No.
Worthington Libraries	<p>No, metrics have been the weakest point of the project. The reports available through Amazon and Google provide minimal data and Pellucet does not provide regular reports.</p> <p>Now that it's ongoing, Worthington would like to establish regular metrics for reporting.</p>

What percentage of AI users return after the initial visit or two?

Broward County Library	We have not captured that data at this time.
Calgary Public Library	For privacy, they are not tracking users by any identifiable data.
North County Library System	No stats.
Purdue Libraries	N/A.
Worthington Libraries	Unknown. Anecdotally, they've seen light adoption, but not the adoption that they would like to have. This is not surprising based on the limited functionality of only providing event information. They expect to see the skill and action take off once My Account functionality is added. For their cell phone app, 75% of use was in My Account.

What was difficult and how did you overcome it?

Broward County Library	Getting the staff to be comfortable. Initially, some staff did not understand that Alexa for Business operates differently from Alexa for Home. Staff needed to understand that we are not storing recordings on the device. The devices to listen for the wake up command,
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	<p>but no personally identifiable information is associated with any interaction.</p> <p>We created an FAQ so that staff had a better understand of the devices and how they are being used. We also provided onsite training on the devices for branch staff.</p>
Calgary Public Library	<p>The core AI Knowledge was created from an existing FAQ database. But these were meant to be shared via an email and were too long for an Alexa answer. Even the “Help Scout” answers in the chatbot were too long. Responses were often defensive and intended for complaints.</p> <p>Answers had to be reworked to be as short as possible and focused on a quality answer. Answers with a link or with no resolution aren’t helpful.</p>
North County Library System	Just the time it took to learn Google actions.
Purdue Libraries	Just committing the couple hours required to complete the skill.
Worthington Libraries	Nothing, it was straightforward to work with the developer.

Was there anything you wanted to include that wasn't implemented? Why not?

Broward County Library	<p>We are beginning to explore the many avenues that can help our customers both inside and outside of the library with Voice Assistants, while paying very close attention to security and privacy.</p> <p>Future developments we are exploring include two apps. One that can be used internally in our buildings. This app will have internal building directions (where is the restroom, where are the 900's, etc.) as well as the ability to book a study room or find out what programs are happening in the library.</p> <p>We are considering expanding our use to cover our Special Collections to provide Voice description on special pieces of art and history. This will allow us to provide detailed information about a piece as well as</p>
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	<p>be inclusive so that those with limited sight will be able to have a full description read aloud to them. This internal app is location based on where the individual speaker is located and does not require any PII to function.</p> <p>The second app is the one most people think of to be used on devices at home. This one will require customers to give PII. It will include the ability to place holds, renew items, and many of the functions of the internal app dealing with programs and activities.</p>
Calgary Public Library	Program registration, catalog search “does the library have...”, these weren’t on the initial agenda. There wasn’t enough time and resources to write these actions.
North County Library System	No.
Purdue Libraries	The next step is doing some sort of library voice search, amount of time and resources required is what is preventing that from happening.
Worthington Libraries	My Account functionally and access to the catalog. These features are being worked on now by Pellucet.

If you could go back and build it again, is there anything you'd do differently?

Broward County Library	I’d like to think we would have done this sooner.
Calgary Public Library	<p>Instead of taking an existing set of FAQs, start from scratch. Or use them as a reference and re-write them for the Alexa experience.</p> <p>Review a log of chat questions. Spend more time with web/external communication questions. Think about what are the best questions for AI to answer.</p>
North County Library System	No.
Purdue Libraries	No
Worthington Libraries	Start with API access to launch with account functionality.

What, in your estimation is required for a good AI program?

Broward County Library	Education, innovation, and leadership buy-in/support.
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Calgary Public Library	<p>Content is so important, make sure that it's clear, concise, and up to date. Have the appropriate staff and staff time to create and maintain content.</p> <p>This is the perfect job for a cataloger, they can be very helpful in getting the content organized.</p> <p>Learn to live in ambiguity, the public is always thinking of new ways to ask questions. The technology is evolving, and Alexa can throw curveballs in what it hears and responds. Alexa may mis-hear verbal inputs.</p> <p>Creating an In-house app is worth the effort. Calgary is looking forward to promoting the Alexa skill and working on a Facebook Messenger component. It will need to be able to determine if it's a simple question or should be left for a staff member.</p>
North County Library System	That it be self-learning.
Purdue Libraries	A good voice task or AI need.
Worthington Libraries	It's ok to not be an AI expert. Focus on working with someone or a company that is.

Appendix E: Interviews with Vendors

Interview Dates and Contact Information for Sales Questions

Conversight.ai August 5, 2020	Mike Rossetti, Director of Sales Mike Rossetti mike.rossetti@conversight.ai (812) 341-0200 https://www.conversight.ai/libro/
Sonnar August 4, 2020	Jara Beksa, CEO jarek@sonnar.nz +64 277 20 20 20 www.sonnar.nz

What devices and operating systems can your product be used with?

