



UL ENGAGE

Community Briefing

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iLearn: Empowering People with Sight Loss Through Technology Education

Shannon Foley
Kelsey Kuiper



UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH

UL Engage

share

enable

grow

Promoting University Community Collaboration

THE BRIEF

Project Aim:

To provide training in the use of the accessibility features on iDevices for people with sight loss and to help people regain some of the abilities they had before losing vision.

Project Objectives:

- To teach iPhone and iPad skills that participants did not have before
- To assess the skill level and needs of participants by looking at technical skill, confidence levels, and participants' desired learning outcomes
- Solving individualized problems that participants face when using the iPhone
- To design and execute an effective program that meets the needs of the participants and provides helpful skills for their lives
- To evaluate the program execution and outcomes to make recommendations for future programs like these

Project Rationale:

Apple products have the best accessibility features available on for smart phones, but even with these resources for people with sight loss, there is a lack of resources to train people how to use them. As a result, many people with sight loss are struggling to do simple things like make phone calls, send texts, take notes, get the news or weather, or listen to music. We did this project because we want people with sight loss to be able to do these things by utilizing the accessibility features created for them. Through project execution and evaluation, we were able to provide this specific training to the participants, as well as provide recommendations for moving forward in this type of education.

COMMUNITY PARTNERS



“NCBI, Ireland’s national sight loss agency, is a not for profit charitable organization which provides support and services nationwide to people experiencing sight loss. NCBI offers community based services to help people to adapt to sight loss and maintain their

independence. These services include emotional support to the individual experiencing loss of vision and to their families, advice and information on all aspects of vision loss as well as practical support and solutions to the challenges encountered by people with vision loss. Our services are offered to people of all ages, from birth through to older age. We provide services to over 8,000 people every year. 2,000 of whom we are seeing for the first time. The overall aim of NCBI services is to enable people to live an independent life of their choice. As the impact of vision loss for each individual varies depending on what it is they wish to achieve as well as the type and degree of vision loss they experience, the service offered to each individual will differ. If you or someone you know is experiencing problems with their sight, NCBI can help. Call NCBI on 01 830 7033.” (NCBI: Working for People with Sight Loss)



Colette Quinlivan

Colette has 20 years' experience with NCBI - Working for People with Sight Loss.

Her present role is as a Rehabilitation Worker specializing in

- Assistive Technology assessments, training and support
- Orientation & Mobility training
- Employment Support for people with vision impairment
- Assessment and support in regards to Neurological Vision Impairment (e.g. vision loss post stroke)

She is delighted that the UL Engage project has given service users an opportunity to develop their skills in use of emerging technologies (iDevices) in a very practical and engaging way.

STUDENTS



Shannon Foley – Iowa State University (Ames, IA)

Shannon is a third-year student studying electrical engineering at Iowa State University. She was born and raised in Nebraska and grew up working at the family's two restaurants. She has two younger siblings that she considers best friends. In high school, she discovered her passion for technology by taking apart electronics to figure out how they worked. This led to the decision to study engineering in college. When not in college, Shannon enjoys golf, hiking, camping, and biking.



Kelsey Kuiper– Davenport University (Grand Rapids, MI)

Kelsey is a second-year student from Davenport University, studying computer science with a mathematics concentration. She loves learning about new technology and has a passion for education, and working on this project combines both of those things. While studying abroad, Kelsey loves traveling around Ireland and other parts of Europe, as well as getting to know new people from different countries, cultures, and backgrounds.

OUTCOMES

Process

1. Met our community partner to discuss the aims, objectives, and expectations of the project.
2. Facilitated an initial meeting with several participants, during which we got to know them, their interests, their experience level with technology, and what their expectations were through group conversation and personal interviews.
3. Conducted phone interviews with participants who were not able to attend the meeting to discuss the same questions.
4. Researched programs and websites designed to teach vision impaired people to use iDevices and practiced using the technology ourselves, subjects based especially on the stated desires of the participants.
5. Structured the workshops with participants attending one of three designated sessions each week for five weeks. Participants were split up into groups based mainly on skill level.
6. Conducted workshops each week by working one-on-one with almost all participants. Workshops included personalized training, based on each individual's needs and wants.
7. Provided instruction and exercises to be practiced throughout the week.
8. Contacted participants weekly to see if they were having any specific struggles that needed to be addressed and to confirm attendance for the workshop that week.
9. Continued to learn about and practice using VoiceOver and other iDevice technology or apps to be able to teach more effectively.
10. Received feedback and evaluated participants through an exit interview.

