WPI

Engaging with WICN's Radio Listeners

An Interactive Qualifying Project

submitted to the Faculty of

WORCESTER POLYTECHNIC INSTITUTE

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degree of Bachelor of Science

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Report Submitted to:

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Abstract

This project was sponsored by WICN, a non-profit Jazz radio station that broadcasts out of Worcester, Massachusetts, United States of America. Our objectives are to research ways for them to better engage their current audience, receive consistent feedback, and attract new listeners. One hypothesis was that WICN could use an audience survey to learn their audience and use data correlations to create attractive content. The methods employed were a survey on WICN's audience, a local population, and Amazon Mechanical Turk and we performed a social media analysis. We found that audience surveys can quickly find feedback, but public surveys can have mixed results. Some shows and genres correlate to the listener's age with a regression value of up to 23%.

Executive Summary

Introduction

In the modern day, people are busy all the time. For companies that depend on their audience's time, vying for a portion of it becomes one of the most important hurdles for that company to be successful. Engagement tools such as websites, social media, and mobile apps have become essential tools to attract new audiences. Some radio stations are struggling to maintain listenership in this new environment.

This project aims to help WICN discover new ways to engage their listeners through modern-day technology, understand their audience better, and attract new listeners to their station, especially 30 to 40 year olds, to help diversify their current 50+ audience. This project indirectly continues the work from the IQP: Tools for Listener Engagement. The project looked for new ways to distribute multimedia content to attract new viewers for WICN (Bonanno, Scillitoe, Wagner, & Averill, 2017).

Background

WICN registered as a radio station with the Commonwealth of Massachusetts in 1968. WICN's call letters stand for 'Worcester Intercollegiate College Network'. Their "Jazz Plus" programming features jazz, jazz subgenres, and genres like jazz. They are a 501(c)(3) or non-profit organization. WICN has spread their brand and influence to the local Worcester

community and online platforms. Some of WICN's goals are to increase the amount of younger listeners, get consistent listener feedback, increase time spent listening, membership, donations, and underwriting. (D. Ginsburg, personal communication, September 25, 2019)

WICN can learn new ways to engage listeners, attract new listeners, and create more content from its competitors. Their competitors are other Worcester stations, jazz stations, non-profit stations, and commercial stations. Their competitors' programming features a wide variety of Jazz-related shows that WICN can expand to. WICN could create more shows to give insight on jazz evens or play jazz subgenres or similar types of music. WICN's website looks more professional compared to other non-profit stations, it provides decent information on hosts and shows, but lacks a search feature to make finding information easier. WICN's social media is similar to their competitors on facebook, twitter, and instagram. WICN could create posts that ask questions or engage people such as twitter polls. WICN could expand their station to youtube. Few stations we saw had youtube channels and the channels did not seems provide significant engagement. WICN could use it to add a visual element for broadcasted shows. The WICN app works well compared to other radio station apps; some apps we found linked to the station's website or had broken links but most of the apps only replicate the website. The WICN app gives listeners easy access to their content but they could create a separate app to distinguish themselves from their competition. WICN's events are similar to other station's and feature mainly concerts. Some stations promote events they do not host and serve as a potential method for listeners to find events.

Methodology

We plan to help WICN better understand what their current listeners think about the station's hosts, shows, and other aspects of the station. We need to determine where and how to ask for listener feedback and what kind of feedback WICN needs. We need to learn how to analyse and interpret the feedback and present our findings to WICN. This addressed the question "How can WICN more effectively engage listeners, post station updates, and create content using its social media properties?"

We plan to help WICN expand their programming to other music genres to attract potential listeners, especially 30-40 year olds, and entertain current listeners. WICN needs a list of genres that have strong correlations with its current audience and potential listeners. We need to create a wide list of genres similar to jazz or jazz subgenres. We need to determine where and how to ask both potential listeners and WICN listeners which genres they enjoy. We need to learn how to analyse and interpret the data and present our findings to WICN. This addresses the research question "What other platforms should WICN start using?"

We want to improve WICN's engagement using its website, social media properties, or apps. WICN's social media strategy is the easiest to change so recommendations will be easier to implement. We must learn what updates, engagement, and content WICN's listeners expect and want to see more often. We want to find other platforms that WICN could expand to and potential content ideas. We need to learn how to analyse and interpret the data and present our findings to WICN. This addresses the research question "How can WICN make it easier for

listeners to learn about and connect to WICN's hosts, shows, and the station itself on the website?"

We chose between several methods to consider implementing questionnaires. Questionnaires are impersonal which might discourage participants from being invested. It would be easy to get answers to a large number of quantitative questions which would be representative. The low cost and effort to host the Questionnaire compared to more difficult options like the Experiment make it easier to host frequently, as consistently as is deemed best. We choose the Questionnaire as it is the most representative of the population and is capable of being as frequent and consistent as is needed, despite the fact we might not get the population we need to really understand 30-40 year old's listening tastes. With a questionnaire we will be able to ask a variety of questions to a variety of listeners, including questions on genre, personal characteristics, and radio-listening habits. These will provide insights as to which characteristics are the best predictors of attracting younger listeners.

Data Analysis

Our survey was distributed to WICN's listeners, Amazon mechanical turk, and WPI's faculty and graduate students. There were 339 responses total. The main reason we chose to do a survey without a random sample was because we do not have the exact frame to be able to calculate the percent response rate. We kept the survey open for two weeks. Creating surveys can be time-consuming but can yield many good responses from the engaged audience. Researching listeners outside your audience can have few responses or possibly false responses.

We analyzed the data by writing python code to calculate the correlation coefficients and create contingency tables. We counted the number of times that relevant topics came up in the free response questions to create a histogram of what participants said that they liked and wanted to change about WICN. We analyzed the website through the survey and used the trends to find the main aspects WICN should improve about their website. We analyzed WICN's social media by examining a week of WICN's Facebook posts to find trends between the top liked posts. For each post, the number of likes was recorded and a set of characteristics of the post were listed. These characteristics included things like landscapes and faces. One of the main trends that was discovered was that posts including faces were liked much more than other posts.

Conclusions

The survey and analysis resulted in eleven suggestions that the data indicates would be beneficial to WICN. First, focus on your hosts, they are the heart of the station. This is indicated in both histograms, the trend of likes in the social media analysis, and comments such as "(One of WICN's hosts) has a great sense of humor and wonderful personality." Next, add the playlist to the website and make the archives more accessible though your website. Survey participants indicated that these were weak points in the website that could be improved. After that, increase the variety of jazz songs. Play more subgenres such as Acid Jazz, Dixieland, or Ragtime, especially at times when there are more young listeners listening. Reach out to younger listeners when more are listening, such as 6-9am and Fridays. The Public Eye seems to have the strongest correlation to the interest of younger listeners, so it could be a great place to reach out

to them. Next, reach out to donors and potential donors during commute hours. Both data and common sense indicate that people who work are more likely to be listening during their commute to and from work. Business Beat has the strongest correlation to income, so it could be a great place to reach out to donors as well. After that, add talk shows and podcasts at 6-7pm. The data indicates that listeners are interested in listening to talk shows and podcasts then. Lastly, increase your presence on Youtube. The data indicates that of all the social media platforms, Youtube is the most likely to be successful at attracting younger listeners. Through combining the recommendations you find feasible, you will have a better chance attracting younger listeners.

Introduction

In the modern day, people are busy all the time. For companies that depend on their audience's time, vying for a portion of it becomes one of the most important hurdles for that company to be successful. Engagement tools such as websites, social media, and mobile apps have become essential tools to attract new audiences. Some radio stations are struggling to maintain listenership in this new environment.

This project aims to help WICN discover new ways to engage their listeners through modern-day technology, understand their audience better, and attract new listeners to their station, especially 30 to 40 year olds, to help diversify their current 50+ audience. This project indirectly continues the work from the IQP: Tools for Listener Engagement. The project looked for new ways to distribute multimedia content to attract new viewers for WICN (Bonanno, Scillitoe, Wagner, & Averill, 2017).

Background

WICN and Competitors

Introduction to WICN

WICN registered as a radio station with the Commonwealth of Massachusetts in 1968. WICN's call letters stand for 'Worcester Intercollegiate College Network'. Their "Jazz Plus" programming features jazz, jazz subgenres, and genres like jazz. WICN has spread their brand and influence to the local Worcester community and online. Some of WICN's goals are to increase the amount of younger listeners, get consistent listener feedback, increase time spent listening, membership, donations, and underwriting. (D. Ginsburg, personal communication, September 25, 2019)

WICN's Listeners

According to David Ginsburg, WICN's General Manager, "The feedback is often 'I can't find another radio station like this anywhere' and 'satellite isn't the same, it's impersonal.' Listeners feel a personal connection to WICN, as many of them have been fans for decades." (D. Ginsburg, personal communication, September 25, 2019) WICN wants to adjust their programming to attract a younger audience. They want to attract new listeners from 30 to 40 years old. This age group of potential listeners is not too far outside their current 50+ age group.

The station considers creating different kinds of radio shows or expanding its Jazz+ genre pool to more music genres or jazz subgenres such as Hip Hop Jazz.

Programming

WICN's Programming

Radio station programming is usually separated into shows that offer music, talking, podcasts, live performances, audience interaction, and other entertainment. Radio stations try to keep their programming consistent and shows recurring so people know what to expect from the station. Each show adds to the overall programming feel and has the potential to attract new listeners. Shows may need to engage listeners to keep them interested.

WICN's core programming focuses on what they call Jazz+ music, it offers a wide range of Jazz subgenres, such as Latin Jazz and similar genres such as blues, folk, acoustic, and new age. The WICN hosts control all the music they play on their shows and decide what to say between songs. Each host brings a different personality and flavor of music to the Jazz+ table.

WICN's programming can be split into three categories: daily jazz music, weekly music shows, and talk shows. WICN fills the overnight time with *Jazz Overnight* from 12:00AM to 6:00AM, where they play recorded unhosted jazz music. The weekday shows are *Morning Vibe Time* with Michelle Willson, *Jazz Highways* with Joe Cicero, *The Blend* with Tyler Alderson, and *Standard Time* featuring new artists each show. These shows play jazz music and feature a host. *The Blend* plays new releases and *Standard Time* features a different host every weekday. The rest of the shows occur once a week, there are over 30 shows but they can be split into shows that play jazz, jazz-subgenres, other music genres, and talk shows.

Talk shows mainly feature interviews, and stories. Topics are both inside and outside of jazz music, one show *Business Beat* with Erin Hayes and Ian Barrett interviews business owners and features sample episodes on its page. Some talk shows play music and feature insight on music, guests, and other entertainment. *Radio Deluxe* with John Pizzarelli and Jessica Molasky plays music, hosts guests, and entertains listeners in a living room setting. The alternative music shows feature alternative rock, bluegrass, classic country, folk and world music. *Rhythms of the World* with Howard Caplan features world music. Some shows feature jazz subgenres such as latin jazz, lighter jazz, Brazillian Jazz, and smooth jazz. Some shows feature genres similar to jazz music and can be considered part of jazz such as blues, rhythm and blues, swing, and big band. *Saturday Night Fish Fry* (Removed recently) with Norm Rosen plays blues, boogie, and hard-rock blues, but can also have interviews and live performances. *New Orleans Grooves* with Tony Baglio features new music exclusively from New Orleans. The rest of the weekly shows play jazz music.

Besides the programming features, WICN includes news and public affairs programming. WICN hosts daily national newscasts done by NPR for five minutes at the top of every hour. This deal is part of WICN's NPR affiliation. The WICN Sunday public affairs programming highlights artists, musicians, authors, business leaders, and regional or national interest stories.

WICN also provides ad space for corporate underwriters who financially support the station. The station runs three ad spot sets per hour, each set has no more than three sponsors. This small time frame makes each sponsor stand out. Corporate sponsors also receive some benefits and recognition from the station besides the sponsorship slot. The slot is an

announcement by the host rather than a standardized commercial. (*WICN Public Radio – Jazz+ for New England*, n.d.) The rest of WICN's support comes from donations, memberships, and a government grant from the Corporation for Public Broadcasting. (*WICN Public Radio, INC. Financial Statements*, 2018)

Competitors' Programming

Radio stations have to choose how they group their content into shows, so it would benefit WICN for other radios' shows to be analyzed to see if there are any good ideas WICN could learn from. WBGO has a blues show on both Saturday and Sunday called Portraits in Blue. The show, hosted by Bob Porter, features recordings he worked on. As a recording artist he can show a different side to music creation and the songs featured are ones he has created. ("Portraits in Blue | WBGO," n.d.) Another show, called Sunday Night Music Mix, features jazz funk and fusion. This show provides different music from traditional jazz ("Sunday Night Music Mix | WBGO," n.d.)

NEPR has a latin Jazz show on Sundays called Tertulia. The show, hosted by Raquel Obregon, plays Latin Jazz, Boleros, Salsa, Merengue, Nueva Trova, Tango, and spanish Folk music; the host allows listener suggestions. This show suggests genres to expand WICN's Latin Jazz show. ("Tertulia," n.d.)

WEIB syndicates a celebrity jazz show called the Dave Koz Radio Show. Dave Koz is a successful contemporary jazz musician, he is not a WEIB host, rather his shows are hosted over multiple stations and streaming services. He hosts the Dave Koz Radio Show, the Dave Koz Lounge, and Dave Koz and friends. Dave Koz and friends features songs by his friends in the

industry and people he has played or performed with. ("Dave Koz Radio Programs | Dave Koz," n.d.; "The Dave Koz Radio Show—Radio King," n.d.)

WWOZ has a jazz and other music genres show on Friday called The Morning Set. The show, hosted by Dave Dauterive, features New Orleans music, Brazillian, Afro Cuban, experimental jazz, and new music. The show announces current community events in New Orleans. ("The Morning Set with Dave Dauterive | WWOZ New Orleans 90.7 FM," n.d.)

WWOZ has a cajun and zydeco show on Sunday. Both intriguing Louisiana music genres are similar to jazz and blues. WWOZ also has a show called R&B Oldies, hosted by Rare on the Air, that plays swamp pop. No other station we found played these sub genres so WWOZ will be a good source for anyone seeking them or looking to explore interesting music. ("Cajun and Zydeco with Charles Laborde or Jim Hobbs | WWOZ New Orleans 90.7 FM," n.d.; "R & B Oldies with Rare On The Air | WWOZ New Orleans 90.7 FM," n.d.)

KNKX has a Jazz Inspired show on Saturday. The show, hosted by Abe Beeson, plays modern jazz that's inspired by hip-hop, funk, electronic music, and punk rock. This show is a different take on Jazz rather than just playing contemporary jazz songs. ("The New Cool | KNKX," n.d.) Nearly all the stations we looked at created music shows. WICN can emulate similar jazz stations to expand their Jazz+ label to include different takes on jazz, obscure jazz subgenres, or other latin genres.

These competitors have ideas for programming such as including more genres that are less mainstream, syndicating famous jazz musicians, and featuring the process of creating jazz music. WWOZ's idea to include non-mainstream subgenres like swamp pop is a great way to add variety. WEIB's idea to syndicate famous musicians like Dave Koz is a great way to attract

their fans as new listeners. WBGO's idea to feature the creative process of developing jazz music such as Bob Porter's Portait in Blue is a great way to get listeners engaged in the music.

WBGO has a jazz talk show on both Friday and Saturday called Jazz Night in America. The show, hosted by Christan McBride, features concert performances and the stories behind performances about the artists, venues, fans, and "the larger dynamics at play". This show gives insight into jazz more than simply playing the music or live performances. The show's page features each story covered; each story provides some writing, a set list of songs, musicians, and other credits. ("Jazz Night in America | WBGO," n.d.)

WBGO has a jazz and related music podcast on Saturdays called The Checkout. The podcast, hosted by Simon Rentner, features new music and interviews. Each episode has a picture of the musician(s), details about the musicians, and the podcast recording. The podcast is also featured on Spotify, Stitcher, Apple Music, and Google play. ("The Checkout | WBGO," n.d.)

KNKX has a jazz show on Sunday called Jazz Northwest. The show, hosted by Jim Wilke, focuses on the jazz scene from Portland Oregon to Vancouver Canada. The show also goes to concerts, clubs, jazz festivals, and records performances. The show provides primary action and not just controlled environments. The location selection is interesting and showcases a different jazz scene outside of New Orleans. ("Jazz Northwest | KNKX," n.d.)

WGBH has a seperate jazz radio station on their website called 24/7 Jazz. The station alternates between Eric Jackson's Playlist and The Jazz Gallery with Tessil Collins. The station also has a newsletter. They promote top jazz tracks, and events in Boston. ("Jazz 24/7 Radio," n.d.) KNKX also has a seperate jazz radio station called Jazz24. The internet station plays jazz

songs from classic and contemporary artists and some blues, funk, and Latin Jazz. KNKX hosts

also help host and pick songs for Jazz24. ("Jazz 24/7 Radio," n.d.)

WEIB has a weekday smooth Jazz show called The Midday Mix that features birthday

wishes. The show, hosted by Kellie Payne, announces birthday wishes from listeners who want

their birthday announced and a daily birthday quote. ("The Midday Mix—Radio King," n.d.)

Websites

Introduction

When a potential listener googles a radio station, the station's website is often one of the

first results. Radio station websites must provide a good experience and useful easy-to-find

information on the station's programming. The experience contributes to the listener's opinion

on the radio station. If the website is clunky and discourages interaction, the listener may be

discouraged from listening to that radio station, but if it is fluid and useful they may be more

likely to listen.

Important Website Components

The quality of a listeners' experience of a radio's website depends on its splash page,

live stream, programming schedule, on-demand content, navigation, host information, Listeners

will first see the station's splash or front page when looking at a radio station's website. The

station can display anything they want to appeal to listeners such as events, pictures, or

programming. Listeners use the website live stream to listen to the station's broadcast. The

broadcast should be high quality and sound good to the listener. Live streams are also good for listeners outside the station's broadcasting range. Younger listeners are much less familiar with how to work radios than older generations, so they are much more likely to listen through the internet. Having the option on the website makes it easy to listen to the station without a radio. Listeners who want to learn when the station's programs occur will look for the station's programming schedule. Listeners who want to hear past broadcasts or songs will look through a station's on demand content. Navigation is how listeners find the information they may want on a radio station's website. Listeners may want to learn about a host they are interested in. Possibly the host provided good commentary, has good music taste, or seems like an interesting person. Listeners may want to contact the host or see what they post on social media. Listeners who want to learn what a show offers will look on the website for the show's information. The information will help the listener decide if they want to listen to a show. Successfully implementing each of these components gives users a high-quality experience of the radio.

WICN's Website

WICN's website provides current listeners information about the station, updates, and information on station employees, programs, and hosts. WICN's website has a comment feature. Listeners can leave comments on a page by providing their name, email and possibly website. We only found the feature used on WICN's On-Demand-Archives page. The feature could be expanded to show information, host profiles, or articles. We could not find a link to WICN's social media through their website. WICN's On Demand Archives provide listeners past shows and music. The past shows are available soon after each broadcast and are kept for at least two

weeks. They provide JazzWorks playlists that show the names of previously played songs, musicians, and the album the song is from. They also provide separate recordings of interviews.

WICN's Splash/front page

Listeners first see the splash page on WICN's website. The page provides a scrolling set of featured events, the upcoming shows for that day, the current show, a countdown to the next event and the programming schedule. The page looks organized and shows relevant events and articles. As displayed in this screenshot, the splash page features WICN's most relevant news, usually a special feature on one of their shows. It also features the listen live feature so that listeners can reach the radio content with a click of a button.
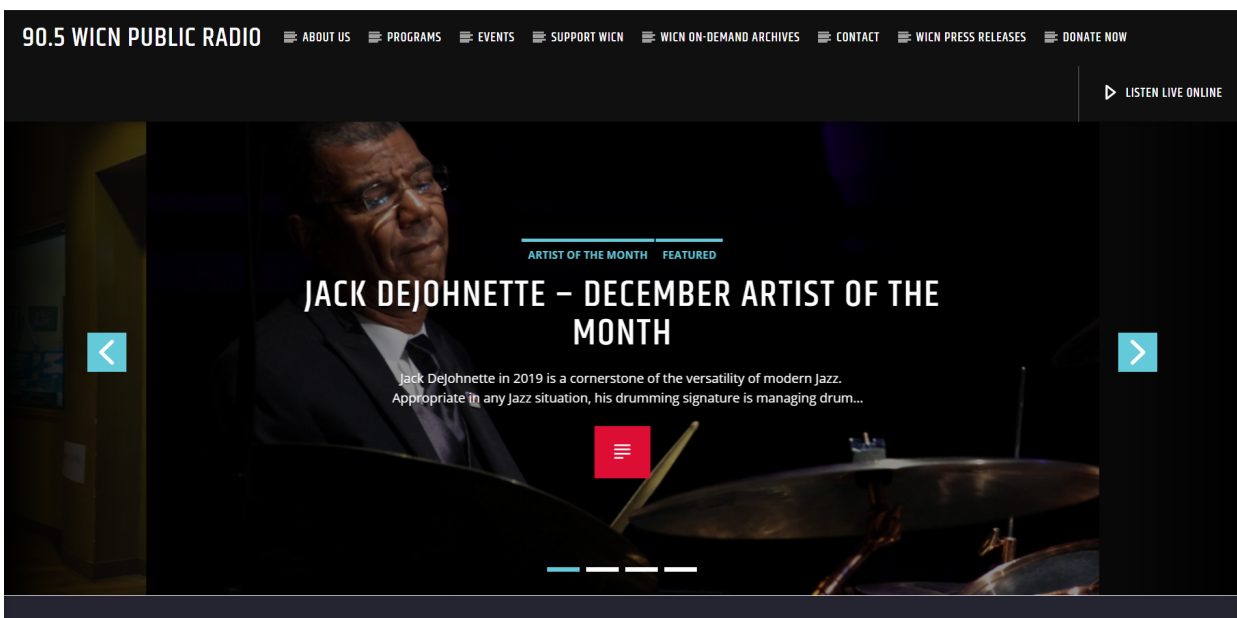
Picture 1. This is a picture of WICN's splash page. (*WICN Public Radio – Jazz+ for New England*, n.d.)

WICN's Live Stream

Listeners can easily listen to WICN's broadcast through the website player. The broadcast sounds clear and high quality. The player does not provide listening information on the show, current song, or the host. The volume can be controlled by clicking on a spot on the dial. The dial shows the volume from 0 to 100 but it does not graphically display the volume like a normal dial. Listeners often have trouble finding this feature so it would be good to add a visual element that makes it stand out, such as color. (*WICN Public Radio – Jazz+ for New England*, n.d.)

Picture 2. WICN's live stream

WICN's Navigation

Picture 3. This is a picture of WICN's tab-based system for navigation. (*WICN Public Radio – Jazz+ for New England*, n.d.)

Listeners can use a tab-based system to navigate WICN's website. The tabs are on the top when the website takes up the full screen and on the side at half-screen. Tree style tabs allow listeners to expand each tab into more manageable subtabs. These tabs are well labeled which helps listeners more easily navigate the website. There is no search feature so finding a particular host or show might take some time.

WICN's Programming Information

Listeners can learn about hosts though their
profile pages. Hosts usually have a good description of
their background, what they play, and the shows they
host. Many provide a picture and a wicn email. Some
hosts have very small descriptions, lack pictures, or
information. WICN also features similar hosts to check
out.

Picture 4 (above). This is a picture of an example host
page. (*Lucas Cardwell – 90.5 WICN Public Radio*, n.d.)

Picture 5 (below). This is a picture of an example host
link icon. (*Hosts – 90.5 WICN Public Radio*, n.d.)
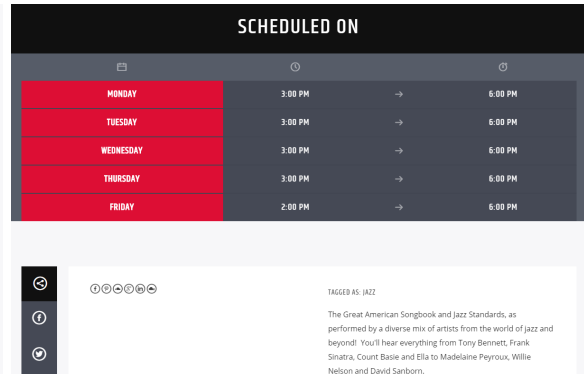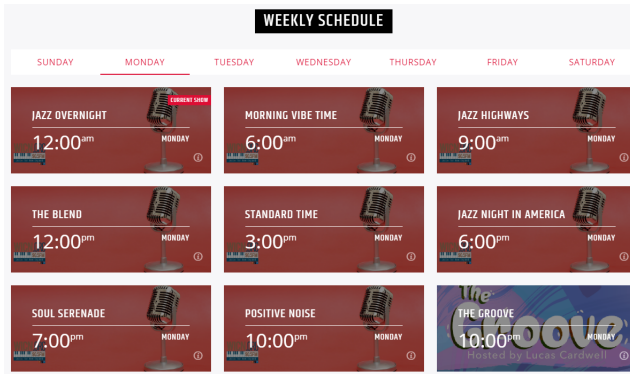
Picture 6. This is WICN's weekly schedule. 　　Picture 7. An example show page.