Conversight.ai	Patron-facing app is available for all Android & Apple Devices, Web Integrations for patrons and staff are browser-based and work on all systems.
Sonnar	Amazon Alexa, Google Home, iOS, Android and Web Player. (Web player and mobile applications will be available later this year, for now users can access Sonnar Library on smartphones through Google Assistant or Alexa).

Where are you located?

Conversight.ai	Company is located in Carmel, Indiana (suburb of Indianapolis).
Sonnar	New Zealand

How many people do you employ?

Conversight.ai	Currently 50 employees
Sonnar	4 employees

How would libraries report a bug or enhancement request?

Conversignt.ai	We have a constantly monitored Feedback form in the app and libraries have access to our 24/7 Customer Support email. We are working on a technical service chat feature as well.
Sonnar	We offer priority support service agreement with a direct phone number to assigned engineer.

Do you collect data on the accuracy rate by gender and race/ethnicity?

Conversignt.ai	We don't collect any patron, search or material hold data. All data from the library's ILS is encrypted to myLIBRO.
Sonnar	We collect anonymous data, this can be customized to client needs.

Do you have plans for supporting additional languages?

Conversignt.ai	We are preparing to launch a Spanish Beta in the coming months and can add other languages as needed. We typically ask interested libraries to partner and Beta the required language.
Sonnar	Yes, Alexa talks in 11 languages (and growing) and Google Home over 30.

How frequently do you push updates?

Conversignt.ai	Currently, weekly, due to libraries' requirements during the pandemic.
Sonnar	Sometimes a couple of times in a month.

How would libraries report an outage?

Conversight.ai	Through the previously mentioned support email. In most cases, our team is already aware but this helps us to quickly remedy the situation.
Sonnar	We have a direct contact channel (email and phone). We also monitor outage automatically.

Do you offer event calendar integration?

Conversight.ai	Yes, we have connected multiple events calendars with the myLIBRO solution. This allows patrons to search events, add filters and in some cases, reserve space when that is required.
Sonnar	Yes.

Are there any other features or integrations that you can provide?

Conversight.ai	We are working on connection to audiobooks providers like Overdrive and CloudLibrary. These are still in development and have been delayed a bit due to more pressing needs related to COVID, but they're not far off. Also, we are working on Self-Checkout features that should be ready soon.
Sonnar	Yes. Our platform can access any online data and integrate to any system using APIs.

What statistics are available? How are they accessed?

Conversight.ai	Libraries have access to number of downloads, number of scheduled appointments and several other metrics through their admin dashboards.
Sonnar	We can collect various types of data - depends on the desired implementation. We can track specific user, groups

	<p>of users, measure which content is most popular, how often played, etc.</p> <p>We offer an analytics panel for customers.</p>
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What is your process for onboarding a new library? How long does it take?

Conversignt.ai	Upon agreement, the library completes a short onboarding questionnaire that asks for ILS connection information (API keys), and other general library information. We can have a library connected for scheduling features (curbside & in-library services) within 24-48 hours. ILS connection takes as little as one week and as many as 4 weeks, depending on the ILS.
Sonnar	We offer an internal tutorial for new users (inside the application) plus training for library staff members to help prepare them for users onboarding.

How do you calculate pricing?

Conversignt.ai	Public library pricing is based on active patron counts (library user count over past 12 months). Academic libraries are based on FTEs.
Sonnar	This is based on the level of integration with used services, number of books, users.

Is there anything else you'd like to share about your product?

Conversignt.ai	At myLIBRO, we understand the importance of digital experience for libraries, especially during these challenging times. We work to quickly and nimbly add features that help libraries and their staff better support patrons. Also, we understand libraries don't want their patrons to have to access four different apps to search the ILS, reserve materials, schedule a pick-up, complete checkout and read
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	<p>audiobooks, so we're bringing all of those capabilities in one solution.</p> <p>The following improvements from the August 2020 patron survey have already been rolled out:</p> <ul style="list-style-type: none"> • Allow scheduling of surprise bag pickups • Updates every three weeks and options to reduce the use of mobile data • Add more than 2 accounts • Allow rescheduling or canceling of scheduled pickups • Improve the UI of the final step for scheduling by removing the need to scroll down and finalize • Allow switching between library systems without logging out of myLIBRO
Sonnar	<p>I would invite you to try our demo. Also, please see our usability test results with Blind Low Vision NZ.</p> <p>http://scholarworks.csun.edu/bitstream/handle/10211.3/215982/2189%20Usability%20Study%20of%20Blind%20Foundations%20Alexa%20Library%20Skill.pdf?sequence=1</p>

Appendix F: Presentation and Marketing

Presentations

Hey Siri, what does the future of public libraries look like?