Struggles

1. The initial learning curve of using VoiceOver and Apple products due to never using the technology before
2. Learning to lead a classroom of individuals that are much older than we are
3. Learning the best way to teach very different individuals
4. Finding good organizational structure to use every week within our team
5. Not having enough time or resources to accomplish as much as we would have liked. Individuals could have learned a lot more with a few more weeks of instruction or more than one hour each week.
6. Dealing with the bus strike prohibiting many people from attending sessions was discouraging because we could have helped more people during these weeks.

1. 100% of the participants interviewed after the program said they learned as much as they hoped or more. 100% said they would participate in the program again if it was run next semester.
2. Many participants gained confidence in using the technology. They began to see their iPads and iPhones as helpful tools rather than something of which to be afraid.
3. Skills gained by the participants include: general phone navigation, adding a contact, making and answering phone calls, sending text messages, using FaceTime, accessing an audiobook, listening to music, reading and sending emails, adding attachments to emails, checking the weather, getting directions, using a keyboard, buying apps and music, and much more.
4. Each participant was extremely grateful for the experience of the program. Everyone who was able to attend sessions believed it greatly benefited them technologically and personally.





TESTIMONIALS

“I kind of surprised myself. Last time I tried the iPhone, I gave up and went back to the old phones. I said, I’ll give it one more try. Now the course inspired me to go on and learn more.” - N, participant

One participant had been looking for a program like this one for several months. They had been given an iPhone and iPad as a gift and could not use them at all until coming to the program. “K loves using FaceTime. He calls me and asks, ‘Can you see me,’ and is always delighted when I say yes. He showed me his new haircut this morning” (Participant’s father). K can call his relatives, listen to music of his choice, video chat, check the news, and get the forecast all without help.

A participant in our program had given up on cell phones completely until the first day of the program. After the initial meeting, he bought an iPhone and now is able to use it quite well. He learned to navigate the phone, text, call, get directions, listen to music, buy apps, record voice memos and input contacts.

“Doing this project has taught me the importance of being conscious of all user groups. As a computer science major, I may do work in the future with technology that could integrate with accessibility programs, and I now see how important it is to consider those types of things. More importantly, I’ve gotten the chance to meet and become friends with many amazing people. I certainly felt the love and appreciation from participants, and I’m thankful for what I’ve learned from them. This has been one of the highlights of my time abroad in Ireland, and it’s something I will never forget.” - Kelsey, UL Engage student

RECOMMENDATIONS

- Have four students on the project, split into two teams that execute the program similarly with separate groups. This will provide the opportunity for longer sessions for more individuals.
- Meet weekly for at least one hour with your partner/ group to go over the general plan for the week. This irons out confusions before you are in front of participants.
- Plan a lunch break in the middle of the day.
- Spend the first week getting to know people and having conversation about expectations, fears, etc. Answer any questions people have about the program, but don't do any teaching. This helps the exchange students to get comfortable with leading a class, and allows time to learn how to use VoiceOver throughout the week.
- During first week, ask each participant what times they would be available during the chosen day of the session. (Ex: "Are you free all of Thursday or just part of it?")
- Split up participants into groups by skill level.
- Get a list of all VoiceOver actions from Community advisor. Keep this list handy during all teaching sessions.
- Work with the same individuals each week. Many participants will need one-on-one training, but more proficient VoiceOver users might learn more in a group, where participants can ask each other questions, share tips, etc.
- Offer 1:15-1:30 sessions for 6-7 weeks if possible.
- Become familiar with VoiceOver, its capabilities, and its frustrations before starting to teach it. The best way to become very familiar is to use the screen curtain and VoiceOver for a full weekend.
- Make sure everyone has an iCloud account connected by a fingerprint so they don't have to type a password for buying apps or music.
- When setting up fingerprints, you have to scan the fingerprint in for them. Make sure you know what you are doing.
- Give "homework" to the participants to do during the week.

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- Give “homework” to the participants to do during the week.
 - Encourage the participants to remember the issues and frustrations they run into during the week and ask questions at the beginning of the session.
 - Get people’s phone numbers on the first meeting so the students can contact them themselves.
 - The most accessible apps are those that are designed by Apple. If Apple makes an app for the task you are trying to complete, then start with that.
 - It is frustrating to a user when something doesn’t react like they think it should. Sometimes this isn’t the user’s fault but is actually an issue with the technology. Try to accomplish the task yourself with the screen on or Google the issue. You might find a solution. If not, make the user aware that it is the technology’s fault and not his/her own.
 - Suggest to the participant to rearrange the apps on the phone by most often used. Help them arrange their apps because it is much faster when done without VoiceOver.
 - Be open to building relationships with the participants. Take time to talk about their lives, be open to talking about yours, and learn from these people who have different experiences, struggles, and strengths.