(*Show Schedule – 90.5 WICN Public Radio*)　　(*Standard Time – 90.5 WICN Public Radio*)

Listeners can look for WICN's programming schedule to find what they may want to listen to. The schedule is available on WICN's splash page or under programs then show schedule. The schedule displays the current show, upcoming shows and the weekly schedule that shows one day at a time. Listeners can find information on shows by clicking on them in the show schedule. Each page provides a show description and who hosts the show. The description is shortened but the "read more" button sometimes provides more information, often it duplicates the text that is already displayed. WICN also suggests similar shows. Business Beat provides a good model for other show pages. It has a short paragraph, picture of the hosts, and links to the host's pages. The read more button works properly and provides the last four episodes. Some shows have tags to categorize them with similar shows, for example, shows tagged as "Live Music" broadcast live music.

Picture 8. This is a picture of WEIB's splash page. ("WEIB Home")

WEIB 106.3, a commercial station from Northampton Massachusetts. Their splash page switches ads automatically and displays mostly shows, updates, and news. Some of the images they use are low quality and pixelated. All radio station websites we looked at had a splash page. Most provide stories, shows, programming, or events. The page should look appealing and give the listeners some interesting places to look on the station's website.

Competitors' Live Stream

All of the stations we looked at provided a way to listen to their station online. Some provided the live stream directly on the website. Other stations, such as KIIS, provided their broadcast on streaming services such as IHeartRadio. The streaming services provide the show

or song that is currently playing and the shows that will air next. Unity Radio provides their broadcasting on a seperate website that only hosts the broadcast and we can only hear the audio in the left ear. Listening to the station while looking through their website provides a good way to get a feel for the station. The stream should show the listeners what they are listening to and what show will air next.

Competitors' On Demand

KNKX 88.5 is an NPR Jazz station in Tacoma, Washington. They keep all their news available as written articles to read or listen to. This makes their news more accessible to people searching for news on the internet and to people who are deaf. WBGO88.3 is a non-profit radio station in Newark, New Jersey. They provide recordings of each show from the past two weeks. Listeners can get a good sense of the show before deciding to listen later. Not all the stations we looked at provided archiving. Archives give listeners a sense of the shows that are currently not playing on the station. They also provide past songs to listen to.

Competitors' Navigation
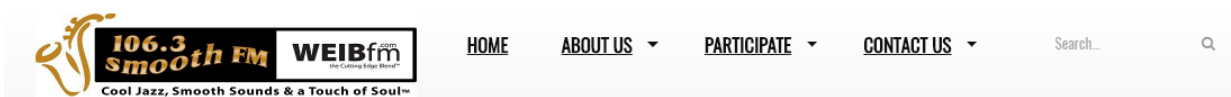
Picture 10. This is a picture of WEIB's navigation bar. ("WEIB Home")

WEIB's website does not have links to their social media pages. This makes it more difficult for listeners to connect with WEIB because they have to search to discover them. KNKX's website has a search bar. The search bar made it easy and intuitive to find different aspects of the radio station. Anyone who comes to the website with a particular goal in mind

will come away with a better experience and be more likely to come back in the future. Many websites had a similar tab design to WIC, sometimes the menu worked based on hovering rather than clicking. This version makes the menu show every sub-section making the menu move too fast to process and hard to get to what the user wants.

Competitors' Programming Information
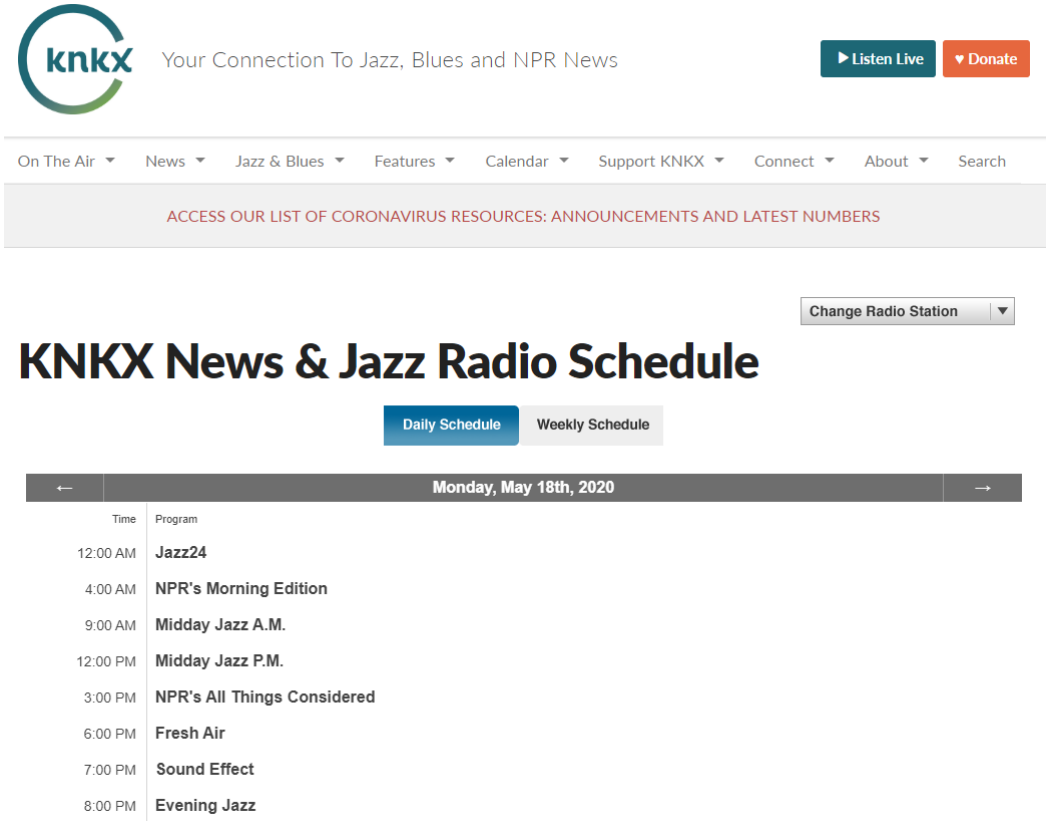
Picture 9. This is a picture of KNKX's radio schedule. ("KNKX Home")

WEIB has their schedule hidden under the About Us menu option. This location makes it difficult to find the schedule and discourages people who may be interested in the next. The songs on KNKX's website are shown in a playlist which helps the music be more transparent to listeners. They keep the Playlist under the "On the Air " tab which makes much more sense than

WEIB's location. Nearly all of the stations we looked at provided their programming schedule on their website. Most kept the schedule away from the splash page and sometimes the schedule was easy to find. The schedule should display all the shows for the current day so listeners can decide when they want to listen to the station.
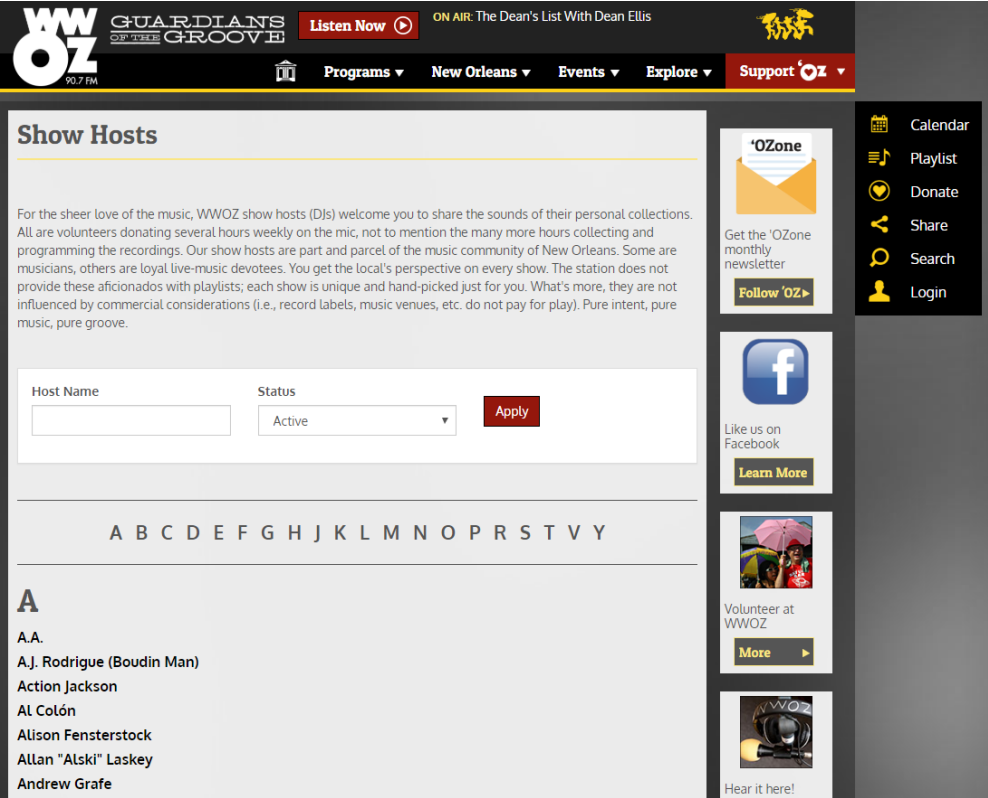
Picture 11. This is a picture of WWOZ's host information. ("WWOZ Home")

KIIS 102.7 is a commercial station based in Los Angeles, their programming is mostly music and celebrity related news and interviews. Each of the station's DJs have their own page where they post stories. Each DJ also has an about page with a description and contact information. ("KIIS FM - Los Angeles' #1 Hit Music Station," n.d.) WWOZ 90.7 is the official Jazz radio for New Orleans, they are a non-profit station. WWOZ has an interesting take on their host personalities. Many hosts use nicknames or have costumes and on-air personalities.

Black Mold is a "slacker, degenerate, loser. Desecrating the airwaves of WWOZ since 1989"

and he wears a white costume with a mummy-like mask, glasses, and gloves. Every host had

contact information. ("Black Mold | WWOZ New Orleans 90.7 FM," n.d.) All radio stations we

looked at provided host information. Many of the stations provided a picture and some basic

information. Not all stations we looked at provided contact information or social media.

Listeners may prefer certain contact methods such as email, calling, or texting. Hosts, if they

wish to be contacted, should provide a company-related form of contact and not their personal

information.
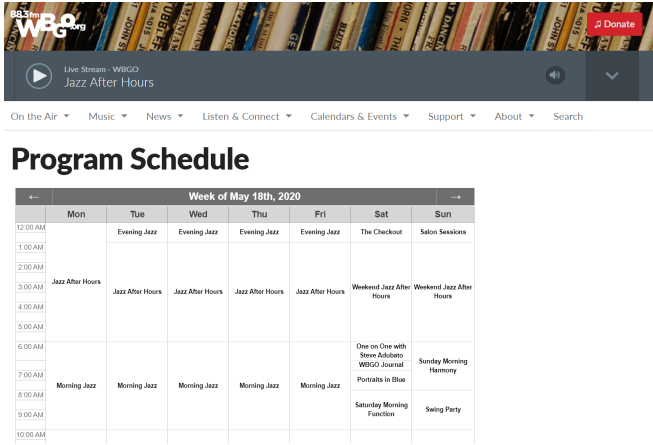
Picture 12. This is WBGO's program schedule. ("WGBO Home")
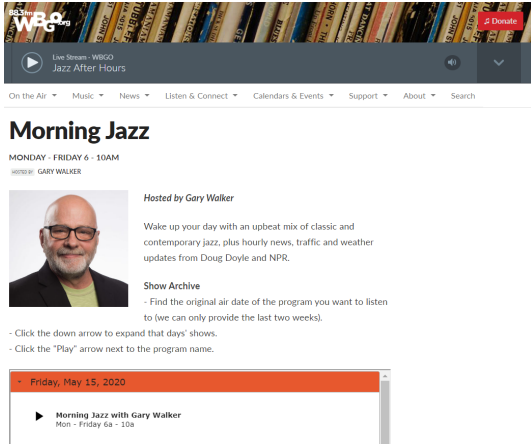
Picture 13. WBGO's show description. ("WGBO Home")

WBGO provides consistent information about each show. Each page has a related

picture, a brief description, who hosts the show, and archives of past episodes. WWOZ provides

a way users can write comments on show pages so listeners can give feedback for a particular

show. Most radio stations we looked at provided show information. The information should

explain what the show has to offer and help listeners decide if it is worth listening to.

Unique Interactions

Some radio station websites provide unique ways listeners can interact with their website. WEIB has a "Dedications", page on their website that displays a list of comments from users about how much they love this radio station. There is a form where the listener can submit their comments. These comments are then displayed in a huge list showing the positive ones. Extra website features can help a radio station stand out. These features are not necessary but may draw viewers in or help the station engage listeners.

Engagement Tools

WICN's Engagement Tools

WICN has many different online platforms to engage their listeners. The station has a website, three social media platforms, and two mobile apps. Their main website allows users to see station updates, play the station's broadcast, listen to shows on demand, and view the schedule to see upcoming shows. Listeners can also learn about WICN and its history and find ways to support the station.

WICN runs an IOS and Android app. Both apps look identical to WICN's website except that the apps have the website's portrait (vertical) menu instead of its usual landscape (horizontal) menu. The website and apps make WICN's programming accessible beyond the broadcast range to many listeners. WICN regularly hears from these listeners around the country and other parts of the world.

WICN runs pages on Facebook, Twitter, and Instagram. WICN posts similar content to all three social media platforms. Their posts mainly feature events, pictures, videos, and promotions for shows or events later on the station's programming. WICN posts about every one to two days. Facebook has the largest following at 3,484 followers ("90.5 WICN - Home," 2019), then Twitter at 1,766 followers ("90.5 WICN (@WICN905) | Twitter," 2019), and finally Instagram at 628 followers ("90.5 WICN Public Radio (@wicnpublicradio) • Instagram photos and videos," 2019).

Facebook is WICN's primary social media property to engage listeners. Twitter and Instagram also help promote WICN. All three properties allow listeners to engage with WICN in two-way conversation, increase brand awareness, and allow more potential listeners to discover WICN. *(D. Ginsburg, personal communication, September 25, 2019)* Social media is another good way for WICN's listeners to check out the station's events ahead of time and after the events happen. On Facebook any user can message questions to the station directly; we tried to ask them a question and they responded five days later.

WICN receives Nielson ratings that show them their viewers per week and their listener base's demographics, but the data does not show them what listeners think of the station's programming. WICN wants user feedback. WICN wants to know what shows and hosts people like and listen to, what elements about the station they like, how they can improve their engagement tools and any other information that WICN may want to know.

Competitors' Engagement Tools

      WICN can learn engagement strategies and programming ideas from other stations and forms of media. These strategies can be separated into programming, websites, social media, apps, and events. Stations can customize their websites and apps to market their brand and present information. Social media requires the station to interact with their audience through what they post, feedback, questions, etc. Events are real life interactions advertised by the station, they provide real life engagement. Programming is the content a radio station broadcasts.

Social Media

Social Media Use by Age (US)

With the exception of Linkedin and WhatsApp, Social media use decreases with age.

Source: http://www.pewinternet.org/2018/03/01/social-media-use-2018-appendix-a-detailed-table/
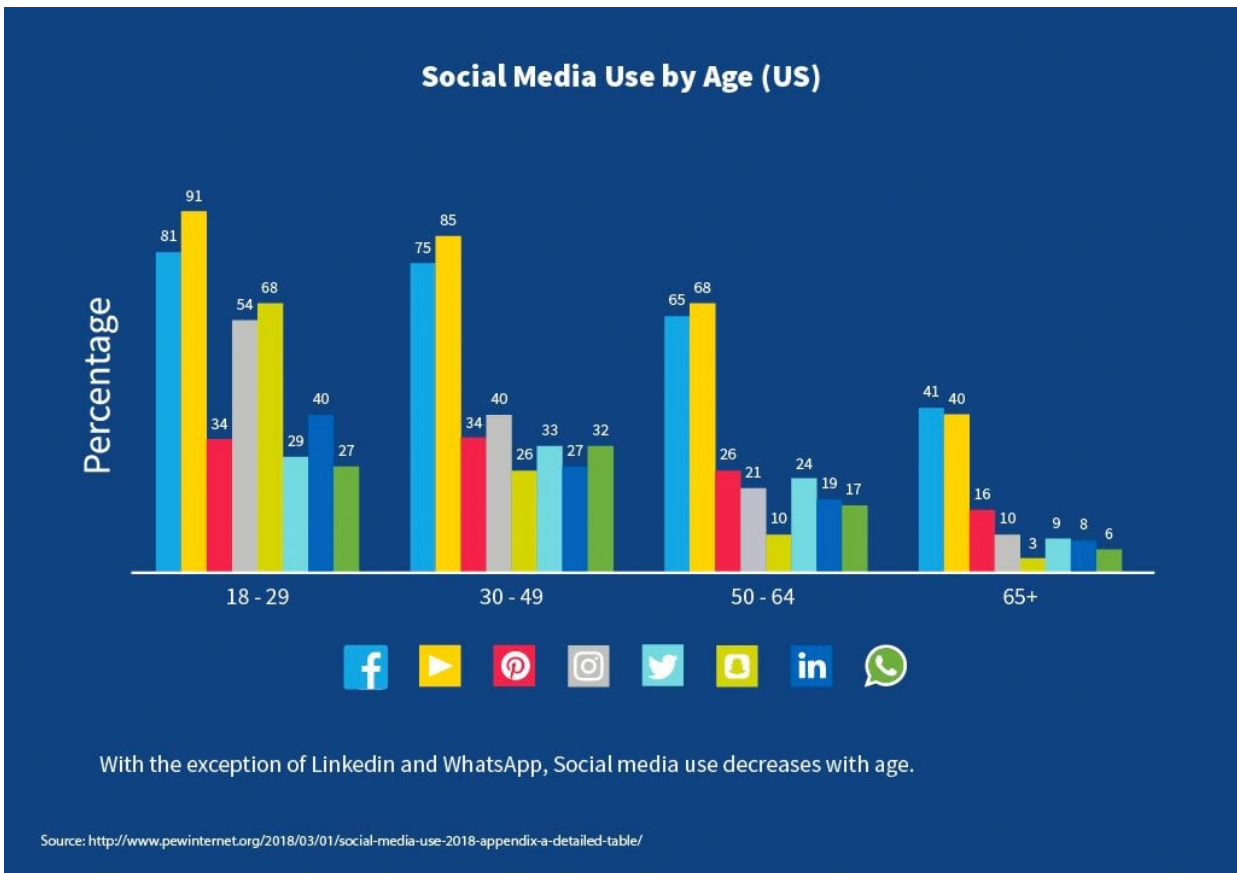
Figure 1. This is a bar chart of how age influences social media usage. (Smith, 2018)

Social media is the main way for a station to update its listeners, and for listeners to interact with the station. Social media pages provide a feed of information rather than a static presentation, like a station's website. Information feeds provide a good source of updates rather than checking a website periodically to observe changes. Social media profiles provide little customization options compared to websites, thus it is more difficult for a station to distinguish itself from other stations. Listeners can respond to the station's posts with comments, likes, or share the post with their friends. Stations may look at comments or respond to listeners. Using social media does not require extra resources.

Facebook allows radio stations to post updates to their audience directly. Users can follow a page to receive updates. Users can react to, comment, and share on each post. The posts can be anything such as articles, pictures, videos, events and other news. Listeners need an account to view facebook. WGBH 89.7FM, a non-profit radio station based in Boston Massachusetts. WGBH runs multiple pages on each platform, ranging from 3 accounts on Linkedin to 48 facebook accounts. Some links lead to deleted pages. Many accounts belong to shows on WGBH, WGBY, and PBS. The pages usually post updates on specific shows. The sheer amount of accounts shows how far they have spread their brand. ("WGBH Where We Are," n.d.). WTOP's facebook posts many times a day, often multiple times an hour. Most posts receive under 100 reactions but engagement tends to vary. The posts are mostly promoting their news stories from the website. ("WTOP News—Home," n.d.) Many of the stations we looked at had a facebook page. Pages mostly featured updates but not always engagement. Facebook

keeps people updated by regularly sending them distracting notifications that use sound to draw attention to themselves.

Twitter can seem similar to facebook. Each tweet is limited to 140 characters. Tweets, retweets, sharing, etc. takes seconds, making it a good site for both updates and quick engagement. WTAG 94.9 FM, a commercial station based out of Worcester Massachusetts, has an interesting approach to using Twitter. Their twitter page receives more engagement than their facebook page, despite having less followers, each retweet receives a few comments, retweets, and likes. Most tweets are retweets of Jim Polito, one of the station's hosts, tweets that are mostly news-related twitter polls, news, and pictures or videos. The twitter polls usually receive around 100 votes and provide a way to see what the audience thinks about an issue. (Polito, 2019) WTAG uses twitter polls to get small amounts of data from their audience. WTOP's twitter is similar to their facebook yet tweets different stories. Retweets are tweets made by WTOP journalists. Listeners may also follow journalists as well as the station. ("WTOP (@WTOP) | Twitter," 2019) Many of the radio stations we looked at had a twitter page. Many stations used it like they used facebook, to update viewers on a different platform.

Youtube is a video platform where content creators make videos for an audience. The videos can be anything within the community guidelines and should aim to be monetizable and engaging. WGBH uses youtube to promote a visual side to their music. Their videos consist of mainly full-length concert sets and musicians live in the studio. Both types of videos allow listeners to see musicians performing rather than just hearing them. (*WGBH Music*, n.d.) KIIS uses youtube for a variety of content. The videos are mostly interviews of musicians. The "Live with JoJo" interviews receive around 20k views per video. The rest of the content tends to

receive less than 1k videos per video. One host posts gaming videos that do not really fit the station's brand.

Few stations we looked at had a youtube page. Unlike other platforms, creators often need to make content for YouTube to create engagement. Station's rights to broadcast music may not give them the rights to post or stream their broadcast on youtube. Youtube broadcasts provide a live chat where viewers could interact with each other or the live host or make donations. Stations could always post their talk shows, podcasts, interviews, and other non-music shows on youtube.

Apps

Apps are an important part of listener engagement because they allow the listener to access the radio and its features on the go. The app can act as a portable version of the website. It allows access to the radio to be just two taps away. Reducing the barrier from when a listener wants to start listening to their access increases how often they'll listen because they won't be discouraged by the process of turning the radio on.

The home screen of an app defines the user's primary experience with the app because of its impact on navigation. It acts as a hub to reach all other sections of the app. WWOZ and KNKX have radio listening available from the front page of their app. Just as with the website, this feature is common and important to most radio station apps. The playback option continues even when you close the app allowing people to continue listening while using other parts of their phone.

WWOZ and KNKX's apps have very smooth and intuitive menus but some menu options are just links to the website which is unintuitive and bad design. The link opens in the

phone's default internet app. This forces the user to use the website instead of the app, even though the website is optimized for desktop use, not mobile. The clunky interface discourages listeners from listening to the radio instead of just using an intuitive music streaming app.

WGBH has an official app, but they also have a special line of apps aimed toward educating children. Their normal app serves all the normal purposes of increasing the ease of access to the station, but their childhood apps make the station more likely to serve people with kids. Their apps use characters from popular kids shows like "Peep and the Big Wide World" to teach kids important lessons, such as how to mix colors to make non-primary colors in "Peep and the Big Wide World Paint Splat". Kids might find one of WGBH's apps in the app store, and if they do then their parents might discover WGBH this way. Going the other direction, a parent who listens to WGBH might find out about the apps this way, and getting the apps might increase the chance they keep listening to the station in the future.

Events

Events are an important part of engaging listeners because they bring the listener's connection to the radio to the physical world. Events are exciting enough that people want to go to them even though they cost the listener time and money. People may care more about things that have cost them something due to the fear of that cost being wasted ("Sunk Cost Fallacy"). Listeners who spend that time and energy to visit the event are more likely to listen to the radio station in the future because they have invested in it ("Sunk Cost Fallacy"). They do not want their time and energy to go to waste. Many radio station events are concerts.