March 10, 2020

<https://event.on24.com/wcc/r/2187212/09BE94501ACA7E5FA6B1F4FECC81B590?partnerref=LJSPNSRchg31020>

Computer assistants, such as Apple's Siri and Amazon's Alexa, and other Artificial Intelligence (AI) programs are becoming commonplace. If you need directions, want to buy groceries, or are looking for suggestions for a new wardrobe, technological help is just a request away.

As we as a society try to manage this new technology, many people are calling on the library community to lead the way. Libraries are increasingly supporting patrons in understanding AI as well as implementing AI technology to improve processes and provide a better, more personalized patron experience.

This webinar will discuss the use of AI in public libraries and provide advice on how your library can make use of this technology. Featuring presentations from the New Orleans Public Library and King County Library System, the webinar will share specific examples of how AI is being used to inform the selection of pre-published titles based on predictive algorithms, and how voice-assisted technology can be used to connect patrons to library resources.

PANELISTS

Liz Duffy, Senior ESP Project Manager, collectionHQ?

Matthew Bowers, Head of Acquisitions and Collection Development, New Orleans Public Library

Angela Nolet, Librarian, Online Library Services, King County Library System

myLIBRO Webinar: "The New Library: Where Do We Go from Here"

August 5, 2020

In a new normal where books go curbside and libraries adjust to serving their communities, contactless service comes into focus.

In a recent study, 75% of patrons in America said that they would not feel comfortable entering their public libraries unless the library has made 'significant' changes to accommodate their safety. Now more than ever, libraries

needs a permanent, viable solution to not only guarantee the safety of both staff and patrons but to also ensure future patron usage of your library.

myLIBRO is the first full-service library app that integrates with public libraries' ILS systems. With this all-in-one app, patrons can search & reserve materials and schedule appointments for curbside pickup plus in-library services like computer labs, passport photos, meeting rooms, self-checkout, or any other library service.

WHAT TO EXPECT:

This free webinar, hosted by myLIBRO, joined by Angela Nolet from [King County Library System](#) and Kimberly Olivares from [Hussey-Mayfield Memorial Public Library](#), will explore how libraries are taking steps in this new normal to provide patrons with contactless services.

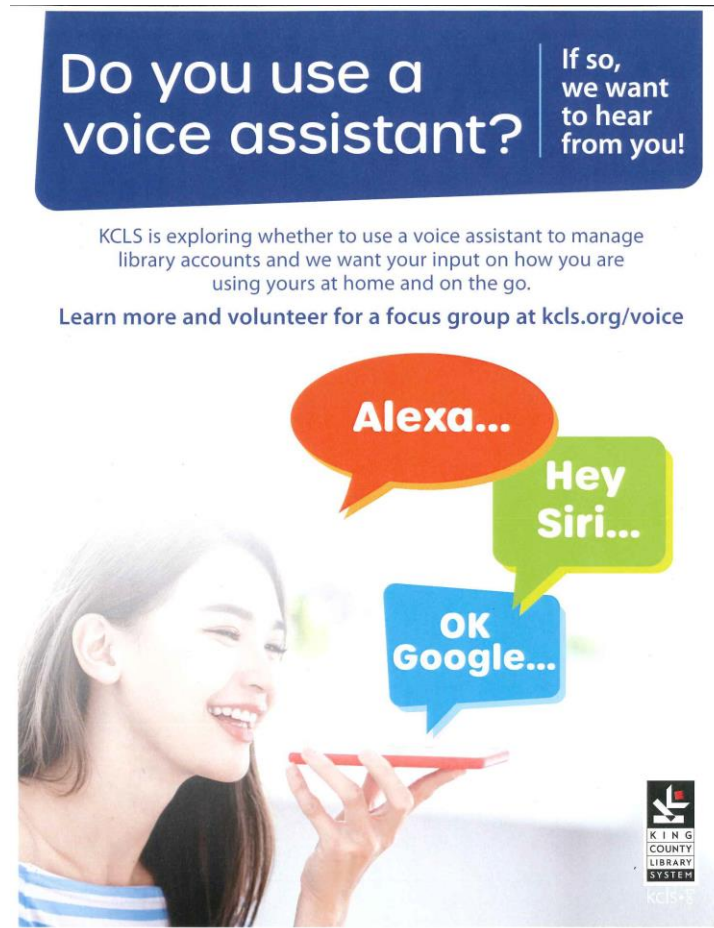
This 60-minute session will demonstrate the following:

1. Review of trends and statistics on how libraries have responded to COVID-19 to date.
2. Panel discussion on strategies libraries are applying to re-open and manage contactless services (feat. King County Library System and Hussey-Mayfield Memorial Public Library)
3. Overview of myLIBRO
4. Discussion and Q&A with panelists and the myLIBRO team

This virtual event is free to attend and you may join at any time during the duration of the event. Should you be unavailable to join, a recording will be available

Marketing Materials

Flyer



Social Media Images