APPENDICES

Initial Questionnaire

What hobbies and activities do you enjoy?

What experience with technology do you have? How much can you do on your I-Device?

How comfortable are you with using technology?

What technology do you have?

What do you want to learn how to do?

Why do you want to do this program?

Does meeting on Thursdays work for you? What times are you available?

End-of-Program Interview Questions

What have you learned to do during the last few weeks?

What do you feel is the most valuable thing you've learned in these last few weeks?

Have your feelings towards technology changed?

If we were to do this again next semester, what suggestions would you have going forward? How could we have helped you more?

If the program were offered again, would you be in this program again?

Did you learn as much as you expected?

How has this impacted you? Both technically and personally?

iPhone and iPad: A General Guide

compiled by Kelsey Kuiper & Shannon Foley

Overview on VoiceOver Gestures

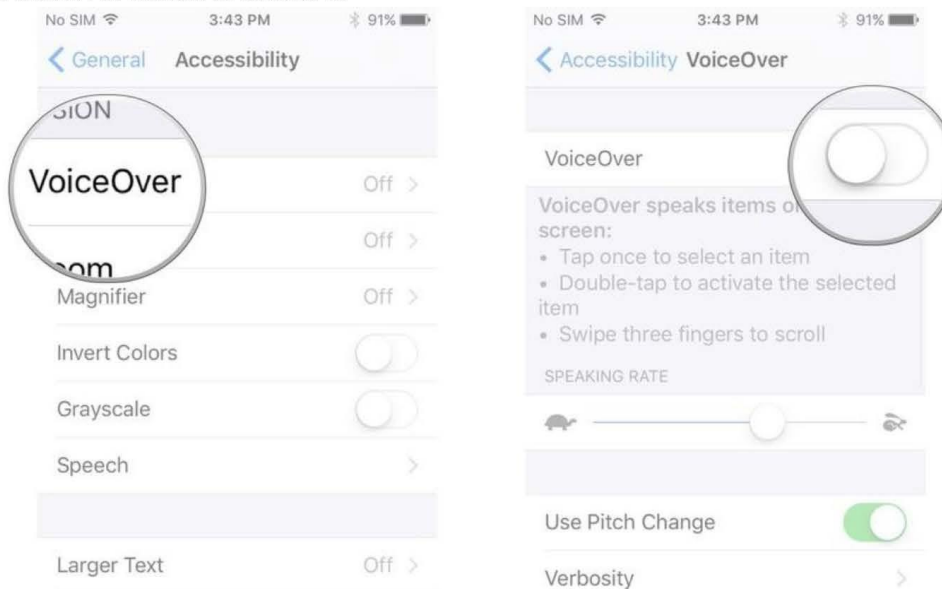
VoiceOver is the software that allows a blind person to use their phone by reading aloud what is happening on the screen.

How to activate VoiceOver on iPhone and iPad

1. Launch the **Settings** app from your **Home screen**.
2. Tap on **General**.
3. Tap on **Accessibility**.



4. Tap on **VoiceOver** under the Vision category at the top.
5. Tap the **VoiceOver** switch to enable it.



Now that VoiceOver is enabled, the gestures you regularly use on **your iPhone will change**. I have attached a list of the different gestures that can be used as a quick reference. On the next page, there is a more in depth guide to using VoiceOver.

More information can be found here : <http://www.imore.com/how-use-voiceover-iphone-and-ipad>

How to use VoiceOver

1. **Single-tap** anywhere on the screen and your iPhone or iPad will **speak aloud** the item that you're tapping on.
2. **Double-tap** on an item to **select it**.
3. To **scroll** through a page, use **three fingers** and move up or down. With VoiceOver off you typically use only one finger to scroll, but in VoiceOver you'll need to use three so that your iPhone or iPad doesn't misread a tap as a scroll. To move to different page on the homescreen, use three fingers and scroll left or right.
4. Double-tap with three fingers to toggle speech commands on and off from the Lock Screen.
5. A two-finger double-tap while performing an action will start or stop that action. For example, if you're on a phone call, double-tapping the screen with two fingers will end the call. If you're in the Camera app, double-tap with two fingers to take a photo.
6. In VoiceOver options you can customize and fine tune options such as whether or not you'd like the device to speak notifications.

For more tips and tricks regarding VoiceOver, I recommend using the VoiceOver Practice option within the VoiceOver Settings menu.