WICN's Events

WICN has a few events that listeners can attend, where the station can engage local listeners in real life. The main events are their concert series, the Brown Bag concerts and Jazz At Sunset. The Brown Bag concerts are free to attend events hosted in the fall and spring at Worcester's Mechanics Hall. Listeners can "Bring your own "brown bag" lunch or purchase one at the Hall while they last!" (Brown Bag Concert Series – 90.5 WICN Public Radio, n.d.) They feature three to four local jazz musicians and listeners see some of the past event pages on WICN's website. The event is also broadcasted in case people cannot attend it. Jazz at sunset is a paid summer concert series hosted at Worcester's Hanover theater. We were unable to find much information on the event since the links to previous concerts are broken except for 2017.

WICN's folk events seem completely different from the other events. They're hosted in many locations many times a year. This pattern may give listeners outside WICN's broadcast range a better chance to attend an event. Instead of promotional flyers the events only show who's playing a title, location, and time. WICN hosts a few side events every year. These events can be continued from previous years, feature smaller concerts, or offer engagement besides music. Listeners can find all information on events from WICN's website and facebook.

Competitors' Events

Radio station events are created by the station itself. WWOZ frequently hosts other artists to be featured. This event gives the station a broader and more personal selection of music, making it easier for listeners to connect to the music. KNKX hosts their own yearly Jazz festival. Jazz festivals are one of the best ways to engage with jazz listeners. They get people

excited about jazz and showcase many different jazz styles and bands. WWOZ has a few of their own live broadcasts and community events, but since they're in New Orleans they have around 50 local Jazz events posted everyday. Unlike most radio stations, WWOZ can get away with under-par engagement because their musical content and their connections to New Orleans make up for it. They also allow people to submit events to be promoted by the station. Some of the stations we looked at promoted their own concerts.

Meetings are business events that do not fall under normal station events. WBUR 90.9 is NPR's Boston radio station. WWOZ and WBUR use a community advisory board to help the station learn what the community needs. The board is made up of listeners, community leaders, and station management. They meet once a month to review the programming goals, the service provided, and assess if the programming fulfills the needs of the community.

Promoted Events are events that the radio station does not host, but it promotes for a local business. Unity Radio or WUTY 97.9, a non-profit station based in Worcester Massachusetts, advertises their own events and events from Discover Central Massachusetts. This explicit and direct connection to these businesses makes them well grounded in the community. Unfortunately, radio stations do not publicly post their listener engagement so solely from research it can not be determined how strongly these events influence listenership. If WICN is interested in learning more about this relationship in the future, it would involve hosting an actual event and comparing listener data before and after.

Attracting Younger Listeners

Age Demographics Introduction

With all of these media platforms to connect with younger listeners, some radio stations are not necessarily seeing an increase in younger listenership. According to WICN, the majority of listeners are over 55 years old. We want to understand why. The 30-40 year old demographic consists of young adults who are in the first generations to grow up with computers as commonplace. When discussing the impact computers have had on people, Sherry Turkle says, "The idea of thinking ahead has become exotic." (Turkle) One of the intrinsic differences between radio and other forms of media consumption is that radio has its own schedule, but other forms are on demand. The schedule asks listeners to think ahead to listen to the show they want, but computers have caused people to think in the present instead of planning ahead. The on demand nature of other forms of media make them more appealing to younger generations than radios are. Even when younger listeners are only looking for background music, they usually default to streaming apps like Spotify or Youtube because those apps are already downloaded and have become habits.

WICN's current demographic is 50+ so they are concerned about being able to replace listeners they lose in the future. Their target 30-40 years old age range is reasonably close to their current age range. Age demographics are often recorded as generational names rather than age ranges separated by 10 years. This makes isolating the target range difficult. We will attempt to collect data based on age ranges in the following categories.

Listening Habits of 30-40 year olds

Radio Music Genre Preferences

      Among people aged 30-40, a small proportion of listeners prefer Jazz radio stations over other genres. According to Statista, Jazz ranks last compared to other genres in radio stations for 35-44 year olds as shown (Figure 1). Other genres more popular among younger listeners that could still fall under the "+" of Jazz+ include Hispanic, Mexican, Tropical, Ethnic, and Gospel Music.

Distribution of U.S. radio formats audience in 2018, by age							
Audience of various radio formats in the United States in 2018, by age	18-24	25-34	35-44	45-54	55-64	65+	
Hot AC (Subset of Adult Contemporary)	16.6	23.7	23	19.7	11.3	5.69	in %
Alternative	17	28	22.9	15.5	12	4.68	in %
Spanish AC (subset of Hispanic)	13.6	21.5	22.3	19.9	13.01	9.68	in %
CHR/Top 40	24.2	29	21.8	15.6	6.5	2.9	in %
All Sports	4.9	15.8	21.7	21.7	20.2	15.7	in %
Mexican/Tejano/Ranchera (subset of Hispanic)	14	25.2	21.7	20.2	11.3	7.48	in %
AAA (Subset of Alternative)	13.2	20.9	21.2	17.9	17.4	9.38	in %
Adult Hits	14.4	17	21.2	27.8	12.7	6.87	in %
Adult Contemporary	13.7	19.7	20.8	21.6	14.8	9.39	in %
Rock	15.5	25.3	20.7	21.2	13.9	3.38	in %
Urban Contemporary (Subset of Urban)	25.1	31.9	20.5	13.5	7.1	1.91	in %
Hispanic (All Genres)	12.2	21.8	20.4	18.8	14.1	12.72	in %
Ethnic	7.9	13.1	20.28	23.19	17.6	17.89	in %
Tropical (subset of Hispanic)	9.4	17.4	20.1	16.6	22.1	14.38	in %
Rhythmic	29.3	31.4	19.8	12	5.3	2.19	in %
Soft AC/Lite Rock	8	13.2	19.3	24.5	17.4	17.8	in %
Urban AC (Subset of Urban)	9.7	17.4	18.8	22.2	21	10.88	in %
Urban	20	25	18.5	16.1	13.5	6.86	in %
Religion/Christian	8.2	14.7	18.4	21.9	21.1	15.78	in %
Public/Non-Commercial	5.4	17.6	16.8	16.8	21.1	22.29	in %
Classic Rock	10.4	16.4	16.3	27.4	22.2	7.4	in %
Country	13.6	19.9	16.09	19.5	15.9	15.07	in %
Variety/Other	9.3	17.5	15.8	20.7	19.2	17.51	in %
News/Talk	3.6	10.7	14.3	19	23.9	25.53	in %
Classic Hits	7.4	11.1	14	26.7	24.7	16.21	in %
All News	2.9	7.5	13.1	21.1	26.1	29.18	in %
All Talk	4	7.1	12.5	22.4	23.2	30.77	in %
Oldies	7.3	10.1	12.1	18.7	26.6	25.19	in %
Adult Standards	3	5.8	11.9	17.7	15.7	46.02	in %
Gospel	4.4	10.2	11.2	19	31	24.18	in %
Classical	6.1	11.9	10.6	12.8	23.2	35.38	in %
Jazz	5.5	12	8.3	18.3	24.5	31.52	in %

Figure 1. Radio music styles organized by percent interest of ages 35-44. (Radio in the US Statista Dossier)

Jazz Subgenres

Jazz has many subgenres that all have the flavor of Jazz as a whole, but with their own unique spices added to them. The subgenres of Jazz include Ragtime, Dixieland, Hip-hop jazz and many others. We had difficulty finding public studies that subdivide interest data into both age groups and jazz subgenres, so we'll have to collect this data ourselves. Professor Douglas

Olsen describes the sub-genres of jazz, saying "This is a brief list. There are certainly more genres out there and more being "coined" even today!" (Douglas Olsen) He lists:

Acid Jazz	Cool	Mainstream Jazz
Avant-Garde Jazz	Dixieland	Modal Jazz
Bebop	Fusion	Ragtime
Big Band	Hard Bop	Smooth Jazz
Blue Note	Latin Jazz	Trad Jazz
Contemporary Jazz		

Jazz subgenres like Smooth Jazz have a younger age demographic than Jazz as a whole. This means that older listeners who like Jazz are less likely to like Smooth Jazz than people 30-49 years old. While Jazz is more popular in America among listeners aged 50-64 than younger age groups (Figure 2), Smooth Jazz is more popular among listeners aged 30-49 than listeners older or younger (Figure 3). This means that playing more Smooth Jazz could potentially attract younger listeners. While it would be ideal to have data on other subgenres, unfortunately this was the only one available. We will have to research this further in our data collection.
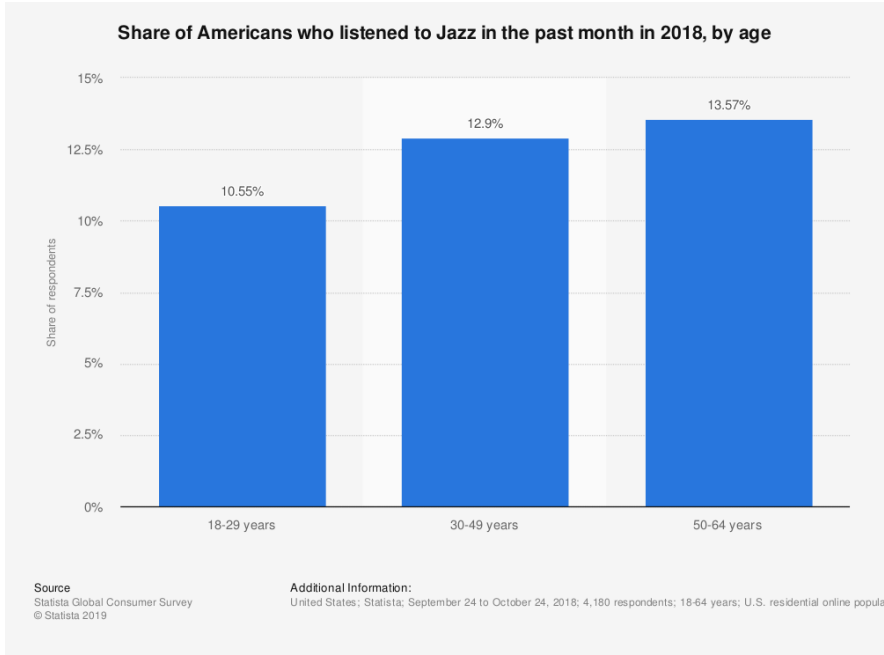
Figure 2. General interest in Jazz is broken down by age. (Statista, "Share of Americans Who Listened to Jazz in The past Month in 2018, by Age.")
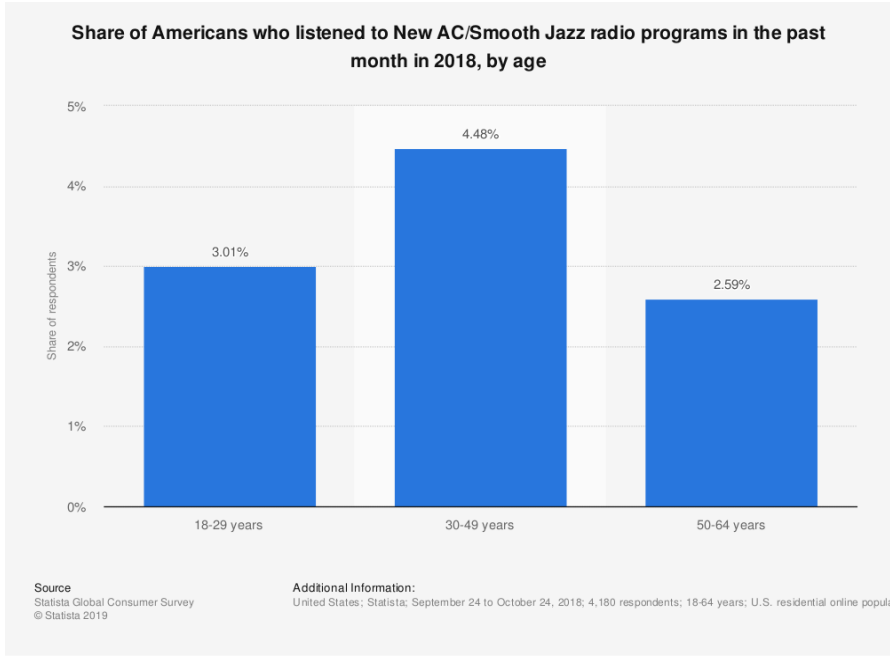

Figure 3. Interest in Smooth Jazz is broken down by age. (Statista, "Share of Americans Who Listened to New Ac/Smooth Jazz Radio Programs in The past Month in 2018, by Age.")

Events 30-40 year olds Attend

We did not find many charts that compare multiple events and the age groups of attendees, but among individual event charts divided by age there are several events that people ages 30-40 prefer over other age groups. Figures 4-10 in Appendix B show that according to Statista, people aged 30-49 prefer to visit events such as Theme Parks, Live Theater, Comedy Clubs, Zoos, Dance, and Major League Soccer and Baseball. In each of these events, the largest percent of people who preferred them were in the desired age group. Any of these events could be tied to Jazz, but Dance would be the most closely tied to Jazz. A Jazz dance competition could attract younger listeners.

The Gap and The Problem

WICN wants to understand what listeners think of their programming, shows, hosts, and the station as a whole to better engage them. WICN wants to attract a younger audience, specifically potential listeners between 30-40 years old. This demographic is close to WICN's current 50+ age demographic. WICN does not want to stray too far from their current demographic so as to be careful not to estrange them.

To realize WICN's goals, we must look at their programming, their website, apps, social media, and events. What types of Jazz subgenres, genres like Jazz, genres besides Jazz, and non-music programming could WICN air more often or expand on from its current programming to attract a wider audience, particularly 30-40 year olds? Audience information

can help WICN create more shows, expand its Jazz+ programming, and focus on what its

listeners want to hear from the station. A wider audience can give WICN more stability and

help them diversify their age range and attract their target age demographic.

How can WICN make it easier for listeners to learn about and connect to WICN's hosts,

shows, and the station itself on the website? Listeners may want information to help them

decide to listen to a show or host. Listeners may want to talk to hosts, follow a specific show's

activity, or engage with the station. How can WICN more effectively engage listeners, post

station updates, and create content using its social media properties? What other platforms

should WICN start using?

How can apps better take advantage of the mobile platform? WICN's apps can have

unique value to listeners instead of just being a surrogate website. Apps can take advantage of

the mobile platform, such as location services, gyroscope controls, and touch controls. What

kinds of events can WICN create and promote that may be more effective at drawing people in?

Events may help WICN engage its current audience face to face. Listeners may prefer specific

types of events. WICN can engage their potential younger audience face to face through these

events. We cannot address all these questions in this project alone, instead we will focus on our

main objectives but future groups could always continue our work.

Methodology

This section will discuss our decision process on which methodology would be most

effective to accomplish our objectives. The objectives will be determined based on the research

questions. Each relevant methodology will be compared and evaluated. The plan for

implementing the chosen methodology will be laid out. The plan for analysis of the data collected will also be laid out.

Objectives

1. Programming Feedback

We plan to help WICN better understand what their current listeners think about the station's hosts, shows, and other aspects of the station. We need to determine where and how to ask for listener feedback and what kind of feedback WICN needs. We need to learn how to analyse and interpret the feedback and present our findings to WICN. This addressed the question "How can WICN more effectively engage listeners, post station updates, and create content using its social media properties?"

2. Attracting Listeners

We plan to help WICN expand their programming to other music genres to attract potential listeners, especially 30-40 year olds, and entertain current listeners. WICN needs a list of genres that have strong correlations with its current audience and potential listeners. We need to create a wide list of genres similar to jazz or jazz subgenres. We need to determine where and how to ask both potential listeners and WICN listeners which genres they enjoy. We need to learn how to analyse and interpret the data and present our findings to WICN. This addresses the research question "How can WICN make it easier for listeners to learn about and connect to WICN's hosts, shows, and the station itself?"

3. Improving WICN's Engagement Tools

We want to improve WICN's engagement using its website, social media properties, or apps. WICN's social media strategy is the easiest to change so recommendations will be easier to implement. We must learn what updates, engagement, and content WICN's listeners expect and want to see more often. We want to find other platforms that WICN could expand to and potential content ideas. We need to learn how to analyse and interpret the data and present our findings to WICN. This addresses the research question "What other platforms should WICN start using and how can they improve the ones they already have?"

Method Analysis

Finding Programming Feedback and Ideas

A method will be chosen to get WICN programming feedback that is consistent, frequent, and representative of the whole demographic. In this context, consistency means that the data can be collected at regular intervals, frequency means that the data intervals are small compared to WICN's perceived rate of change in their audience, and representativity means how well the data of the sample correlates with their total listenership. A Consumer Advisory Board could have good insight on what programming people like, but this method would have a small sample size. It can get new ideas, but is not necessarily representative. If this method were chosen, it would be impossible to get data outside of the listeners. This method gets data consistently but not frequently. Through Online Feedback, we can ask listeners quickly and frequently and get both quantitative and qualitative data. It can connect people with station

hosts and provide more personal feedback, this data should extrapolate to the general listener audience. The primary bias preventing the sample from being a random sample is that it only reaches people who already participate in the hosting platforms, therefore it is difficult to get data outside of the community using this method. This method collects data frequently but inconsistently. One possible way to implement Online Feedback would be to put a like button in the app to record which songs listeners like and when. The Experiment can directly test out programming ideas and get people's feedback or ask if people would listen. A possible implementation of the Experiment would be for the control group to receive the current programming treatment, and for the test group to receive the possible programming ideas treatment. The Experiment would need to be repeated regularly in order to be consistent, which would not happen frequently. If this was chosen, it would be up toWICN's discretion how frequently they deem it necessary to repeat the experiment to monitor changes in their audience. Questionnaires require a regular set of questions that listeners can answer. It can be used to ask about show ideas or possibly get show ideas from people. Questionnaires are impersonal which might discourage participants from being invested. It would be easy to get answers to a large number of quantitative questions which would be representative. The low cost and effort to host the Questionnaire compared to more difficult options like the Experiment make it easier to host frequently, as consistently as is deemed best. We choose the Questionnaire as it is the most representative of the population and is capable of being as frequent and consistent as is needed.

Attracting Listeners

We will choose a method that helps us understand what types of jazz subgenres, similar genres to jazz, and other music genres, 30-40 year olds enjoy. We think our best methods are questionnaires, experiments, and the Delphi Method Study (DMS). Questionnaires can get information directly from a variety of listeners, but finding enough 30-40 year olds outside WICN's listener base to create a large sample size may be difficult. Questionnaires also lack the resolution of data per person that the DMS or experiment could provide. The DMS can work well with a smaller sample size but they can be hard to replicate and can't access as many listeners as a questionnaire. Without replicability, WICN would be unable to utilize the methods in this paper to get updates on changes in their audience and potential listeners in the future. DMS does not give us any way to compare listeners. Hiring experts for a DMS would be too expensive. We do not know what kind of experts to look for, possibly experts on Jazz or marketing, or possibly a combination of experts. If we find the right experts they may have the information we need on 30-40 year olds. WICN can replicate an experiment if they can find 30-40 year olds outside their listener base. Organizing the experiment may be difficult, but WICN can easily find what music to play since they understand Jazz subgenres and similar genres better than we do. Using an experiment or questionnaire we can compare the current listeners and the 30-40 year olds by separating them into different groups. An experiment could involve choosing a characteristic of their audience that WICN wants to learn about and creating different circumstances to test it under. Experimental results will help WICN find the information they need, and they are cheaper than a DMS because it does not involve paying

experts over an extended period of time as the DMS does. An experiment could be similar to a questionnaire since the end data is answers to questions. We also want subjects' individual opinions so a group setting may not be appropriate to get that information. Given the size of this project team, four separate methods may be too difficult for us to complete. We choose questionnaires despite the fact we might not get the population we need to really understand 30-40 year old's listening tastes. With a questionnaire we will be able to ask a variety of questions to a variety of listeners, including questions on genre, personal characteristics, and radio-listening habits. These will provide insights as to which characteristics are the best predictors of attracting younger listeners.

Social Media Analysis

We chose between a representative social media sample analysis and a graph of social media engagement of different radio stations based on the criteria of relevance and criteria. Relevance in this context refers to how applicable the data collected is to WICN. The representative sample scored higher in relevance than the graph because it was a direct study of WICN and their listeners' reaction, while the graph did not look at any specific samples of social media interactions. Viability in this context refers to how reasonable the analysis is to accomplish. The representative sample also scored higher in viability because most radio stations did not post their numbers on income or number of listeners that would be necessary for the graph. We chose the representative social media sample analysis because it is more relevant and viable.

Plan to Implement Methods

Logistics Required for Methods

We will distribute a survey to WICN's audience and to a more general population to get information on demographics; Jazz Subgenre preference; radio listening habits; WICN's listener's opinions on the shows, hosts, and other aspects of the station; WICN website usage and opinions; and WICN social media usage and opinions . We will use Qualtrics to create the survey because it features what we need such as branching questions and randomly selecting questions.

Subjects and WICN Involvement

The two target populations are WICN's listeners and the general local public that includes 30-40-year-olds. WICN can contact their listener population through their email list, website, social media, or broadcast. The two possible sample frames are their email list of core listeners and general audience.

To reach general music and radio listeners, including WICN's target demographic, we plan to use Amazon Mechanical Turk, WPI's faculty mailing list, and other sources to reach local listeners. We will pay $150 out of pocket to give mechanical turk survey takers incentive and will restrict the population to adults inside and outside Massachusetts. Professor Barton will send out the survey to WPI's faculty mailing list. Other populations will be sourced through social media and other mailing lists.

Question Categories

We divided the survey based on each piece of information we need. We used the "Personal Information" section of the survey to collect general demographic information, music listening habits, and if they listen to the radio or WICN. This section filters the survey takers into adult music listeners who might listen to the radio or WICN. The WICN version assumes subjects listen to WICN. The "Jazz Subgenre Interest" section uses a randomizer to select 10 of 25 clips to show to each user. The audio-only clips are embedded songs we found on soundcloud that each represent our categories in Jazz subgenres. For each clip, we ask the person to listen for at least a few seconds and how much they enjoyed the clip. We do not reveal which subgenre the clip belongs to and each song only shows the song title and picture to reduce bias. We use the "Radio Listening" section to ask subjects about what radio platforms they use, when, and how long they listen to the radio. WICN Listening asks similar questions to Radio Listening but also asks about WICN's on demand content and show formatting. With the data we can create groups of similar listeners and learn how WICN's target audience behaves.

We use the "WICN" section to ask subjects more general questions about WICN. namely "What things do you like about WICN?" and "Are there any things you want WICN to change or improve?" These questions should produce a wide variety of answers and give us a general sense of what's important to WICN's core audience. Then subjects are asked about their interest in WICN's website, social media properties, and youtube. We use the "WICN Programming" section to ask listeners what shows they listen to and to divide the show with host names into categories to make selecting shows potentially less overwhelming. Then we ask

subjects questions on the shows they listen to. We ask for the listener's ratings and feedback on the show and host separately. We use the "Website" section to ask listeners how and why they use WICN's website. We also ask for suggestions to improve the website. WICN Social Media is divided into four sections, one for each platform facebook, twitter, instagram, and youtube. For WICN's properties we ask what kinds of posts listeners like, what listeners want to see more often, and suggestions for new content. For Youtube, we ask what types of content the listener would like to see. (The actual survey questions we asked can be found in appendix C.)

Procedure Used

1. Create the survey questions based on the information we want to find.

2. Build the survey questions using survey software or Qualtrics.

3. Choose the population: WICN's listeners, Massachusetts residents, and Amazon Mechanical Turk workers.

4. Revise the survey questions to properly find all desired information.

5. Open and distribute the survey

6. Close the survey.

7. Analyze the survey data.

Analysis to be Done

We will graph the data of Jazz subgenre interest by age and by listening times. We will try to use the demographic data to find correlations for jazz subgenre preference, music and radio listening habits, and WICN's audience opinions on their engagement. Through this method we may learn ways WICN can improve its programming and engagement. WICN can

learn what jazz subgenres to play and what times various age groups listen to WICN the most. If some data is chosen to be qualitative, it will be organized by hand and multiple similar answers will be condensed to make them useful for informing the hosts of what to play. All quantitative data will be compared to find correlations. Qualitative analysis will look at the optional fill in responses and split responses into categories and counted.

Data Analysis

Our survey was distributed to WICN's listeners (245 responses), Massachusetts residents (mostly WPI faculty and grad students) (55 responses), Amazon mechanical turk (148 responses). There were 339 responses total. We had to delete some data from the Amazon mechanical Turk results because some qualitative responses looked robotic, for example, one respondent put "If you'd like to become a Member Benefits partner or have a suggestion..." when answering the questions "What things do you like about WICN?" and "What does WICN need to improve?" even though these questions should have opposite answers. The survey was distributed by David Ginsburg, Professor Barton, and us. The main reason we chose to do a survey without a random sample was because we do not have the exact frame to be able to calculate the percent response rate. We kept the survey open for two weeks. We created reports for each show but those are not included since some of the information may be confidential.

Quantitative Data

Correlation Coefficients

       The first way we interpreted the data was to use Python to calculate the correlations between all numeric stats. We calculated the correlations using the official formula for R used in statistics, as shown below (Taylor, 2020). We then sorted all pairs by their correlation to find the strongest correlations. We selected the highest correlated to income, Instagram, Facebook, Twitter, Youtube, and Website Interest, age, and hours of music listened to. We chose these categories to represent here because they are the most relevant to helping WICN reach younger listeners.

$$R = \frac{\sum_{k=1}^{n}\left(\dfrac{x_k - \frac{\sum_{i=1}^{n} x_i}{n}}{\sqrt{\dfrac{\sum_{j=1}^{n}\left(x_j - \frac{\sum_{i=1}^{n} x_i}{n}\right)^2}{n-1}}} * \dfrac{y_k - \frac{\sum_{i=1}^{n} y_i}{n}}{\sqrt{\dfrac{\sum_{j=1}^{n}\left(y_j - \frac{\sum_{i=1}^{n} y_i}{n}\right)^2}{n-1}}}\right)}{n}$$

Equation 1. The formula for statistical correlation of two variables given a list of pairs (x, y). (Taylor, 2020)

R^2 Correlation Coefficient	Correlated Statistic
0.1295654917429894	Erin Hayes and Ian Barret Appreciation
0.1292623404692246	Business Beat Appreciation
0.07319318449564122	Positive Noise Appreciation
0.07141150473199794	Al Vuona Appreciation

0.0456887075273577	Instagram Interest
0.05966835740109441	Electroswing Interest
0.0558103807667673	Hip Hop Jazz Interest
0.049002613743733874	Jazz Fusion Interest
0.04106192632086856	Big Band Interest

Table 1. This is a table of the income correlations.

R^2 Correlation Coefficient	Correlated Statistic
0.42731411064548724	Public Eye Appreciation
0.4209646533236067	Jazz 360 Appreciation
0.4154355024468609	Al Vuona Appreciation
0.41397037198338915	Dana Robbins Appreciation
0.33606944976182707	Erin Hayes and Ian Barret Appreciation
0.33528278009143686	Business Beat Appreciation
0.3180047791724735	Hip Hop Jazz Interest
0.29361722015406316	Acid Jazz Interest
0.26289529445838705	Electroswing Interest
0.2625249502762724	Avant Garde Jazz Interest

Table 2. This is a table of the instagram interest correlations.

R^2 Correlation Coefficient	Correlated Statistic
0.380582324174736	Al Vuona Appreciation
0.379995592282201	Public Eye Appreciation
0.3498854191085299	Dana Robbins Appreciation

0.34125734186086715	Jazz 360 Appreciation
0.2915026528950149	Hip Hop Jazz Interest
0.25369165764272067	Acid Jazz Interest
0.21304470757388078	Electroswing Interest
0.21078666177513286	Smooth Jazz Interest

Table 3. This is a table of the Facebook interest correlations.

R^2 Correlation Coefficient	Correlated Statistic
0.41875330113241116	Public Eye Appreciation
0.4066332199634454	Al Vuona Appreciation
0.3649078146877029	Business Beat Appreciation
0.3613982973125309	Erin Hayes and Ian Barret Appreciation
0.30067613167078966	Avant Garde Jazz Interest
0.2831583860216167	Hip Hop Jazz Interest
0.2819650824539403	Acid Jazz Interest
(0.24113682305352346	Electroswing Interest

Table 4. This is a table of the Twitter interest correlations.

R^2 Correlation Coefficient	Correlated Statistic
0.3967586471144047	Al Vuona Appreciation
0.39358372939426084	Public Eye Appreciation
0.36632974488316344	Jazz 360 Appreciation
0.3629465284441494	Dana Robbins Appreciation
0.3398349361114008	Hip Hop Jazz Interest

R^2 Correlation Coefficient	Correlated Statistic
0.27957609343335343	Latin Jazz Interest
0.2769615280233471	Smooth Jazz Interest
0.27341498574212947	Electroswing Interest

Table 5. This is a table of the Youtube correlations.

R^2 Correlation Coefficient	Correlated Statistic
0.4625140965389037	John Pizzarelli Appreciation
0.4618750857795313	Radio Deluxe Appreciation
0.44328208038116845	Joe Cicero Appreciation
0.439712758371072	Jazz Highways Appreciation
0.4314445803908435	Cool Jazz Interest
0.41565980334177643	Latin Jazz Interest
0.3989908316949914	Bebop Interest
0.37668125549641945	Acid Jazz Interest

Table 6. This is a table of the Website correlations.

R^2 Correlation Coefficient	Correlated Statistic
-0.4490390671236621	Instagram Interest
-0.4270923615607487	Twitter Interest
-0.3200194969956478	Youtube Interest
-0.2444692544382661	Facebook Interest
-0.23146188518257949	Public Eye Appreciation
-0.23130742523769124	Al Vuona Appreciation
-0.22122464643084333	Hip Hop Jazz Interest

-0.19945320935876312	Income
-0.16983085079024327	Business Beat Appreciation
-0.1670060559683878	Erin Hayes and Ian Barret Appreciation
-0.1544921008545289	Jazz 360 Appreciation
-0.15425546852072308	Dana Robbins Appreciation
-0.15014956159492351	Uncle Mark Appreciation
-0.14590595503529455	Positive Noise Appreciation
-0.13114356114550915	Noah's Arc Appreciation
-0.1205127521275262	Electroswing Interest
-0.11723251701924728	Noah Preminger Appreciation

Table 7. This is a table of the age correlations.

R^2 Correlation Coefficient	Correlated Statistic
0.26731113135873813	Bebop Interest (to Hours of Radio)
0.23902785954152997	Dixieland Interest
0.23507633207787257	Michelle Willson Appreciation
0.234512961810844	Cool Jazz Interest

Table 8. This is a table of the hours of music correlations.

The data in table 1 indicates that people with more income like Business Beat more. This follows common sense because people who study business are more likely to be part of a business that earns money. It is also more likely that they have a leadership role which tends to earn more money. Table 2 indicates that people who like to tune in to Public Eye and Jazz 360 are more likely to also enjoy using Instagram. Table 3 indicates that people who like to tune in

to Public Eye and Jazz 360 are more likely to also enjoy using Facebook. Table 4 indicates that people who like to tune in to Public Eye and Business Beat are more likely to also enjoy using Twitter. Table 5 indicates that people who like to tune in to Public Eye and Jazz 360 are more likely to also enjoy using Youtube. These tables indicate that the shows Public Eye and Jazz 360 are the shows that appeal the most to social media users. This could be because both Public Eye and Social Media talk about the news, so listeners see them both as a good fit for each other. Table 6 indicates that people who like to tune in to Radio Deluxe and Jazz Highways are more likely to also enjoy using WICN's website. One reason for this correlation could be that both Radio Deluxe and Jazz Highways play a large variety of different genres and websites are more universal than social media, so while some shows only got a fraction of the people interested in websites to also support them, Radio Deluxe and Jazz Highways attracted more than one of those subgroups. In interpreting table 7's data it is important to note that since this is correlating to age, positive values indicate prominence among older listeners while negative values indicate prominence among younger listeners. Table 7's correlation to income indicates that younger people more often make more money. This follows common sense because older people are more likely to be retired. These age ranges are grouped into years of 10 but stop at 55+. Some people over 55 are likely to have a job that pays much better than the introductory jobs young people can get, but the data indicates that they are not as representative of this age range as retired people are. In retrospect it would have been good to divide up 55+ into smaller groups to see if the group of people 55+ who make more money than younger people is a significant population. Table 8 indicates that people who like Bebop, Dixieland, and Cool Jazz tend to listen to music longer. It could be because some people view these subgenres as the most laid

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back, and thus the easiest to listen to for an average moment in life. An interesting trend that appears in this data is that nearly every social media platform correlates with both Public Eye and Jazz 360 as discussed earlier. This indicates that these shows either attract people who use social media more or they have strong social media engagement.
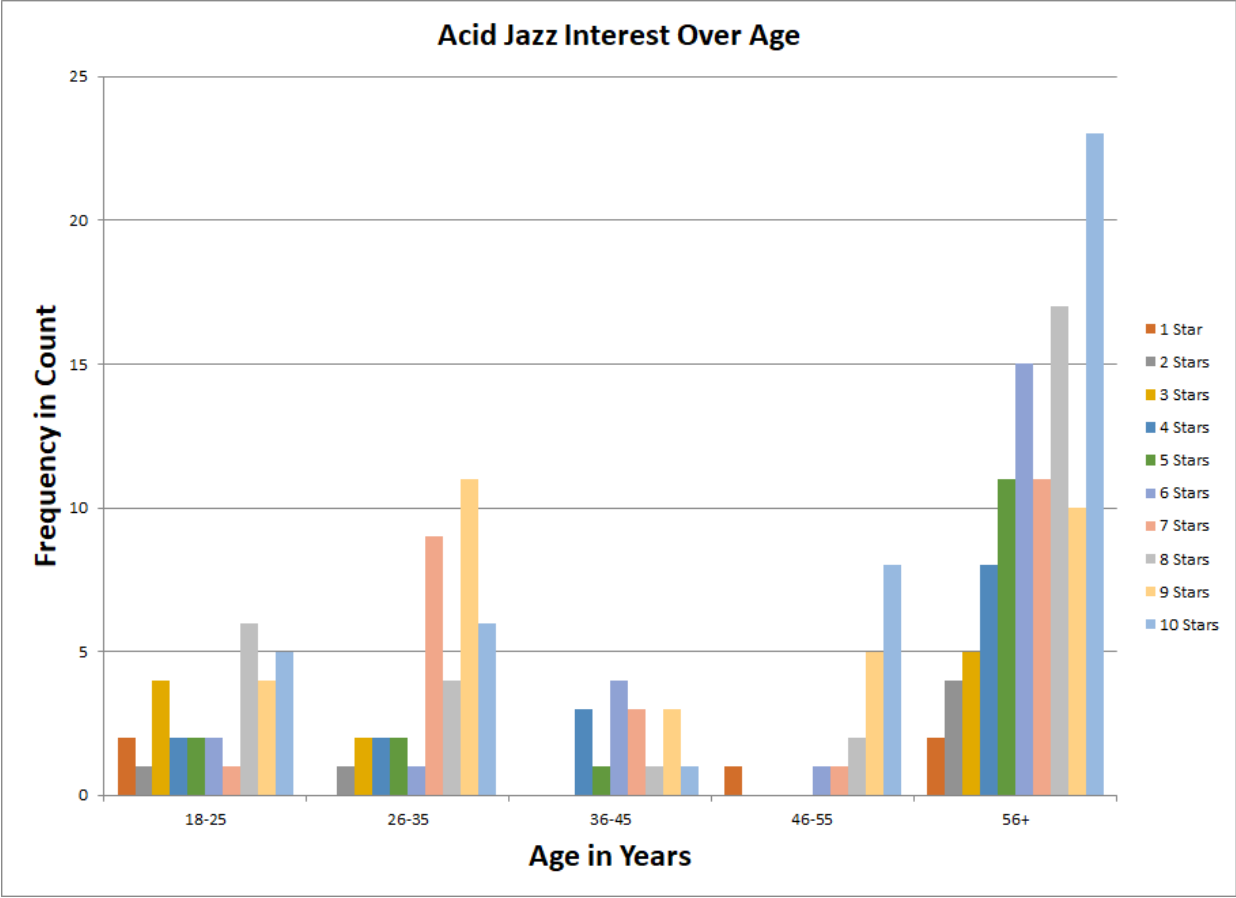
Jazz Subgenres

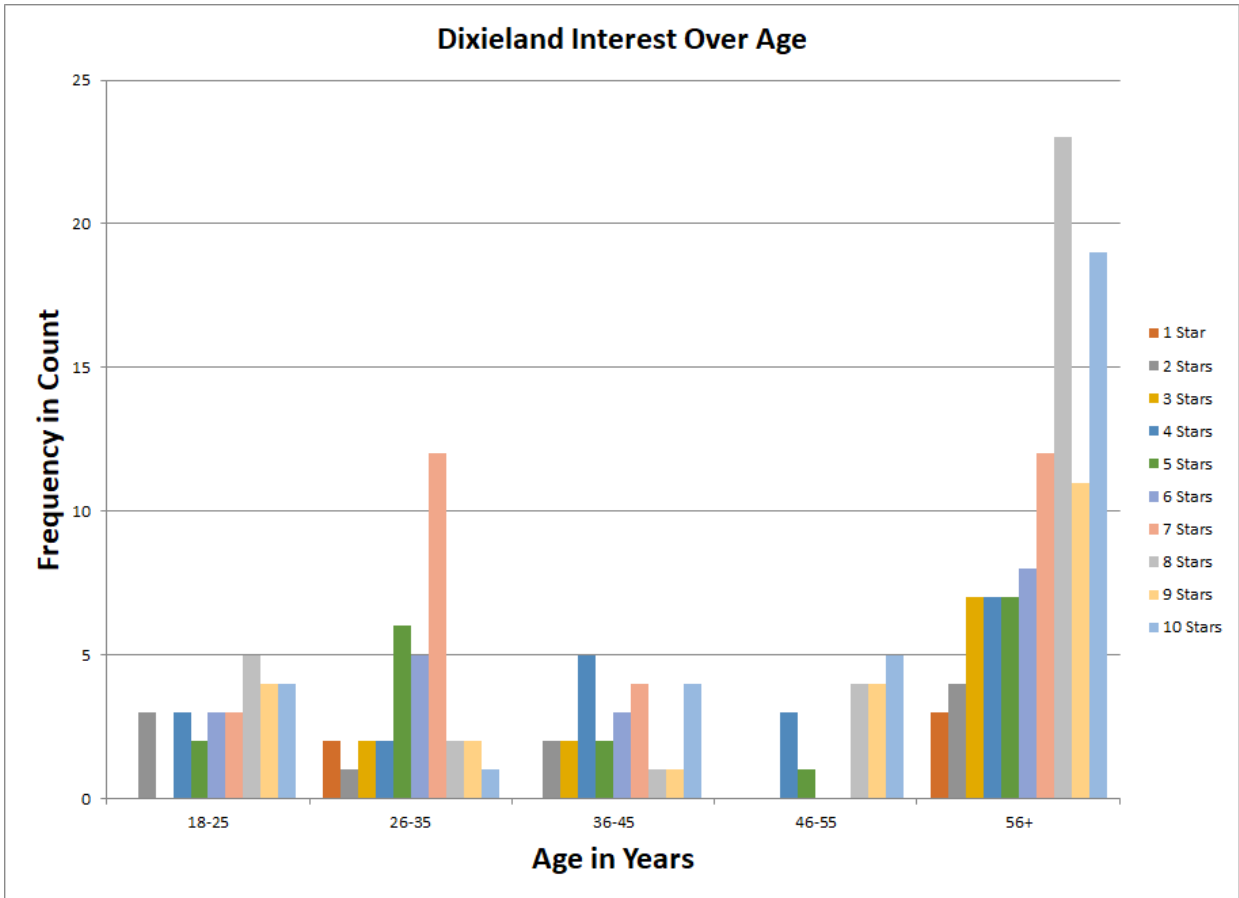*Figure 4. Interest in Acid Jazz rated out of 10 over age in years.*
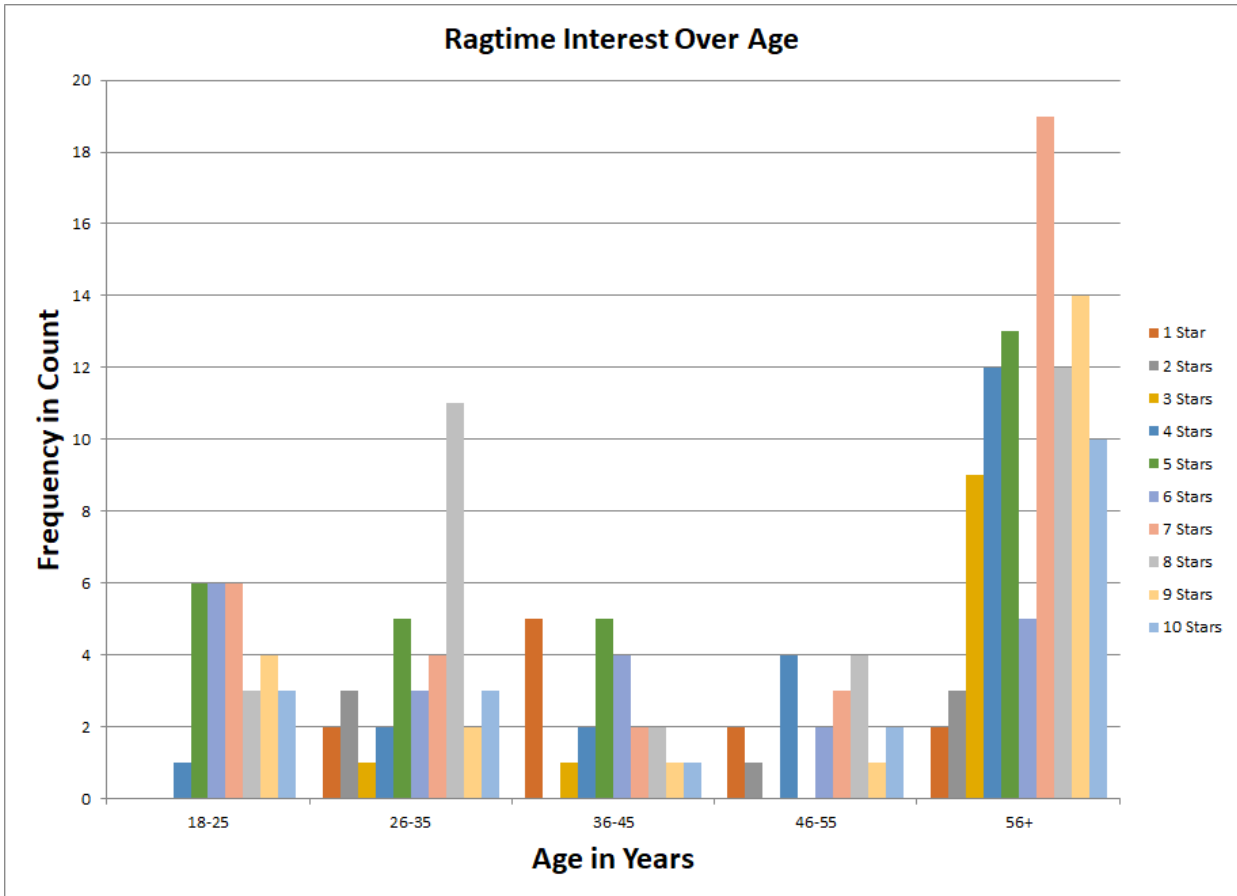
Figure 10. Interest in Dixieland rated out of 10 over age in years.

Figure 17. Interest in Ragtime rated out of 10 over age in years.

The Jazz subgenres that younger listeners rated the highest are Acid Jazz (figure 4), Dixieland (figure 10), and Ragtime (figure 17) so these are the most effective at answering the research question "How can WICN make it easier for listeners to connect to WICN's shows?" The graphs show the total number of times each age group rated the given genre each number of stars out of 10. The other genres did not rate as high so they were not included. We came to this conclusion because for these subgenres, 1 star ratings are much less frequent, especially compared to higher ratings. For example, Dixieland only received 2 ratings of 1 star out of

everyone younger than 55. All three of these subgenres have at least one high rating with a frequency higher than 10. These subgenres also appear to be popular with people older than 55, which makes them great candidates to play more since they will appeal to WICN's new target audience without estranging their current audience. They will provide an environment that will attract younger listeners while also being enjoyed by other listeners. Through this data it can be deduced that playing more Acid Jazz, Dixieland, or Ragtime is the most effective way to use jazz subgenres to accomplish the objective of Attracting Younger Listeners.