How to change Speaking Rate in VoiceOver

You can change how quickly the VoiceOver speaks to you

1. Launch **Settings** from your Home screen.
2. Tap **General** then tap **Accessibility**.
3. Tap **VoiceOver**, tap the switch to turn it on
4. Tap VoiceOver.
5. Tap and drag the **slider** under Speaking Rate to change the rate of speech. The further right you go, the faster it speaks (I have no idea who would be able to use it on 100%, but there you go).
6. Tap VoiceOver, tap and drag the slider under Speaking Rate

Method 2

1. When VoiceOver is on, use **two fingers** on the screen and rotate them on the screen.
2. This makes something called the **rotor** appear.
3. **Rotate** around the screen until you hear it say Speaking Rate. (As if you are rotating a knob)
4. **Swipe** up or down to change the **speaking rate**

How to enable Pitch Change in VoiceOver

Pitch Change makes VoiceOver speak at a higher pitch when reading the first item in a group and in a lower pitch when reading the last item in a group. It's kind of hard to distinguish, but if you need it, it's here.

1. Launch Settings from your Home screen.
2. Tap General.
3. Tap Accessibility.
4. Tap VoiceOver, tap the switch to turn it on
5. Tap VoiceOver.
6. Tap the switch next to Pitch Change to turn it on.

Complete list of VoiceOver Gestures:

Important ones have been underlined. Items that are easy to accidentally do are starred. To reverse the action, then do the action again.

1 Finger Gestures

<i>Gesture</i>	<i>Action</i>
Touch or move around the screen	Speaks and select the item under your finger
<u>Tap 2 times fast</u>	<u>Activate the selected item. (open app, press button)</u>
Tap 2 times and hold	Activates “drag-mode” (move icons, swipe-delete)
Tap 3 times fast	Double presses a button (see tip below)
<u>Swipe left or right</u>	<u>Selects the previous or next item</u>
<u>Swipe up or down</u>	<u>Preforms or move to the selected rotor option</u>

Note: Tap 2 times on the clock in status bar to scroll to top in any app.

2 Finger Gestures (press with two fingers)

<i>Gesture</i>	<i>Action</i>
Hold 1 finger & tap with another	Select when dragging, activate with tap (aka split-tap)
<u>Tap once</u>	<u>Pause/resume speech</u>
Tap 2 times fast	Preforms special action
Tap 2 times and hold	Add label to selected item
Tap 3 times	Open Item Chooser for current area
Swipe up	Read all from first object in selected area
Swipe down	Read all from selected item
Scrub back and forth	Go back, cancel, close pop-up
Hold and twist left or right	Select the next or previous rotor item

Note: You can use the scrub gesture to split/merge keyboard when it's selected

3 Finger Gestures

<i>Gesture</i>	<i>Action</i>
Tap once	Speaks the current page number and position
Tap 2 times fast	**Toggle speech on/off (VoiceOver is on but not speaking) **
Tap 3 times fast	**Toggle screen curtain on/off (VO works but screen is off) **
Swipe left or right	Move to previous or next horizontal screen/page
Swipe up or down	Move/scroll down or up (like moving a paper)

Note: To open notification center select the status bar and swipe 3 fingers down. Also 3 fingers up/down works for pulling down to refresh in many apps like the Irish Times.

4 and 5 Finger Gestures

<i>Gesture</i>	<i>Action</i>
Tap the upper half with 4 fingers	Select the first item in the area
Tap the lower half with 4 fingers	Select the last item in the area
Swipe left or right	When in an app, switch to next or previous app
Swipe up or down	**Open or close multitask panel**
Pinch in	Go to home screen

On Home Button Gestures (don't require VoiceOver to be on)

<i>Gesture performed on button</i>	<i>Action</i>
<u>Pressed once</u>	<u>Closes current app. Returns to home screen</u>
Pressed twice	Opens App Switcher, Kevin shouldn't need this. If his phone is slow, try closing all his app and this may help.
Pressed three times	This setting can be changed in the accessibility page. Settings>General>Accessibility>Accessibility Shortcut (all the way at the bottom of the screen)
<u>Press and hold</u>	<u>Open Siri</u>
<u>Fingerprint scan</u>	<u>Used to unlock phone and buy apps. Phone will request a fingerprint when it is required</u>

Kevin's Main Commands with the iPhone and iPad

Kevin mainly used Siri to perform actions.

Using Siri

1. Press and hold the **home button** (button at bottom phone)
2. **Wait for the beep** that declares Siri is listening (Kevin sometimes doesn't wait long enough, and then can't get Siri to work. Be sure he is doing this)
3. Ask Siri with your **voice** the question you would like answered or the action you would like performed.