Social Media/Website
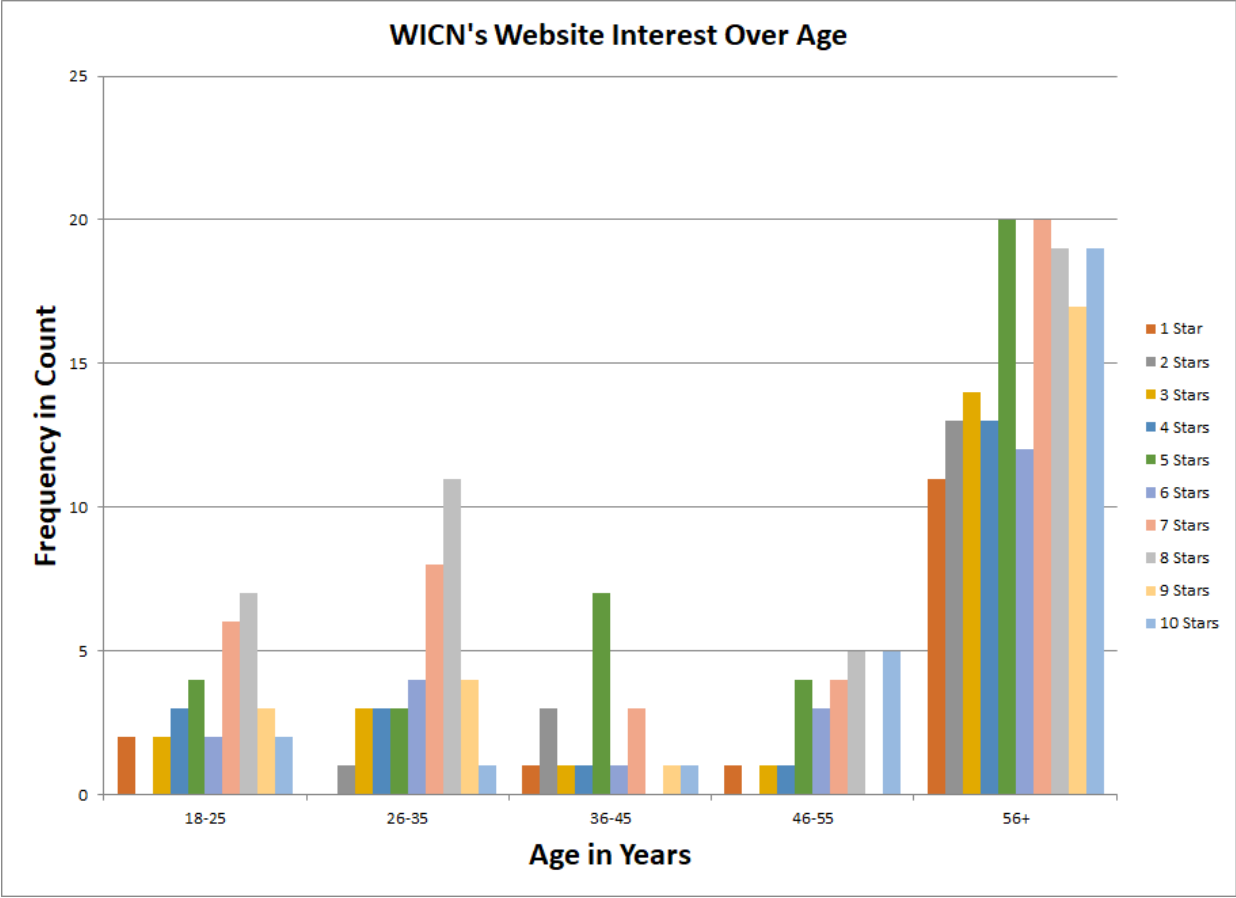
Figure 19. Interest in WICN's website rated out of 10 over age in years.
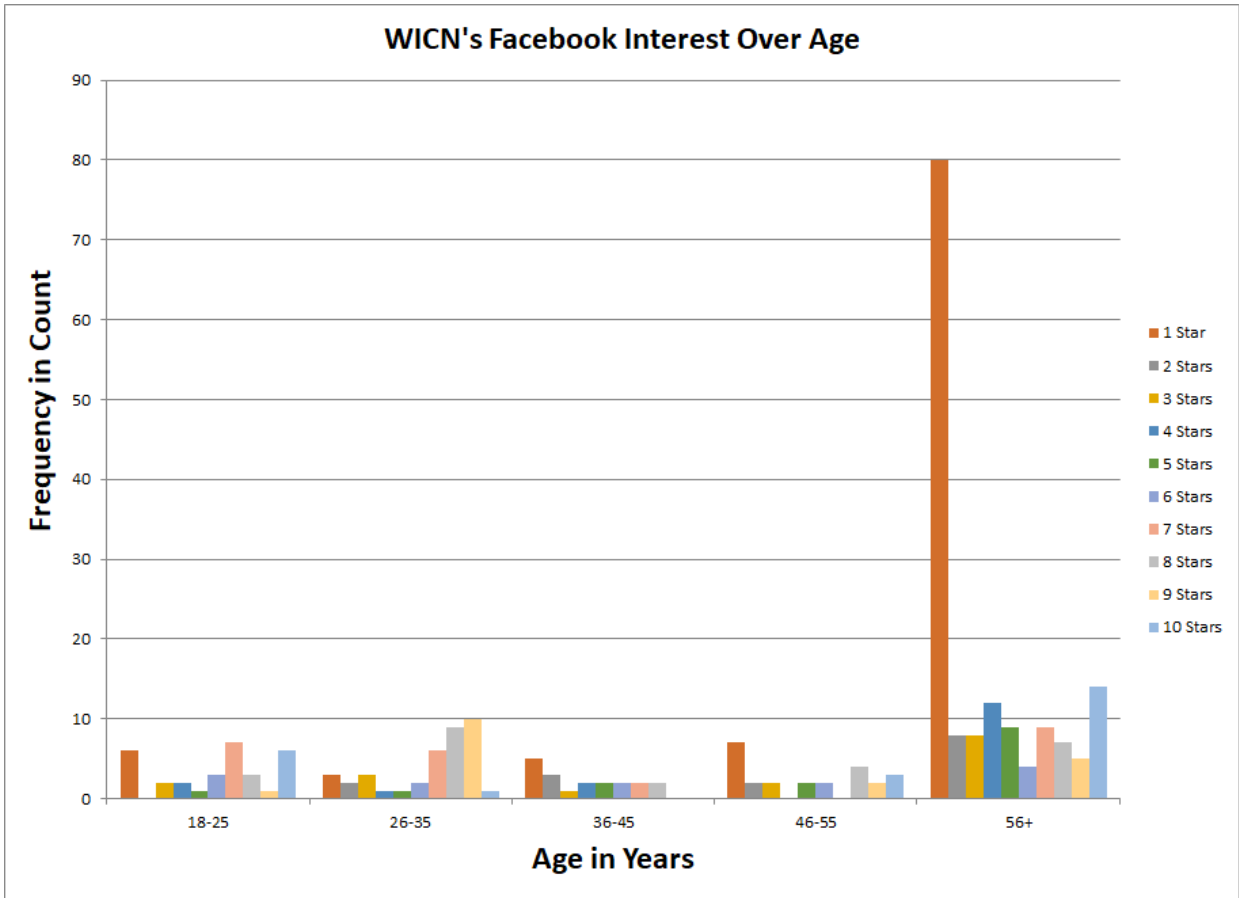
Figure 20. Interest in WICN's Facebook page rated out of 10 over age in years.
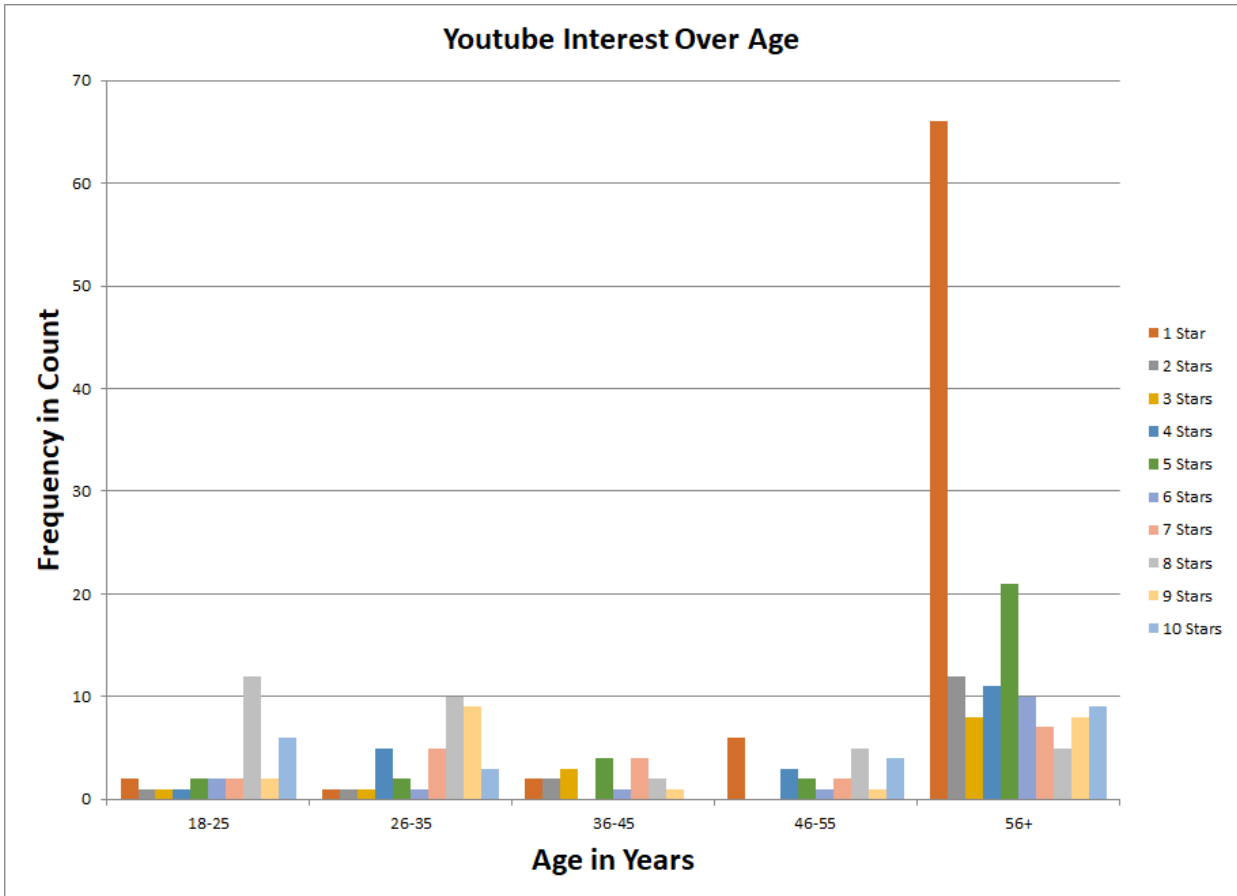
Figure 23. Interest in seeing WICN's content on Youtube rated out of 10 over age in years.

The data in these histograms indicates that the most effective mediums to reach younger listeners and answer the research questions "What other platforms should WICN start using?" and "How can WICN make it easier for listeners to connect to WICN's shows and hosts?" is first through Youtube (figure 23), then through the website (figure 19) and Facebook (figure 20). We reached this conclusion because for Youtube, many more young listeners rated it highly than poorly (relative in each age range except for 56+). The same is true for the website for all age categories, but the internet does not redirect people to pages they did not go to. Youtube on the other hand does redirect users to channels that have the content their algorithm favors. This

is a publicly known feature of Youtube. Facebook also has some bumps of being highly rated by younger listeners, but more prominent poor ratings. One of the common trends we found was that in nearly every comparison we could make, Instagram did poorly, so we don't that would be as productive at promoting WICN as other mediums. Through this data it can be deduced that reaching out more through Youtube, Facebook, and WICN's website is the most effective way to use online media to accomplish the objective of Attracting Younger Listeners.

Connecting More with Current Listeners

Weekday Patterns
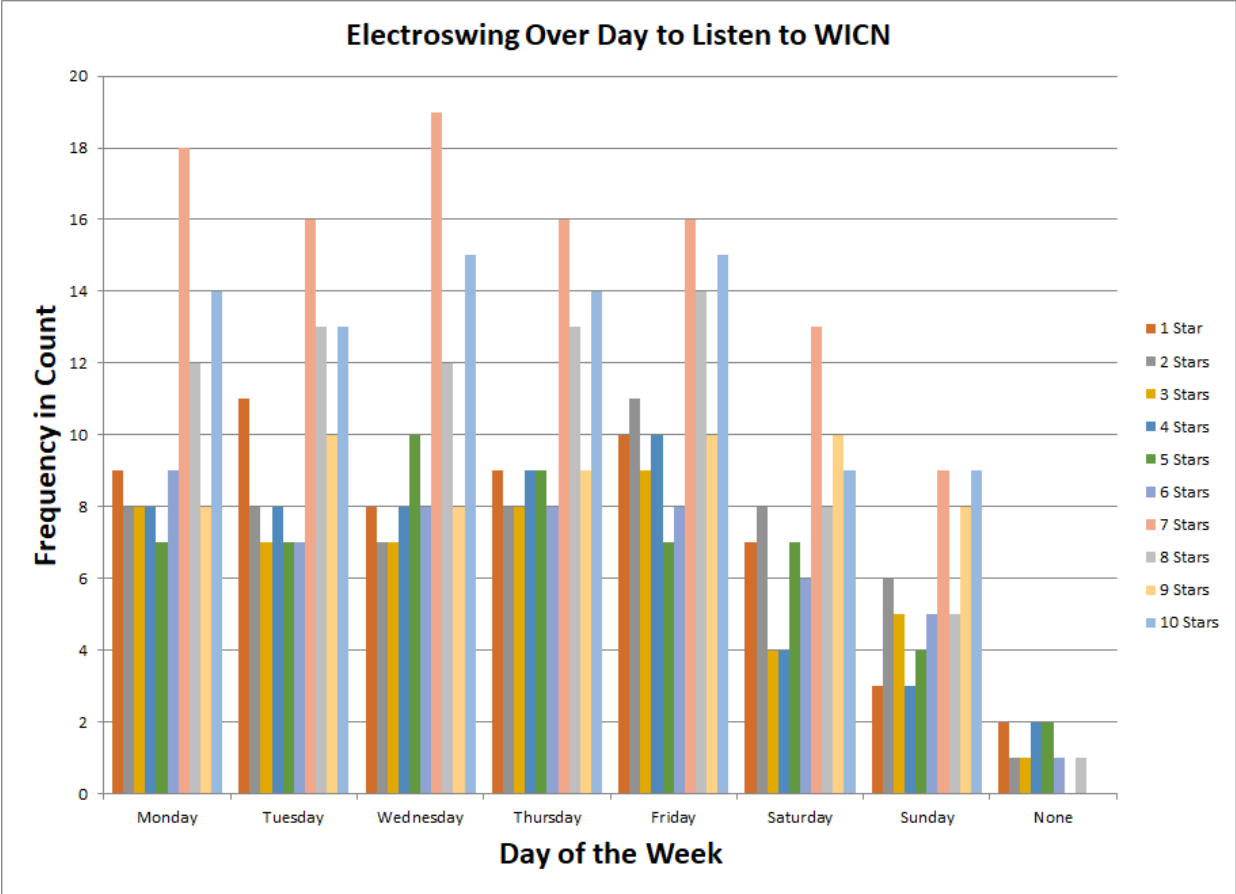
Starting an Electroswing show on Wednesday could help answer the research question "How can WICN make it easier for listeners to connect to WICN's shows?" Figure 25 indicates that if you wish to start an Electroswing show, Wednesday is the day that is most likely for it to be successful, and especially that it would do better avoiding the weekend (of course this comes second to the new host's schedule). We calculated this by finding the mode for ten stars. This mode was tied between Wednesday and Friday so compared their other values. Wednesday had the mode for seven stars and Friday had the mode for one star so we chose Wednesday. None of the other genres had as significant of a mode. Through this the data indicates that starting an Electroswing show on Wednesday could help accomplish the objective Attracting Listeners.
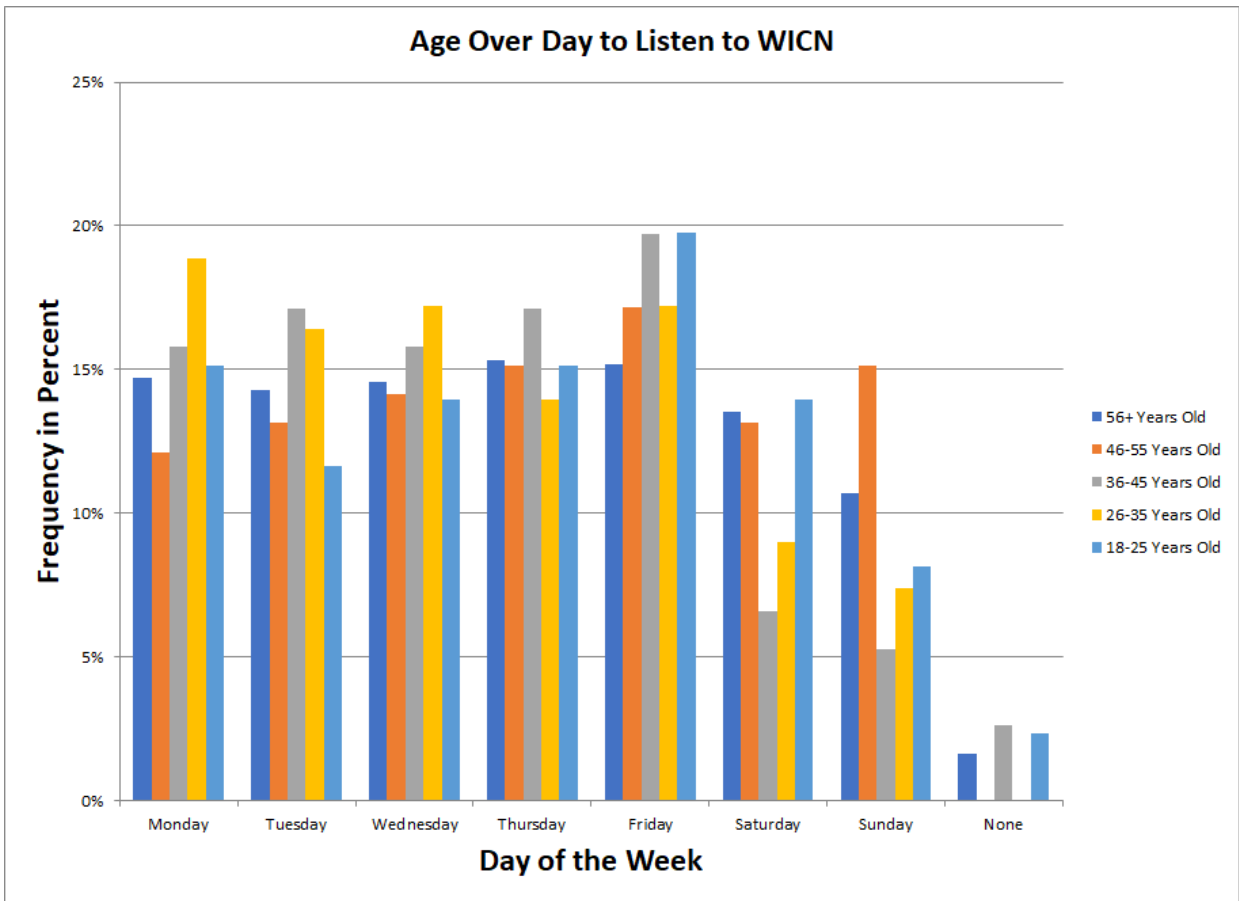
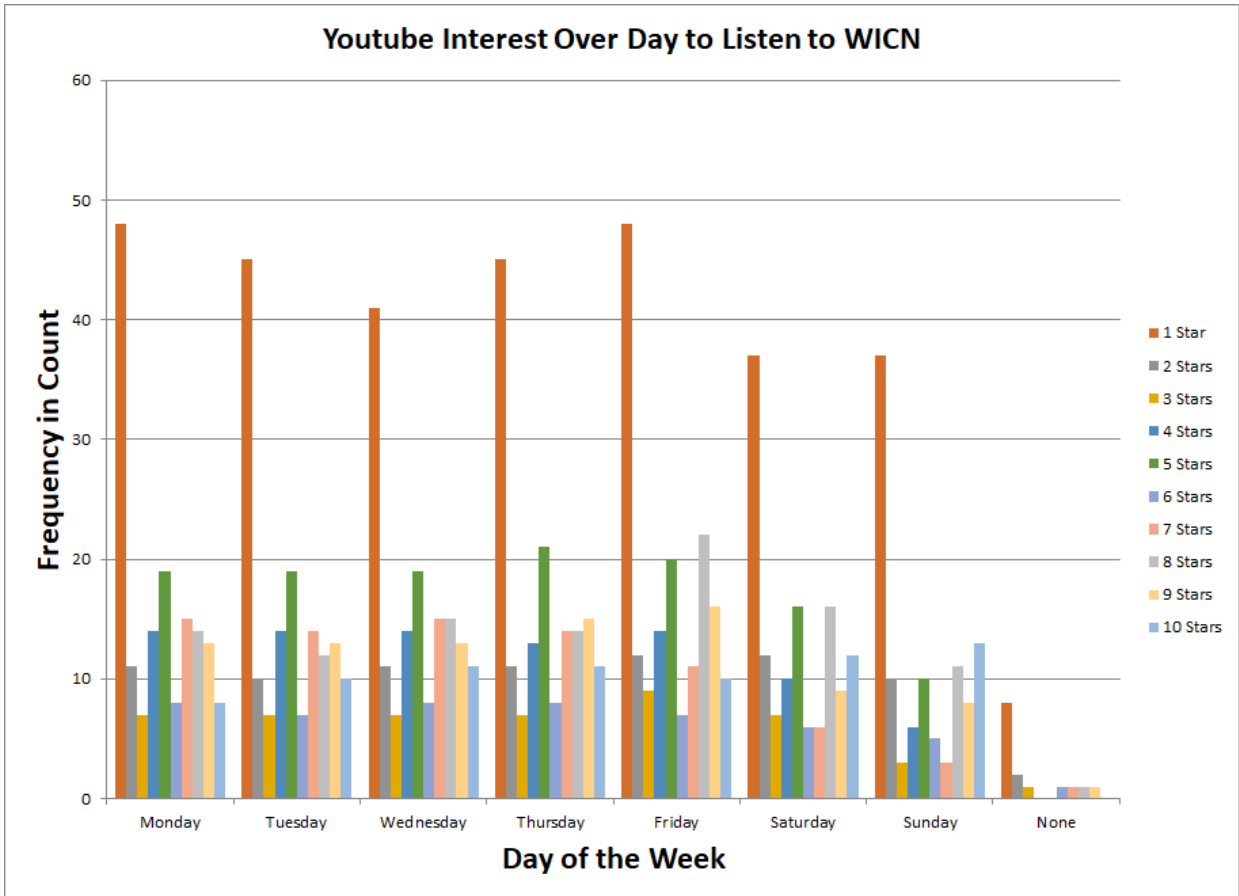*Figure 24. Age over day of the week that people listen to WICN in percentage of time.*

Figure 26. Interest in Youtube over day of the week that people listen to WICN.

Reaching out to younger listeners on Fridays and reaching out through Youtube on Fridays could help answer the research questions "How can WICN make it easier for listeners to connect to WICN's shows?" and "What other platforms should WICN start using?" Figure 24 indicates that reaching out to younger listeners is more likely to be effective on Friday. Friday is the maximum viewership for every age category except for 26-35 year olds and people over 55. This is most likely because people who are not retired get out from work on Fridays and Jazz is an effective way to relax. People who are retired on the other hand don't have that motivation and have more time to listen throughout the week. Figure 26 indicates that if you wish to try and

start reaching out to your listeners through Youtube, Friday is the day most likely for that to be successful. This could be a side effect of younger listeners both listening more on Fridays and liking Youtube more. The data indicates that Fridays are the best day to reach out to younger listeners and to reach out through Youtube in order to accomplish the objectives Attracting Listeners and Improving Engagement.
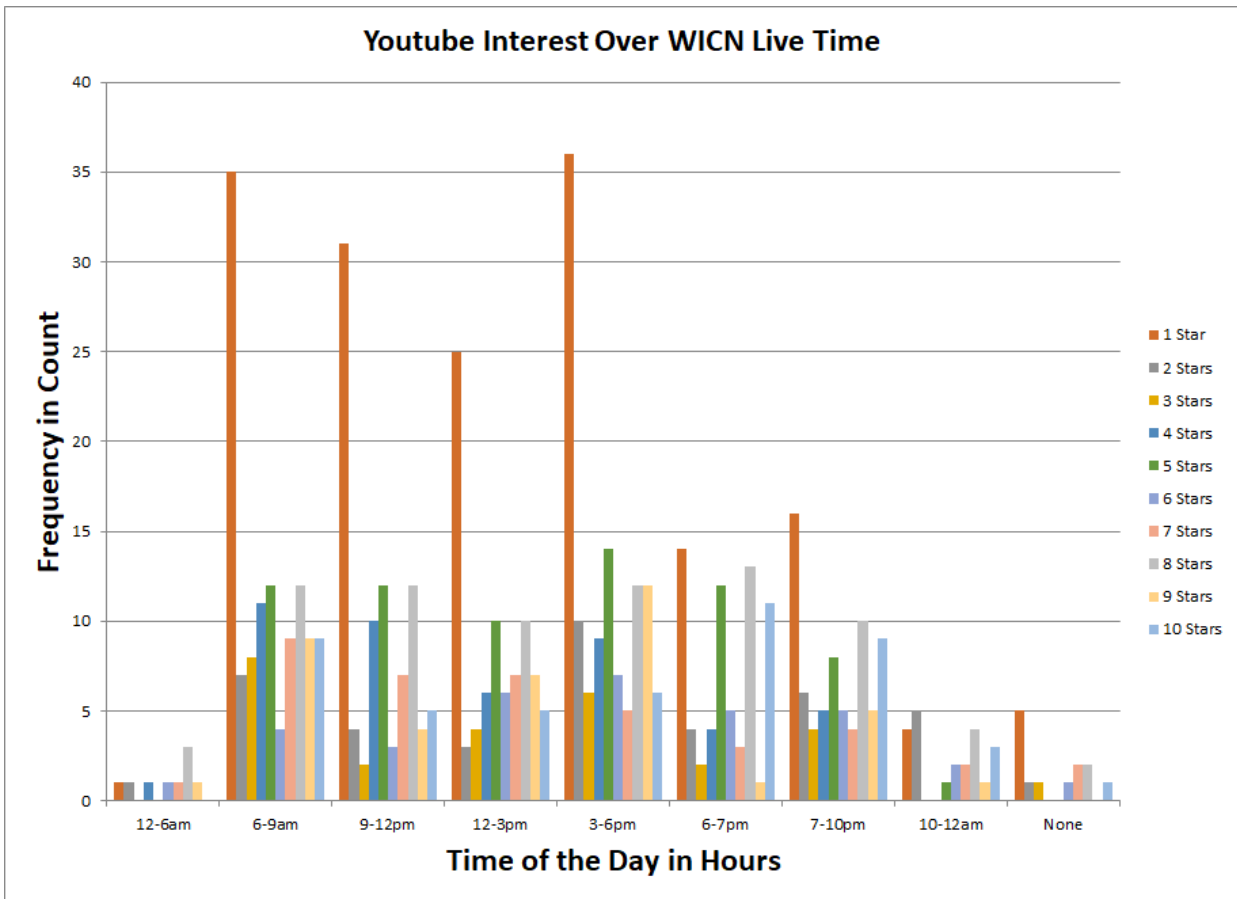
Daytime Patterns

Figure 31. Interest in Youtube over time of the day that people listen to WICN.