Answering phone

1. **Double tap with two fingers** when the phone or facetime is ringing and it will answer the phone
2. To hang up, double tap with two fingers

Sending texts

To send a text, Kevin has to ask Siri

1. Start **Siri**
2. Say to Siri, "**Send message to **name of person in contacts** that says **message body****"
3. Siri will ask you to confirm the message
4. You can ask Siri to **read the message back** to you, or **send it**.

Getting to Music

1. Music is operated by app called Music
2. Start **Siri**
3. Say "**Siri play music**" to have Siri play the last thing you were listening to.
4. To play a specific song, say "**Siri, play **song title or artist****".
5. It will play if the song is downloaded in Kevin's library.

If the song is not in the music library.

1. This will be easiest to do with **VoiceOver OFF**
2. Go to the **Music** app
3. Go to **Search** in the bottom right corner
4. Make sure to select "**Apple Music**" when searching
5. Search the song title or artist by **typing** the song you would like to add
6. Tap the + next to the song
7. "Added to Library" animation will play
8. The song should **download** on both of Kevin's devices.
9. Kevin can now **play** this son with Siri

Getting to Podcasts

1. Start **Siri**
2. Say to Siri, "**Play my latest **Name of podcast****"
3. Or say "**Play podcasts**" to play the last podcast that was playing
4. Or say "**Play **Name of podcast* episode 3****"

Getting to Irish Times

1. Ask Siri “**Open Irish Times App**”.
2. Use finger on screen to scroll down news articles.
3. Or **swipe right** to **scroll down** the news articles, or left to go up.
4. When you find an article you like. **Double tap** on the screen after it was read aloud.

Checking Weather

Ask Siri “**What is the weather?**”, or “**Give me the forecast**”

How to use *TapTapSee*

TapTapSee is an app that uses **computer software** to describe a picture that was taken. It will describe the **color**, **type** of object, and, if there is any large font, **text** that is displayed.

1. Ask Siri “**Open Tap Tap See app**”
2. **Point back camera towards the item** that needs to be described
3. **Double tap anywhere** on the screen to take a picture
4. **Wait** a few seconds
5. The app will read out the description automatically

How to use *Be My Eyes*

Be My Eyes is an app that connects volunteers around the world to blind people that need a description of something in front of them. It uses the back camera and the microphone to connect you immediately to someone who will take your video and voice and help you with the question you have.

1. Ask Siri to “**Open Be My Eyes app**”
2. Double tap in center of screen to connect to the first available helper
3. You will be connected with someone in a few seconds
4. Double tap with two fingers to hang up OR
5. Press home screen to hang up AND close app OR
6. Ask volunteer to hang up the call

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iLearn

Empowering People with Sight Loss
Through Technology Education



THE NEED

"NCBI, Ireland's national sight loss agency, is a not for profit charitable organisation which provides support and services nationwide to people experiencing sight loss." (NCBI: Working for People with Sight Loss (no date))

iPhones and iPads are very accessible for people with sight loss. The NCBI recognized the benefits of the built-in VoiceOver technology but didn't have the necessary resources to teach it to many people. The NCBI and UL Engage teamed up to bring in some students to design and execute a program to teach more people.



TRAINING PROCESS

- 5 weekly, hour long, one-on-one sessions
- Getting to know the participants
- Spending time ourselves learning VoiceOver and how to use different features to be able to teach it
- Showing participants how to do something, practicing with them, then assigning 'homework'.
- Answering questions about the previous week at the beginning of every session.



PARTICIPANT DEMOGRAPHICS*

Ages

- 20-35 years old (3)
- 35-55 years old (2)
- 55+ years old (3)

Experience level

- No experience (3)
- Some experience (4)
- Very experienced (1)

*Participants who attended 2+ sessions



STRUGGLES

- The initial learning curve of using VoiceOver & Apple products
- Learning the best way to teach very different individuals
- Finding good organizational structure
- Not having enough time or resources to accomplish as much as we would have liked
- Dealing with the bus strike prohibiting many people from attending sessions

OUTCOMES

- Many participants overcame a fear of technology and began to see it as a helpful tool.
- People learned how to do things that made life a bit more 'normal,' such as accessing the news & public radio documentaries, texting a spouse, reading a book, and listening to music.
- Several participants learned necessary skills for being more employable, such as sending emails with attachments.
- "I kind of surprised myself. Last time I tried the iPhone, I gave up and went back to the old phones. I said, 'I'll give it one more try. Now the course inspired me to go on and learn more.'" - Feedback from participant
- This was an amazing opportunity for our time abroad in Ireland and something we will never forget.



Students: Shannon Foley and Kelsey Kuiper
Community Partner Contact: Colette Quinlivan

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