Sharing content on Youtube from 6-7pm could help answer the research question "How can WICN make it easier for listeners to connect to WICN's shows?" Figure 31 indicates that 6-7pm would be the most likely time for listeners to be interested in seeing the content connected to Youtube. We reached this conclusion because, not only is it the mode for 10 star ratings, it is also the mode for the fewest 1 star ratings of the times that are not outliers for the

lowest number of entries. Sharing content on Youtube from 6-7pm could help accomplish the objectives of Attracting Listeners and Improving Engagement.
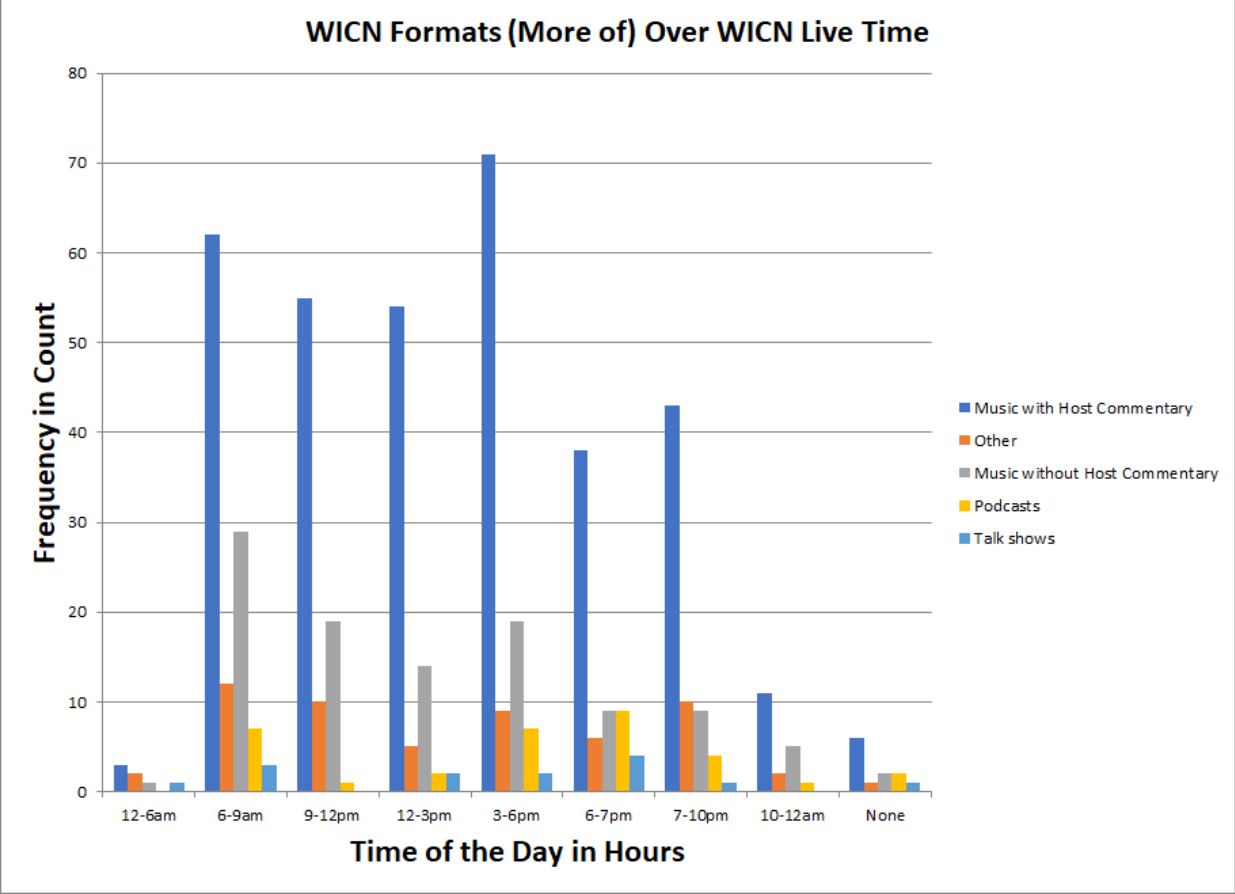
Figure 29. Interest in WICN show formats over time of the day that people listen to WICN.

Keeping mostly shows with music and commentary and adding podcasts or talk shows could help answer the research question "How can WICN better engage listeners?" Figure 29 indicates that listeners love music with host commentary. It also indicates that podcasts and talk shows would be most successful 6-7pm, and that music shows without commentary would be most successful 6-9am. Adding podcasts or talk shows and keeping a majority of shows as

music with commentary could help accomplish the objectives Programming and Improving
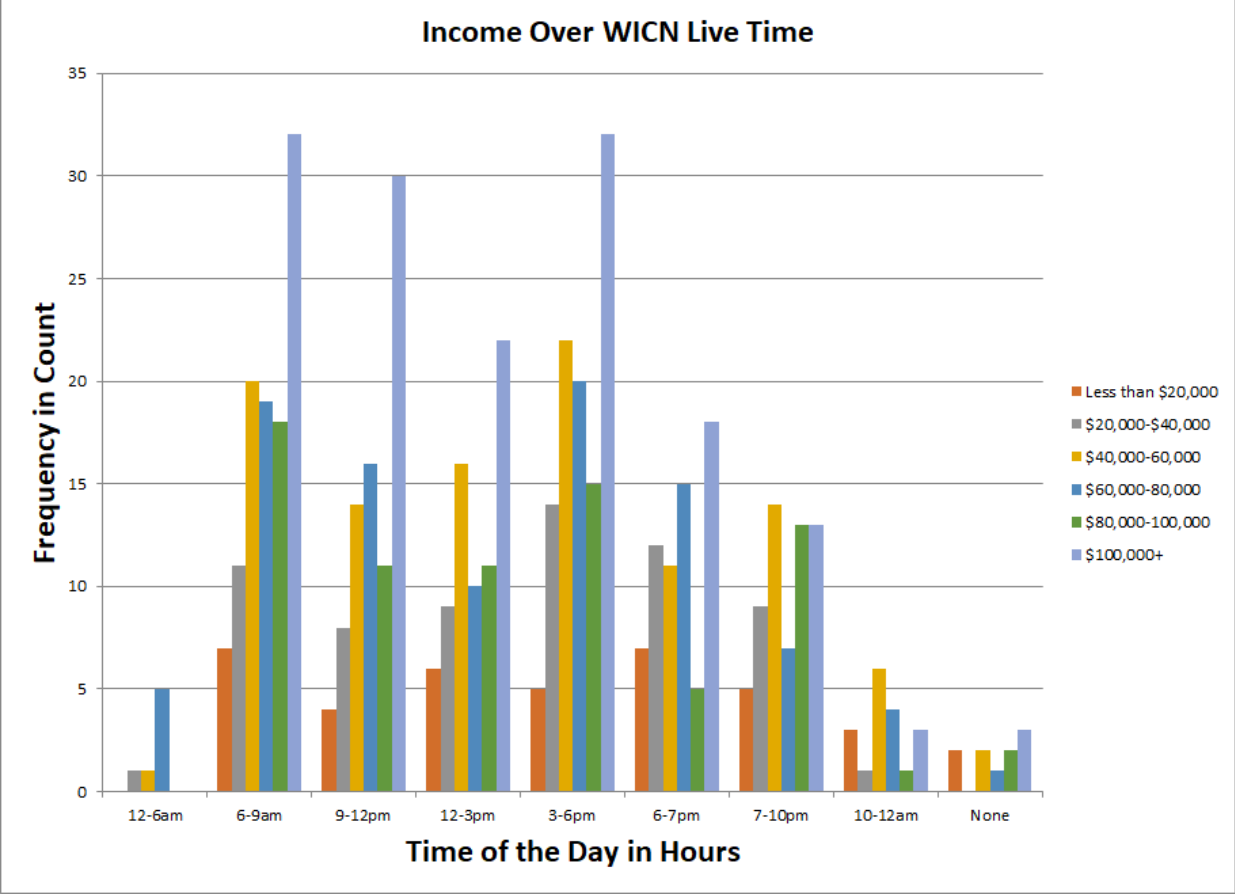
Engagement.

Figure 27. Income in dollars over time of the day in hours that people listen to WICN.

Reaching out to donors 6-noon or 3-6pm could help answer the research question "How

can WICN make it easier for listeners to connect to WICN's shows and hosts?" Figure 27

indicates that if you want to thank or reach out to donors on air, the best times are 3-6pm,

6-9am, and 9-noon. This data follows the common sense that people listening during commute

hours are most likely going to or from work. Thanking donors for their contributions on air

could help make them feel appreciated and they will be more likely to donate again in the

future. Reaching out to donors 6-noon or 3-6pm could help accomplish the objectives Attracting Listeners and Improving Engagement.
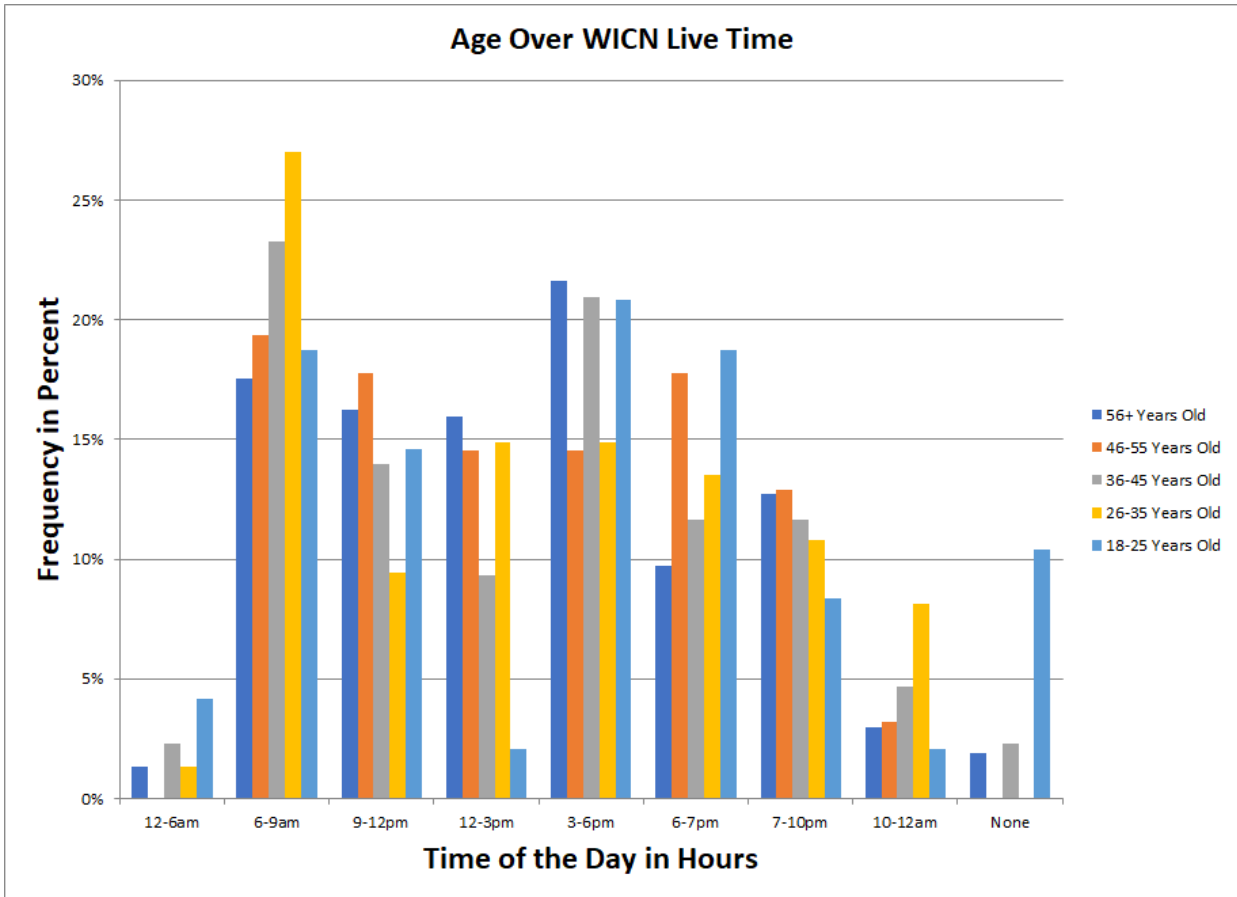

Figure 28. Age in years over time of the day that people listen to WICN in percentage of time.

Reaching out to younger listeners from 6-9am could help answer the research question "How can WICN make it easier for listeners to connect to WICN's shows and hosts?" Figure 28 indicates that 6-9am is the time when reaching out to younger listeners has the highest chance of success. We reached this conclusion because all age categories between 26 and 55 have their maximum during this time. This makes logical sense because people 26-55 are more likely to

have a job than not to, and most jobs don't start until 8 or 9. Reaching out to younger listeners from 6-9am could help accomplish the objective of Attracting Younger Listeners.

Qualitative Data

The qualitative analysis focuses on the general WICN fill-in questions and the fill-in questions for each show/host. The general WICN fill-in questions or main categories were: What things do you like about WICN? And, Is there anything you want WICN to change or improve? We used the data to create a coding framework that separates responses quantifiable into categories and understand what WICN's listeners like, expect, and want from the station by analysing the frequency of each subcategory within that framework. We came up with this framework by deriving the categories from the data and counting how many times each of the comments mentioned one category to compare how common each trend is. Each comment can mention multiple categories so we only allowed a comment to count once per category. The fill-in questions for each show/host produced little data so we created a list of all the comments/suggestions for each show/host in an individual excel file. These files are not included here for the public because the information included in them could be confidential for WICN.

What things do people like about WICN? The following subcategories generally represent listener's responses, they were developed using the WICN listener's survey population. The subcategories can be applied to other future data sets given the same question. The number for each category is the number of times a response mentioned that category as being a reason they like WICN.
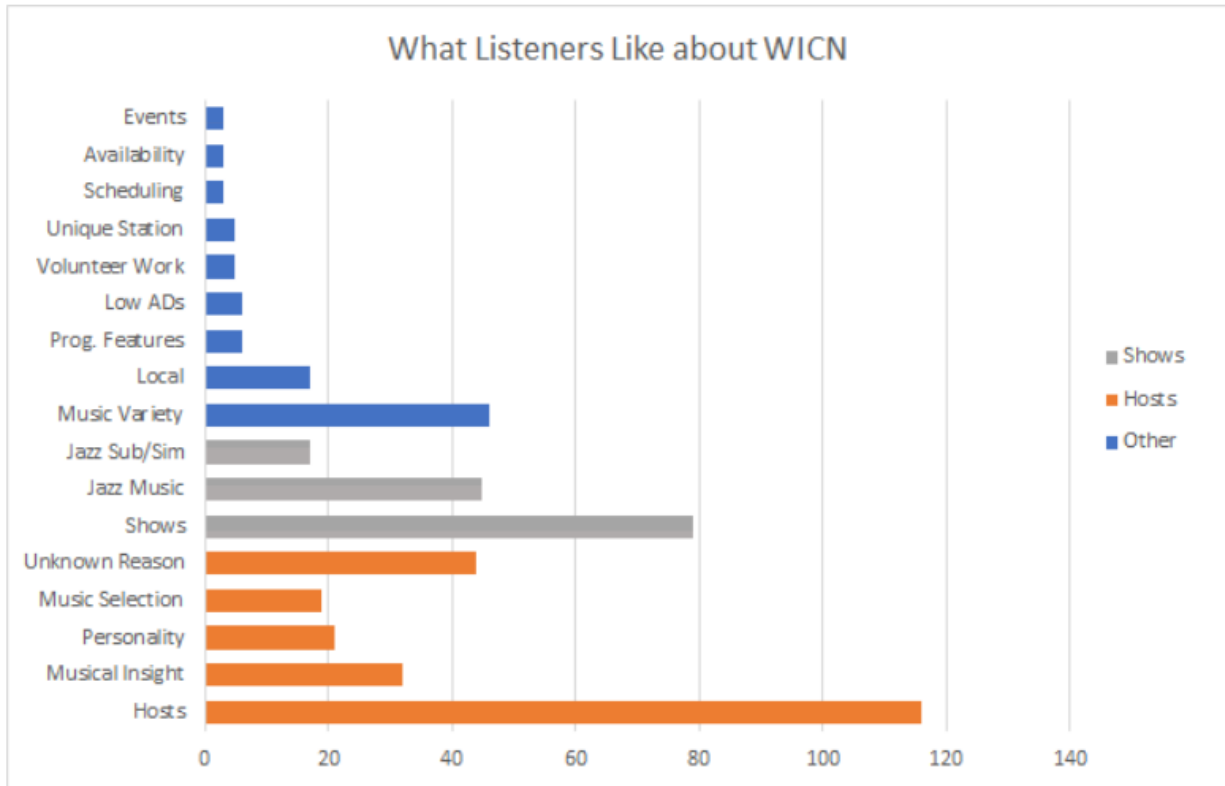
Figure 32. "What things do people like about WICN?" response categories counted

The qualitative subcategories for both histograms are explained in Appendix F. "Shows" is an aggregate category that combines "Jazz Sub/Sim", and "Jazz" music to demonstrate how important shows are overall. "Hosts" is an aggregate category that combines "Unknown reasons", "Music Selection", "Personality", and "Musical Insight". The "Unknown Reason" category means that the participant did not say why they liked the host in particular, some subjects only mentioned a host's name. The most mentioned subject was WICN's hosts but most listeners did not mention a reason they liked a particular host. The most mentioned reason was musical insight but personality and music selection were also important factors. The data suggests that listeners recognize hosts by name more than shows. The shows were still mentioned frequently and listeners mainly liked Jazz music shows. Outside the shows and hosts

the most mentioned category was "Music variety" this result indicates that although many

listeners like jazz they appreciate WICN's eclectic mix of subgenres, similar genres, and other

music. Some listeners also liked that the station is local to Worcester. The rest of the categories

are small. We thought events might be an important category since it was another form of

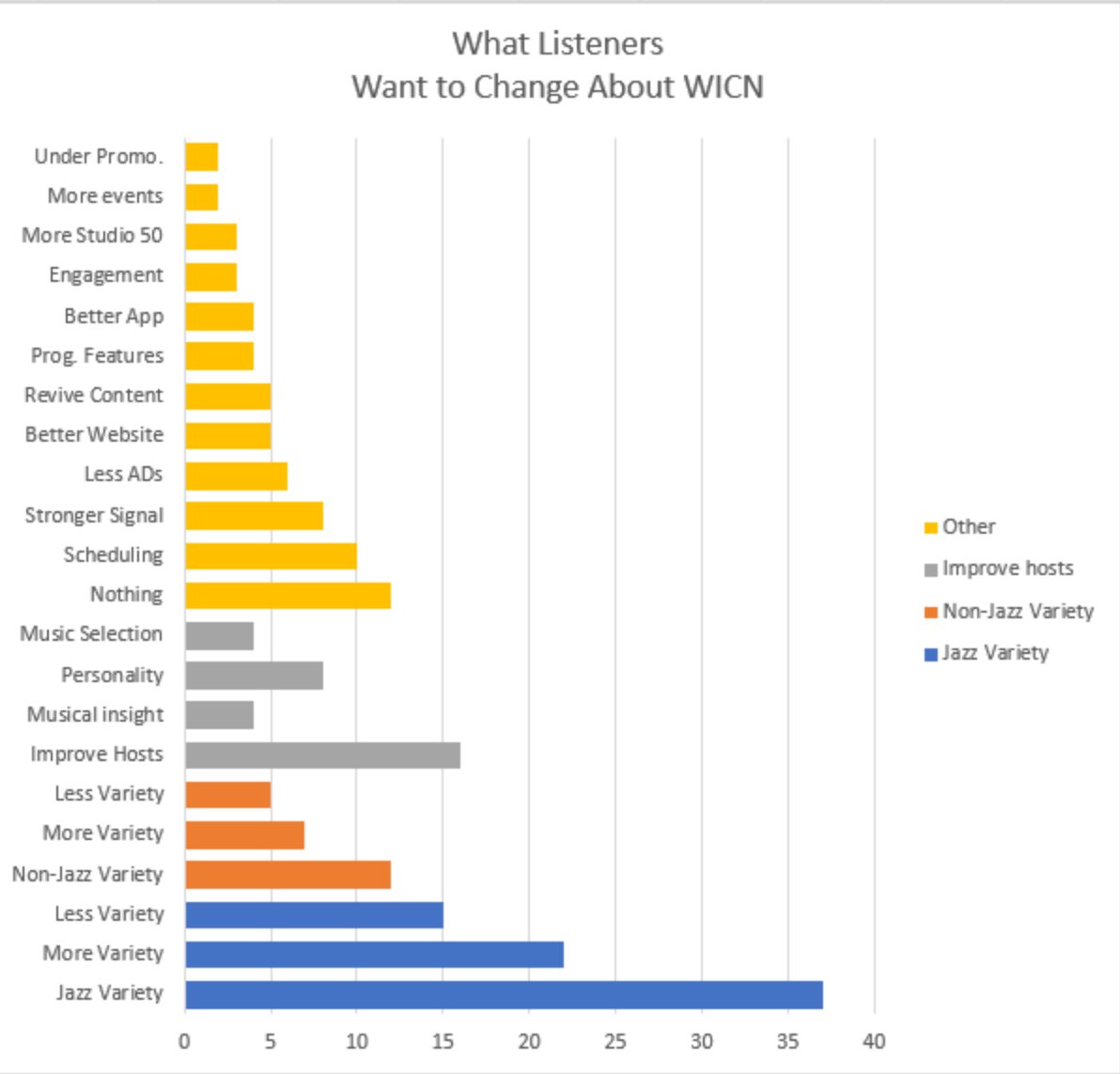real-life engagement. This data suggests events are less significant than we thought.

The count for each subcategory follows similar rules to the previous question except we did not count "neutral" answers where a respondent said they dislike a feature but like that the feature exists for other listeners such as saying, 'I dislike latin jazz but I'm happy WICN plays it for people who do.' The number for each category is the number of times a response mentioned that category as being something they think WICN can improve. Any website complaints were moved to the website analysis section. The "More Variety" sections indicate when listeners said they want more diversity in the types and genres of music played, and the opposite is true for the "Less Variety" sections. The categories "Jazz Variety", "Non-Jazz Variety", and "Improve Hosts" are aggregates of the same color sub-categories. The most mentioned factor to change was the Jazz variety. The split between sides suggests that changing jazz programming might be difficult and likely will not satisfy everyone. For improving the hosts, listeners want to change their personality. Outside of the shows and hosts many listeners wanted nothing to change. We think this indicates they like the station as is but some of those listeners may be resistant to change. Some of these categories may be difficult for WICN to address, such as reviving content, or broadcasting a stronger signal. Instead WICN can focus on the easier but less mentioned categories like underpromotion of features, events, or more studio 50.

Website

WICN's listeners have expressed three main concerns with the website. The first is the need for a real time playlist. One of WICN's listeners asked for WICN to "Please have a real-time playlist on the web site so that I can know what's being played. I often buy mp3 or cd based upon what I hear. It can be hard to remember to write down the date and time so that I can check the WICN website when a playlist is posted a week later." It is great to be able to play the radio right in the website, but listeners also want to be able to see what song is currently playing, the recent songs, and possibly any songs queued up to play next. As this feature was available in a previous version of the website, listeners know what they're missing out on now.

The next concern is the layout. Listeners have expressed that they have trouble finding what they are looking for on the website. One listener said "I can never find what I want on the website." This is a significant issue because the website is supposed to be the definitive source for people to access WICN outside of listening to the radio. The more difficult it is for someone to find what they're looking for, the more likely they will eventually become annoyed or frustrated with the website and will associate this experience with WICN. The other concern that listeners have expressed is that they have difficulty accessing the archives. One listener said "I find on demand web archives difficult to access." This issue has all the same problems as the previous one, with the added factor that it is tied to listening to WICN's shows themselves. If a listener has too much trouble getting to the archive, they might not even listen. In addition, it could become tempting for them to give up and listen to jazz on another platform that is more intuitive.

Social media

A week of WICN's Facebook posts were analyzed to find trends between the top liked posts. For each post, the number of likes was recorded and a set of characteristics of the post were listed. These characteristics included things like landscapes and faces. One of the main trends that was discovered was that posts including faces were liked much more than other posts. This was even more true for posts about celebrities and WICN's hosts. The other trend was that interactive posts that asked listeners to comment with their answer to a question were also liked more. One of the main trends across all the data, both from here and in the survey comments, is that listeners love the hosts. It seems apparent that their personalities are what breath life into WICN and make it unique among jazz radios.

Pictures 14-18. Example liked posts from WICN's Facebook page.
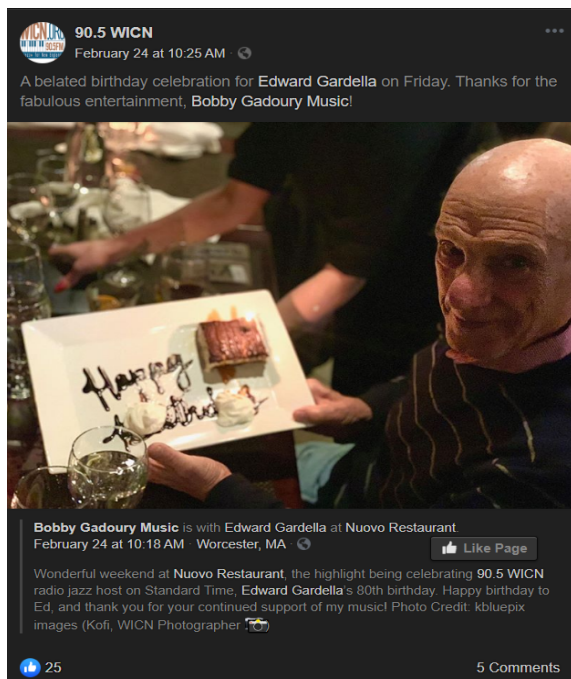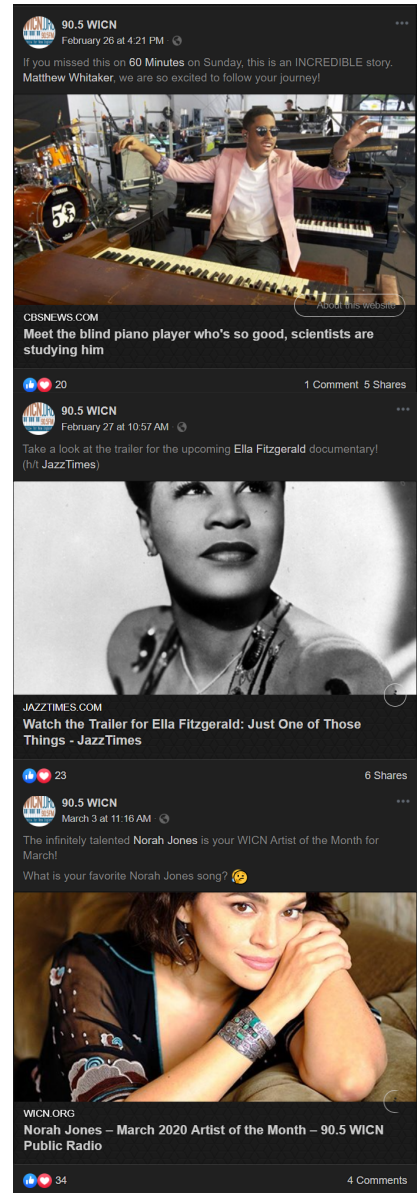
Conclusion

Success of Methods

Our research methods had a few issues depending on the population that future research groups can learn from. Amazon mechanical Turk got many results very quickly, but it yielded questionable data. Some responses seemed inhuman as if people created robots to take surveys for them, so we disregarded these responses as best as we could. If future groups choose to use mechanical turk, they should make sure to have some sort of capcha to verify the subject is human. The population gave few results for qualitative data on WICN, as expected, but we got a lot of data about potential listeners and their genre interests and radio habits.

The data from the general public was good in that it all seemed genuine compared to mechanical turk, but it was much less numerous than the other two surveys. The survey was dristrubuted through email and facebook like the WICN survey. Surveys seem to work better when they are relevant to the target population. Future groups and researchers could reach out to promotional sponsors that are relevant to their research to potentially get more responses and better data. Another major factor that could increase the number of responses is the time the survey is active, so future groups should make sure to release their survey early to give people more time to respond. We were only able to keep it open for two weeks due to logistic errors we ran into getting it started. If we could start this project over again, we would start planning the survey early to get more time for collecting data and analyzing it.

The data from WICN's listeners was the best dataset of the three. This is great for helping WICN cater to their audience, but it is regrettable that this data set does not contain information about potential listeners who do not listen to WICN yet. That being said, this data set received a great number of responses, and most of them included thoughtful comments and criticisms, that WICN may find helpful.

Recommendations

Programming

WICN does not need to change their programming but we have found some ideas they can look at and explore if they choose to. WICN can look at expanding its music genres, creating more shows, and have the audience interact more with the programming. WICN can expand its music genres by looking to other areas of jazz or tapping into other genres. WICN could try creating shows using funk or fusion jazz or jazz from specific jazz scenes such as New Orleans. They could also try more obscure genres such as cajun and zydeco, or swamp pop and see if these shows gain a following. WICN can also expand its latin jazz by playing Boleros, Salsa, Merengue, Nueva Trova, Tango, or spanish Folk music. WICN could also look into modern jazz that is inspired by other music genres such as hip-hop, funk, electronic music, and punk rock.

WICN can create new shows that feature talking or other entertainment. Two of the shows we found, Jazz Night in America, and Jazz Northwest featured great information about live events. WICN could create shows to feature or showcase live music events around

Worcester. Their Brown Bag concert series does air online but other events can help listeners get involved in the local Jazz scene. Possibly shows can record a sample of an event or the host going to an event so listeners can hear what the event sounds like and what the host thinks in the moment. Hosts could get good coverage of events and details surrounding them that attendants may not know. Going to an event is not a controlled studio environment, but an uncontrolled live environment that provides a new listening experience.

WICN hosts could use audience input to mix up their shows and provide more engagement. Hosts could ask for or allow suggestions through social media or WICN's website. Then the hosts would play the song on their next radio show. Suggestions should be within the music genre and appropriate for the music show.

Website
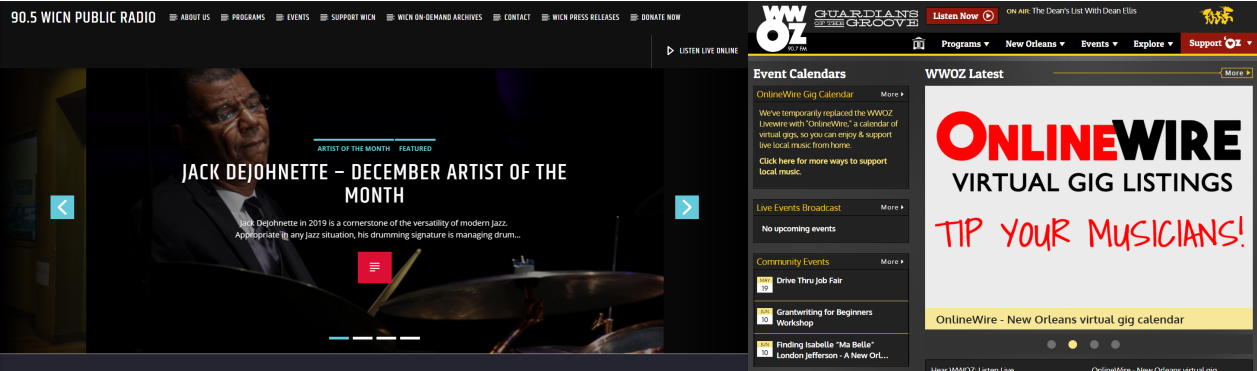
Pictures 19-20. This is a comparison between WICN and WWOZ's website designs. (*WICN Public Radio – Jazz+ for New England*, n.d.), ("WWOZ Home")

WICN's website looks more professional compared to other radio station websites compared to the other radio stations we looked at, but there are still ideas WICN can adopt and small fixes they can consider making. WEIB's idea to have a Dedications page is great! It

encourages users to participate, and their participation becomes free advertising. Very few station websites we looked at had a search bar. KNKX's idea to have a search bar is effective. It enables listeners to easily find what they're looking for. They will have a better experience and be more likely to come back later. KIIS provided a good display of hosts' personalities and connections. WICN could do more to show the host's personality. Hosts do have pages but the information should be consistent for all of them, possibly including an about section, contact information, social media, stories, and a picture of them. Promoting the hosts better on the website could lead to listeners finding a host interesting and then tuning in to listen to their show when it airs. WICN should also have a filtered search feature so people can easily find hosts or other WICN people or shows.

Social Media

WICN could use twitter to engage people differently. Twitter could be used to retweet posts made by WICN hosts that relate to their show. This practice may better connect people to their favorite hosts and shows and make the station seem more personal. Twitter polls could be used to get small amounts of data from their audience or help a host decide what to do for a particular show. Polls do not need to be complicated and can be easily created. They are an informal way to research statistics since they are short no prior approval is needed. WICN should provide more ways for their audience to connect with hosts and shows. Website profiles can provide good information but could provide more interaction. Hosts could provide social media pages or other means to talk to fans. Connecting people to shows will help people interact with what they enjoy, and help the hosts and shows gain valuable feedback. WICN can

film their talk shows, podcasts, and other non-music shows, and upload them to youtube. Live performances can be good to film if they are original songs or improvised. WICN can also focus on personality. Many youtubers have editors or other youtubers they work with but the end videos show the youtuber's online personality. Creating many online personalities can be tricky for a media company that produces many different shows.

Apps

Many of the apps for the radio stations we looked at have menu options that just link to different pages of the website. This design feels unintuitive and discourages people from using the app in the first place. Having the option of listening to the radio station directly in the app helps lower the barrier of access to the radio station. Many of these apps don't take advantage of the smart device platform such as location, swiping, or tilting. Many apps follow a trend to recreate the radio station's website somewhere else. We found little information about the app through the survey, but through our analysis, WICN's app functions well compared to other radio station apps. The app accurately recreates WICN's website and does not take advantage of the smart device platform. Further research could involve creating an app for WICN that stands out from the competition and takes advantage of the smart device platform.

Events

WICN could promote outside events like other stations we found. It is a great idea for radio stations to advertise community events created by local businesses they communicate with. This practice strengthens the radio's relationship with the business, helps the business, and helps listeners find more local events to possibly attend. This helps all parties involved,

encouraging businesses to have more interactions in the future, and encouraging listeners to choose this radio station over others because of the useful information. We recommend that WICN or future projects investigate this connection further to see if there is evidence to support it. Hosting a jazz festival or being in an area famous for jazz are great but they are not as much of a possibility for WICN as other options. Hosting a reasonably sized festival costs more than "between £60,000 and £100,000" (between $73,200 and $122,000) (Forde, 2015). As WICN is a nonprofit, they are most likely not in a position to take on that kind of financial burden. Jazz festivals take a lot to pull off and are costly without seeing a return on the investment for a long time.

Final Suggestions

The survey and analysis resulted in at least eleven suggestions that the data indicates would benefit WICN. First, focus on your hosts, they are the heart of the station. This is indicated in both types of data, the trend of likes in the social media analysis, and comments such as "(One of WICN's hosts) has a great sense of humor and wonderful personality." Next, add the playlist to the website and make the archives more accessible. Survey participants indicated that these were weak points in the website that could be improved. After that, increase the variety of jazz songs. Play more subgenres such as Acid Jazz, Dixieland, or Ragtime, especially at times when there are more young listeners listening. Reach out to younger listeners when more are listening, such as 6-9am and Fridays. None of our data indicated a particular manner to reach out to them so we trust your judgement as the radio experts. The Public Eye has the strongest correlation to the interest of younger listeners, so it could be a great place to

reach out to them. Next, reach out to donors and potential donors during commute hours. Both data and common sense indicate that people who work are more likely to be listening during their commute to and from work. Business Beat has the strongest correlation to income, so it could be a great place to reach out to donors as well. After that, add talk shows and podcasts at 6-7pm. The data indicates that listeners are interested in listening to talk shows and podcasts then. Lastly, increase your presence on Youtube. The data indicates that of all the social media platforms, Youtube is the most likely to be successful at attracting younger listeners. Through combining the recommendations you find feasible, you will have a better chance attracting younger listeners.

Authorship

The Abstract was written by Benjamin Slattery. The Executive Summary was written by Benjamin Slattery. The Introduction was co-written by Ben M'Sadoques and Benjamin Slattery and revised by the latter. The Background was co-written and revised by Ben M'Sadoques and Benjamin Slattery. The Methodology was co-written and revised by Ben M'Sadoques and Benjamin Slattery. The Data Analysis was written by Benjamin Slattery. The Conclusion was written and revised by Benjamin Slattery.

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Appendices

Appendix A - Recommendations

1. Focus on your hosts, they are the heart of the station.

2. Add the playlist to the website.

3. Make the archives more accessible.

4. Increase the variety of jazz songs.

5. Reach out to younger listeners when more are listening, such as 6-9am and Fridays.

6. Reach out to donors and potential donors during commute hours.

7. Add talk shows and podcasts at 6-7pm.

8. Increase your presence on Youtube.

9. Play more Acid Jazz, Dixieland, or Ragtime, especially at times when there are more young listeners listening.

10. The Public Eye has the strongest correlation to the interest of younger listeners, so it could be a great place to reach out to them.

11. Business Beat has the strongest correlation to income, so it could be a great place to reach out to donors.

Appendix B - Younger Audience Event Charts
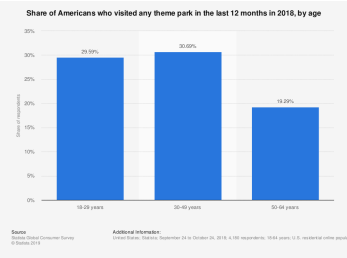
Figure 18. ("Visitors of Theme Parks", Statista)
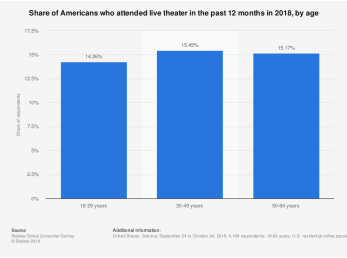
Figure 19. ("Visitors of Live Theater", Statista)
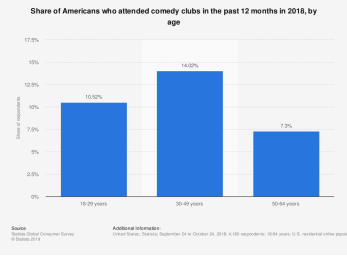
Figure 20. ("Visitors of Comedy Clubs", Statista)
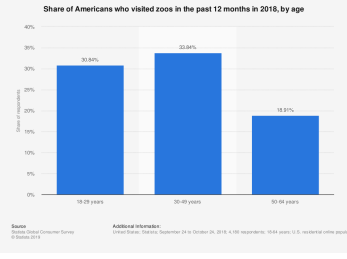
Figure 21. ("Visitors of Zoos", Statista)
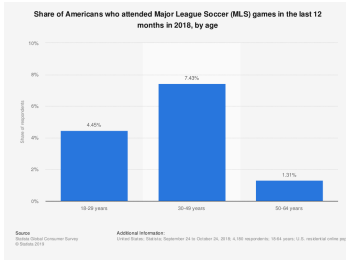
Figure 22. ("Attendees of Soccer", Statista)
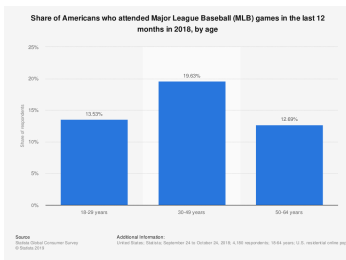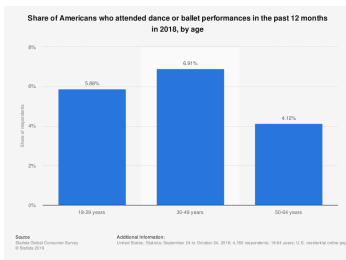

Figure 23. ("Attendees of Baseball", Statista)

Figure 24. ("Visitors of Dance", Statista)

Appendix C - IRB Questionnaire Questions

Survey questions:

Section 1: Personal Information section

      1.   What is your age?

            1.1.   Under 18 (exit survey)

            1.2.   18-25

  1.3. 26-35

  1.4. 36-45

  1.5. 46-55

  1.6. 56+

2. What is your gender?: (optional)

  2.1. Male

  2.2. Female

  2.3. Non-binary

  2.4. Prefer not to say

  2.5. Other

3. What is your ethnicity? (optional)

  3.1. White / Caucasion

  3.2. Hispanic / Latino

  3.3. Black / African American

  3.4. Asian

  3.5. Prefer not to say

4. Where do you live? (optional)

  4.1. Worcester Massachusetts, USA (United States of America)

  4.2. Central Massachusetts, USA

  4.3. Prefer not to say

  4.4. Outside the USA (fill-in)

5. What household income bracket are you in? (optional)

5.1. Less than $20,000

5.2. $20,000.01-40,000

5.3. $40,000.01-60,000

5.4. $60,000.01-80,000

5.5. $80,000.01-100,000

5.6. $100,000.01+

5.7. Student

5.8. Unemployed

6. Approximately, how many hours of music do you listen to each week?

6.1. A discrete slider from 0 to 48 hours

7. Do you listen to the radio?

7.1. Yes

7.2. No

8. Have you ever listened to 90.5 WICN? (only for general audience)

8.1. Yes

8.2. No

Section 2: Jazz Subgenres Information

This section randomly selects 10 of 25 clips to show to each user. The audio-only clips are songs that each represent our categories in Jazz subgenres. For each clip, we ask the person to listen for a few seconds then we ask how much the person enjoyed the clip, we do not reveal which subgenre the clip belongs to.

9. Acid Jazz: Us3 "Cantaloop"

9.1.   How much did you enjoy this song on a scale from 1 to 10, 10 being the most enjoyable.

10.   Avant-Garde Jazz: Ornette Coleman "Free Jazz"

10.1.   How much did you enjoy this song rate 1 to 10, 10 being the most enjoyable.

11.   Bebop: Charlie Parker & Dizzy Gillespie "The Quintet: Jazz at Massey Hall"

11.1.   How much did you enjoy this song rate 1 to 10, 10 being the most enjoyable.

12.   Big Band: Benny Goodman "The Famous 1938 Carnegie Hall Jazz Concert"

12.1.   How much did you enjoy this song rate 1 to 10, 10 being the most enjoyable.

13.   Blue Note: John Coltrane "Blue Train"

13.1.   How much did you enjoy this song rate 1 to 10, 10 being the most enjoyable.

14.   Cool: Dave Brubeck "Time Out"

14.1.   How much did you enjoy this song rate 1 to 10, 10 being the most enjoyable.

15.   Dixieland: Louis Armstrong - "West End Blues"

15.1.   How much did you enjoy this song rate 1 to 10, 10 being the most enjoyable.

16.   Electro Swing: "Party like it's 1920" the Swinghoppers and Wolfgang Lohr

16.1.   How much did you enjoy this song rate 1 to 10, 10 being the most

enjoyable.

17.   Fusion: Miles Davis "Bitches Brew"

17.1.   How much did you enjoy this song rate 1 to 10, 10 being the most

enjoyable.

18.   Hard Bop: Art Blakey and the Jazz Messangers "Moanin"

18.1.   How much did you enjoy this song rate 1 to 10, 10 being the most

enjoyable.

19.   Hip Hop Jazz: Lo Greco Bros, Flow Bop "Living Jazz"

19.1.   How much did you enjoy this song rate 1 to 10, 10 being the most

enjoyable.

20.   Latin Jazz: Mongo Santamaría "Quiet Fire"

20.1.   How much did you enjoy this song rate 1 to 10, 10 being the most

enjoyable.

21.   Modal Jazz: Miles Davis "Kind of Blue"

21.1.   How much did you enjoy this song rate 1 to 10, 10 being the most

enjoyable.

22.   Ragtime: Scott Joplin "Maple Leaf Rag"

22.1.   How much did you enjoy this song rate 1 to 10, 10 being the most

enjoyable.

23.   Smooth Jazz: Kenny G "Silhouette"

23.1.   How much did you enjoy this song rate 1 to 10, 10 being the most

enjoyable.

Section 3: Radio Listening section:

If the person answered "Yes" to question 7. "Do you listen to the radio?" They will be

sent to this section. If they answer "No" they will not see this section.

24.   How do you usually listen to the radio? Select all that apply. (multiple select)

24.1.   Car radio

24.2.   Portable radio

24.3.   Internet radio stations

24.4.   Smartphone apps

24.5.   Radio broadcast streaming on other websites such as IheartRadio,

Radio.com, Tunein.com, Youtube.com, etc.

25.   Approximately, how many hours of radio broadcast content do you listen to each

week? (optional)

25.1.   A discrete slider from 0 to 48 hours

26.   What times do you most often listen to the radio? (optional) (multiple select)

26.1.   12-6am

26.2.   6-9am

26.3.   9-12pm

26.4.   12-3pm

26.5.   3-6pm

26.6. 6-7pm

26.7. 7-10pm

26.8. 10-12am

26.9. None

27. What days of the week do you most often listen to the radio (multiple select)

27.1. Monday

27.2. Tuesday

27.3. Wednesday

27.4. Thursday

27.5. Friday

27.6. Saturday

27.7. Sunday

27.8. None

28. Which radio listening habit best fits you? (optional)

28.1. I usually stick to one radio station for a session.

28.2. I usually hop between my favorite preset channels.

28.3. I usually scan various channels for something to listen to.

28.4. Other (fill in)

Section 4: WICN section:

If the person answered "Yes" to question 8. "Do you listen to 90.5 WICN?" They will be sent to this section. If they answer "No" they will not see this section.

29.   How do you usually listen to the WICN? (multiple select)

29.1.   Car radio

29.2.   Portable Radio

29.3.   Satellite Radio

29.4.   WICN's website player

29.5.   WICN's smartphone apps

29.6.   On demand streaming

29.7.   Other streaming services such as Tunein.com

30.   What times do you most often listen to WICN's live broadcast? (multiple select)

30.1.   12-6 am

30.2.   6-9 am

30.3.   9-12 pm

30.4.   12-3 pm

30.5.   3-6 pm

30.6.   6-7 pm

30.7.   7-10 pm

30.8.   10-12 am

30.9.   None

31.   What days of the week do you listen to WICN? (multiple select)

31.1.   Monday

31.2.   Tuesday

31.3.   Wednesday

31.4.   Thursday

31.5.   Friday

31.6.   Saturday

31.7.   Sunday

31.8.   None

32.   How often do you listen to WICN's on demand shows?

32.1.   Once a day

32.2.   4-6 times a week

32.3.   2-3 times a week

32.4.   Once a week

32.5.   Once a month

32.6.   Less than once a month

32.7.   Never

33.   What types of show formats do you think WICN could air more of?

33.1.   Music with host commentary

33.2.   Music without host commentary

33.3.   Talk shows

33.4.   Podcasts

33.5.   Other (fill-in)

Section 4.1: WICN on demand content

If the person did not answer "never" to question 33. "How often do you listen to

WICN's on demand shows?" they will see this subsection

34. What times do you most often listen to WICN's on demand content? (multiple select)

    34.1. 12-6 am

    34.2. 6-9 am

    34.3. 9-12 pm

    34.4. 12-3 pm

    34.5. 3-6 pm

    34.6. 6-7 pm

    34.7. 7-10 pm

    34.8. 10-12 am

    34.9. None

35. Why do you listen to WICN's on demand content?

    35.1. Some of the shows I listen to are not aired when I want to listen to WICN

    35.2. I prefer listening to WICN on demand

    35.3. I want to explore other shows

    35.4. Other (fill in)

Section 4.2: WICN section:

Section 4 continued.

36. What things do you like about WICN? (optional)

    36.1. (Multi-line free response)

37. Are there any things you want WICN's music to change or improve? (optional)

    37.1. (Multi-line free response)

38. In case you didn't know, WICN has a website, Facebook page, Twitter profile, and Instagram profile to engage their listeners. So feel free to give them feedback there too!

39. How interested are you in WICN's website?

   39.1. Rate interest 1 to 10 stars, 10 being the most interested.

40. How interested are you in seeing WICN's content on Facebook?

   40.1. Rate interest 1 to 10 stars, 10 being the most interested.

41. How interested are you in seeing WICN's content on Twitter?

   41.1. Rate interest 1 to 10 stars, 10 being the most interested.

42. How interested are you in seeing WICN's content on Instagram?

   42.1. Rate interest 1 to 10 stars, 10 being the most interested.

43. How interested are you in seeing WICN's content on Youtube?

   43.1. Rate interest 1 to 10 stars, 10 being the most interested.

Section 5: WICN Programming section (Correct Qualtrics)

   Continues Section 4. WICN shows have been separated into groups

44. The WICN shows are broken into categories. For each category, select the ones you listen to below.

45. Daily jazz shows (multiple select)

   45.1. Morning Vibe Time with Michelle Wilson

   45.2. Jazz Highways with Joe Cicero

   45.3. The Blend with Tyler Alderson

45.4.   The Friday Blend with Rick Mccarthy

45.5.   Standard Time

45.6.   Jazz Overnight

45.7.   None

46.   Weekly jazz shows (multiple select)

46.1.   Return to the source with Doug Turner

46.2.   Artistry of Jazz with Ben Young

46.3.   Jazz 360 with Dana Robbins

46.4.   Jazz Matinee with Pamela Hines

46.5.   Cafe Jazz with Richard (Gene) Knight

46.6.   New Orleans Grooves with Tony Baglio

46.7.   Jazz Freeway with Rick McCarthy

46.8.   The Saturday Swing Session Howard Caplan

46.9.   American Standards by the Sea with Dick Robinson

46.10.   Duke Robillard's Mood Room

46.11.   Heaven's Radio with Tyler Alderson

46.12.   None

47.   Jazz sub genres or genres like jazz (multiple select)

47.1.   Friends of the Blues with "Shuffle Shoes the Blues Guru" and Dr. Skyy

47.2.   Colors of Jazz with Bonnie Johnson

47.3.   Soul Serenade with Tom Shaker

47.4.   Latin Jazz Now! with Jim Benitez

47.5.   Roots of Smooth with Bobby Jackson-+

47.6.   Sunday Jazz Brunch with Marty Friedman

47.7.   None

48.   Music outside of jazz (multiple select)

48.1.   Against The Grain with Jerry Robertson

48.2.   Positive Noise with Uncle Mark

48.3.   Folk Revival with Nick Noble

48.4.   Bluegrass Junction with Tom Banyai

48.5.   Rhythms of the World with Howard Caplan

48.6.   The Groove with Lucas Cardwell

48.7.   None

49.   Talk shows or Podcasts (multiple select)

49.1.   Judy Carmichael's Jazz Inspired

49.2.   Noah's Arc with Noah Preminger

49.3.   Radio Deluxe with John Pizzarelli

49.4.   Public Eye with Al Vuona

49.5.   Business Beat with Erin Hayes and Ian Barrett

49.6.   Inquiry with Mark Lynch

49.7.   None

50.   For each show the person listens to we will ask:

50.1.   How much do you like this show?

50.1.1.   A rating from 1 to 10 stars, 10 being highest enjoyment

50.2.   What do you enjoy about the show? (optional)

    50.2.1.   (fill-in free response)

50.3.   What would you change about the show? (optional)

    50.3.1.   (fill-in free response)

50.4.   How much do you like this host?

    50.4.1.   A rating from 1 to 10 stars, 10 being highest liked

50.5.   What do you enjoy about the host? (optional)

    50.5.1.   (fill-in free response)

50.6.   What would you like the host to do differently? (optional)

    50.6.1.   (fill-in free response)

Section 6: WICN Website section:

If the person answered "Yes" to section WICN question 8. "Have you been to WICN's website?" They will be sent to this section. If they answer "No" they will not see this section.

51.   How often do you use WICN's website?

    51.1.   Once a day

    51.2.   4-6 times a week

    51.3.   2-3 times a week

    51.4.   Once a week

    51.5.   Once a month

    51.6.   Occasionally

    51.7.   Never

52. What do you use the website for? (multiple select)

    52.1. Looking up information on WICN shows, hosts, or the station

    52.2. Keeping up with station updates

    52.3. Learn about WICN events

    52.4. Listening to the website player

    52.5. Listening to archived content

    52.6. Accessing playlists

    52.7. Other (Fill-in)

53. Did you find what you were looking for?

    53.1. Yes

    53.2. No

54. If No: What were you seeking? (optional)

    54.1. (fillin)

55. How easy was it to navigate the website?

    55.1. Difficulty slider 1 to 10, 10 being most difficult

56. What features do you think WICN's website could use? (optional)

    56.1. (Multi-line Fill-in response)

57. What else do you think WICN's website could use or change? (optional)

    57.1. (Multi-line Fill-in response)

Section 7a: WICN Social Media section: Facebook

If the person filled in at-least 2 stars for question 40. "How interested are you in seeing WICN's content on Facebook?" They will be sent to this section.

58.   The following questions are about WICN's Facebook page.

59.   What kinds of posts do you usually like to see from WICN on facebook? (multiple select)

    59.1.   Station or show updates

    59.2.   Events

    59.3.   Videos

    59.4.   Photos

    59.5.   Articles

    59.6.   Other posts

    59.7.   I don't know

    59.8.   Anything

    59.9.   Nothing

    59.10.   Other (Fill-in)

60.   What content do you think WICN could post more of for facebook? (multiple select)

    60.1.   Station or show updates

    60.2.   Events

    60.3.   Videos

    60.4.   Photos

    60.5.   Questions

60.6.   Articles

60.7.   Other posts

60.8.   I don't know

60.9.   Anything

60.10.   Nothing

60.11.   Other, suggestions (Fill-in)

61.   What would you like WICN to change about their Facebook presence? (optional)

61.1.   (Fill-in Response)

Section 7b: WICN Social Media section: Twitter

If the person filled in at-least 2 stars for question 41. "How interested are you in seeing WICN's content on Twitter?" They will be sent to this section.

62.   The following questions are about WICN's Twitter page.

63.   What kinds of tweets do you usually like to see from them on twitter? (multiple select)

63.1.   Station or show updates

63.2.   Events

63.3.   Articles

63.4.   Photos

63.5.   Videos

63.6.   Retweets

63.7.   I don't know

63.8.　Anything

63.9.　Nothing

63.10.　Other (Fill-in)

64.　What content do you think they could post more of for twitter? (multiple select)

64.1.　Station or show updates

64.2.　Events

64.3.　Articles

64.4.　Photos

64.5.　Videos

64.6.　Retweets

64.7.　I don't know

64.8.　Anything

64.9.　Nothing

64.10.　Other (Fill-in)

65.　What new content might you like WICN to tweet? (optional)

65.1.　(Fill-in Response)

Section 7c: WICN Social Media section: Instagram

If the person filled in at-least 2 stars for question 42. "How interested are you in seeing WICN's content on Instagram?" They will be sent to this section.

66.　The following questions are about WICN's Instagram page.

67. What kinds of posts do you usually like to see from them on Instagram?

(multiple select)

    67.1. Station or show updates

    67.2. Photos

    67.3. Videos

    67.4. Events

    67.5. I don't know

    67.6. Anything

    67.7. Nothing

    67.8. Other (Fill-in)

68. What content do you think they could post more of for Instagram?

    68.1. Station or show updates

    68.2. Photos

    68.3. Videos

    68.4. Events

    68.5. I don't know

    68.6. Anything

    68.7. Nothing

    68.8. Other (Fill-in)

69. What new content would you like WICN to post or create?

    69.1. (Fill-in Response)

Section 8: WICN Youtube section:

If the person filled in at-least 2 stars for question 43. "How interested are you in seeing WICN's content on Youtube?" They will be sent to this section.

70. What type of content would you want to see on Youtube?

70.1. Recorded Performances

70.2. Interviews

70.3. Live Performances

70.4. Archived shows

70.5. WICN's Live Broadcast

70.6. Other (Fill-in)

Appendix D - Consent Scripts

Introduction:

We are students at Worcester Polytechnic Institute studying Jazz subgenre interest and 90.5 WICN's listener engagement. This survey should take about 10 minutes, depending upon your listener habits. The survey is voluntary.

You are being asked to participate in a research study. You must be fully informed about the purpose of the study, the procedures to be followed, and any benefits, risks or discomfort that

you may experience as a result of your participation. This form presents information about the study so that you may make a fully informed decision regarding your participation.

Do you have time to answer a short questionnaire on your Jazz subgenre preferences and radio listening habits?

Purpose:

The data collected will be used to improve WICN's programming and potentially make it more engaging for listeners.

Procedures to be followed:

This online survey will take 5 to 15 minutes to complete. One section includes audio samples. You can listen to them for as long as you'd like. The survey may not work perfectly with all devices. It works best on desktop. If you are using an iPhone, please hold the phone horizontal, especially for questions asking you to rate 1-10 stars to make sure all the stars are displayed.

Risk to study participants:

The survey involves sharing your age within age brackets; some optional demographic information; listening preferences; times; and your opinions.

Benefits to research participants and others:

There is no direct benefit, though WICN may use the collected feedback to create even more engaging programming and share social media content that could be of deeper interest to you should you decide to listen to 90.5 WICN.

Record Keeping and Confidentiality:

The aggregate data, including optional free response answers, will be published online in an Interactive Qualifying Project report about WICN's listeners and radio listeners in general, being studied by students at Worcester Polytechnic Institute. Records of your participation in this study will be held confidentially so far as permitted by law. However, the study investigators, the sponsor or its designee and, under certain circumstances, the Worcester Polytechnic Institute Institutional Review Board (WPI IRB) will be able to inspect and have access to the confidential raw data. Any publication or presentation of the data will not identify you.

Compensation or treatment in the event of injury:

You do not give up any of your legal rights by signing this statement. There is no risk of physical injury.

For more information about this research or about the rights of research participants, or in case of research-related injury, contact:

Project Advisor and Principal Investigator:

Barton, Scott D. sdbarton@wpi.edu

Student Investigator 1:

M'Sadoques, Benjamin G, Email: bgmsadoques@wpi.edu

Student Investigator 2:

Slattery, Benjamin O., Email: boslattery@wpi.edu

Worcester Polytechnic Institute Institutional Review Board Manager:

Ruth McKeogh, Tel. 508 831- 6699, Email: irb@wpi.edu

Worcester Polytechnic Institute Human Protection Administrator:

Gabriel Johnson, Tel. 508-831-4989, Email: gjohnson@wpi.edu

Your participation in this research is voluntary:

Your refusal to participate will not result in any penalty to you or any loss of benefits to which you may otherwise be entitled. You may decide to stop participating in the research at any time without penalty or loss of other benefits. The project investigators retain the right to cancel or postpone the experimental procedures at any time they see fit. This survey is optional and most questions are optional, you may skip any questions you do not want to answer.

Appendix E - Quantitative Analysis
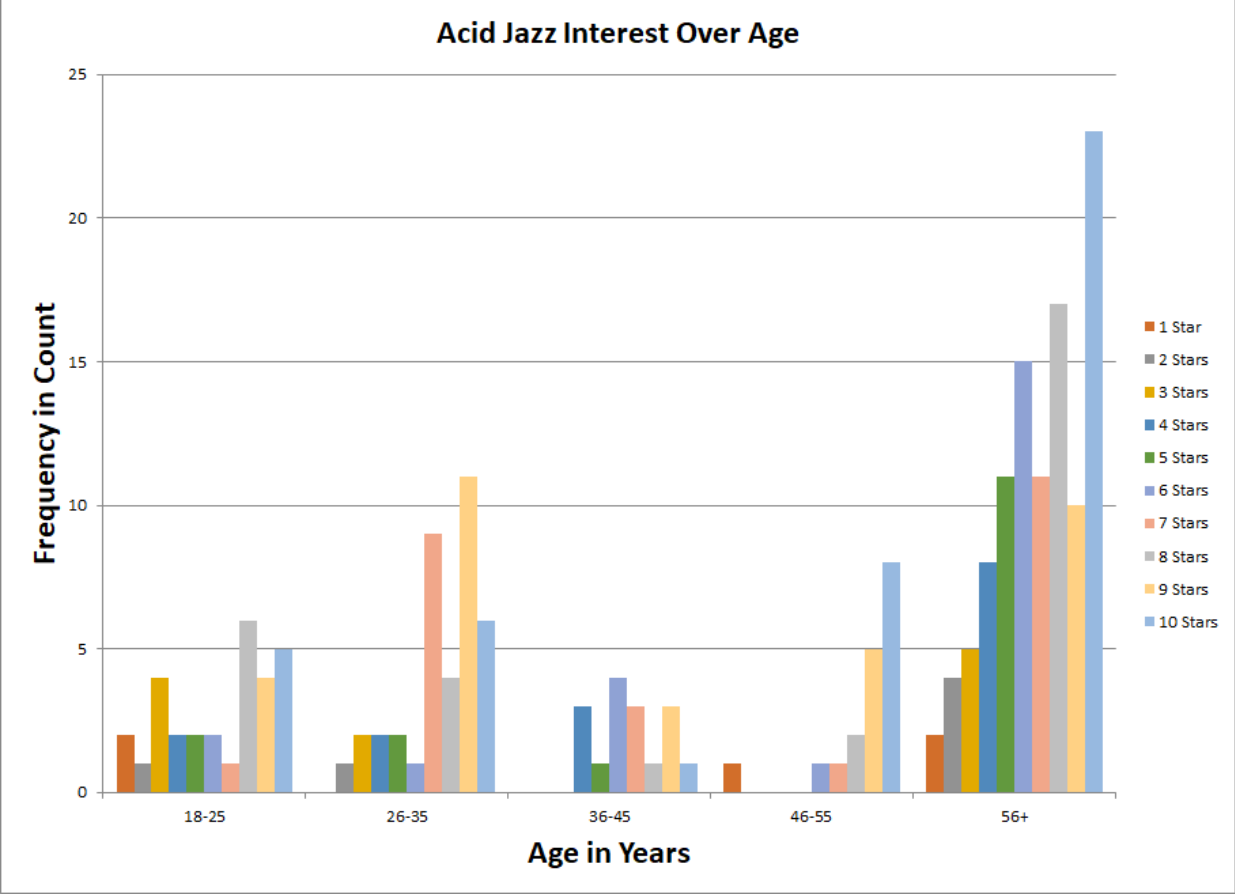
Figure 4. Interest in Acid Jazz rated out of 10 over age in years.
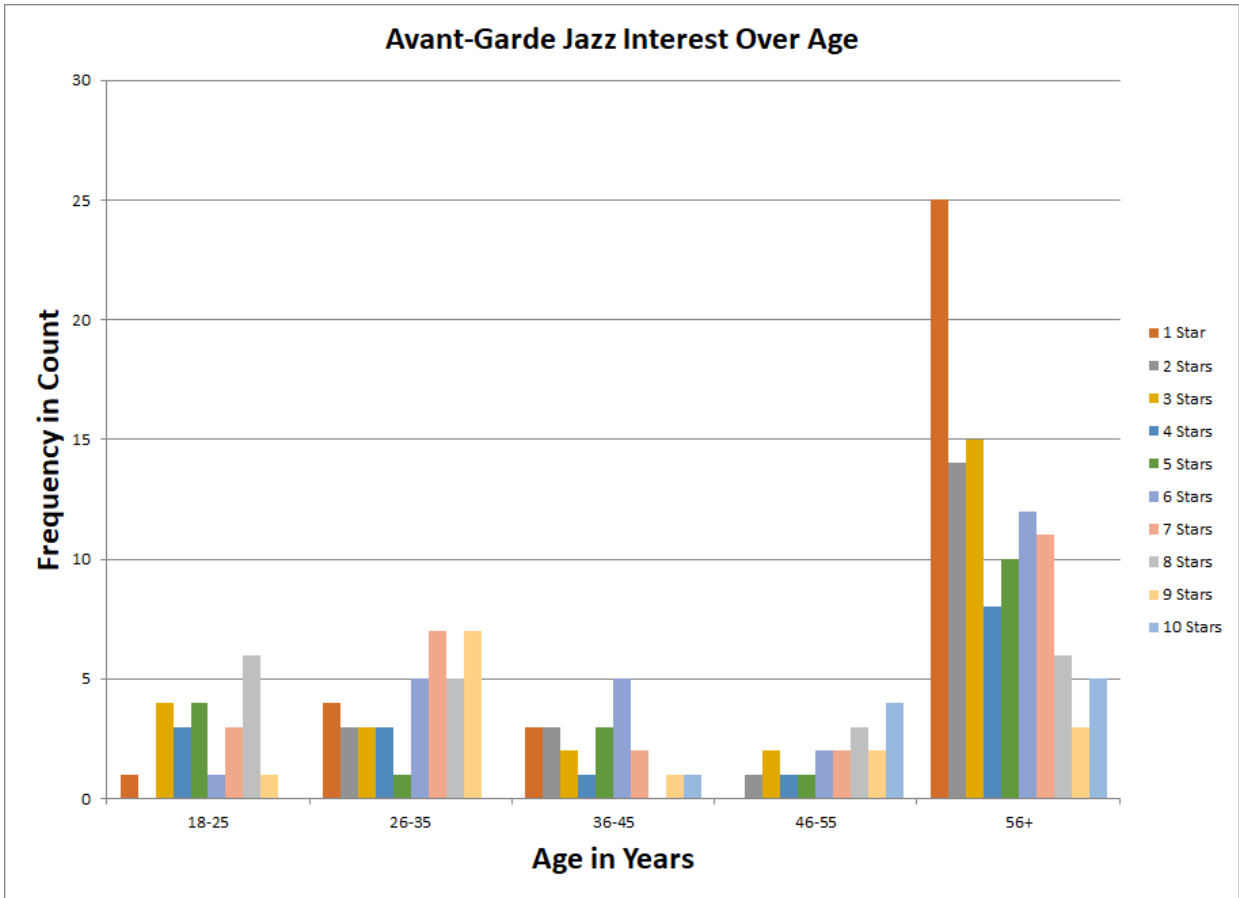
Figure 5. Interest in Avante-Garde Jazz rated out of 10 over age in years.
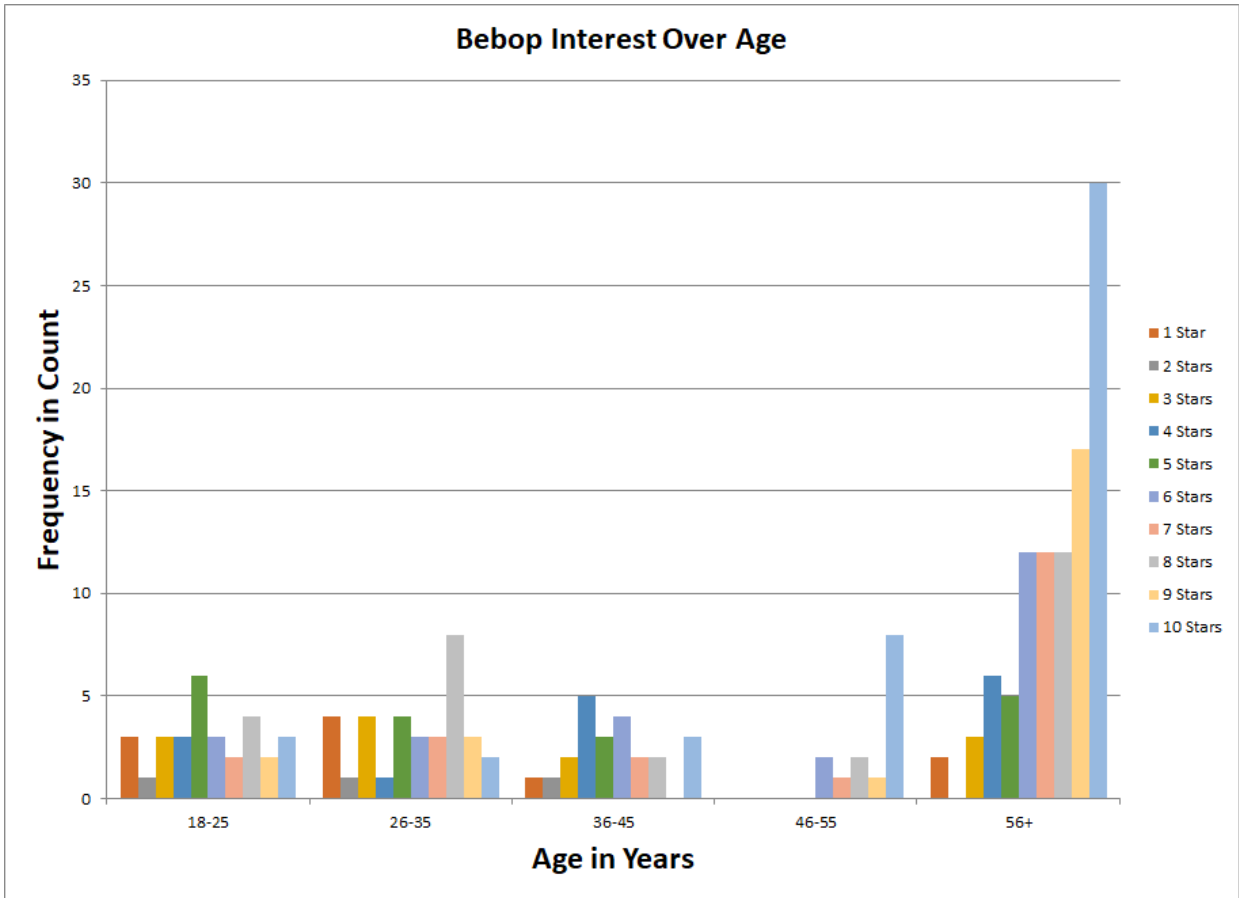
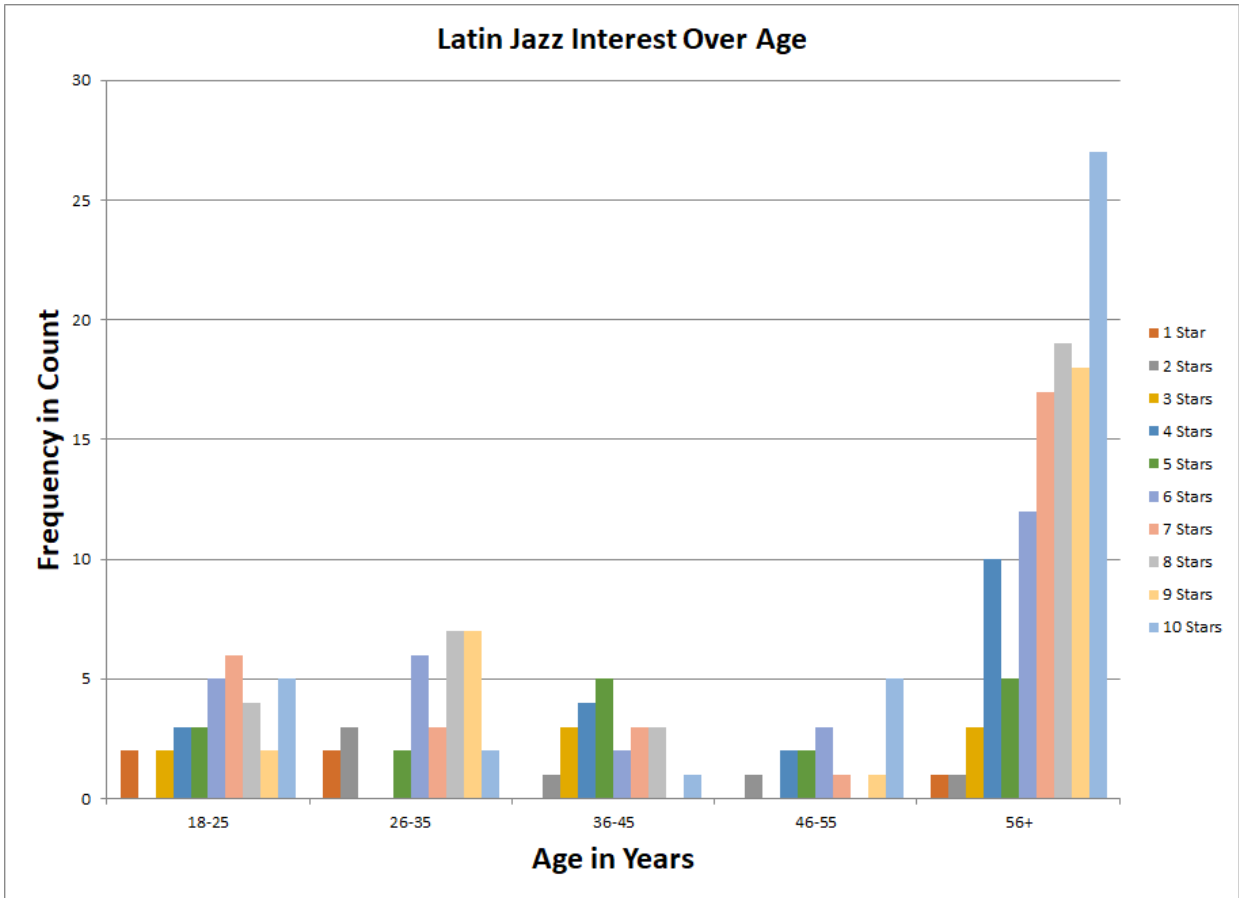*Figure 6. Interest in Bebop rated out of 10 over age in years.*
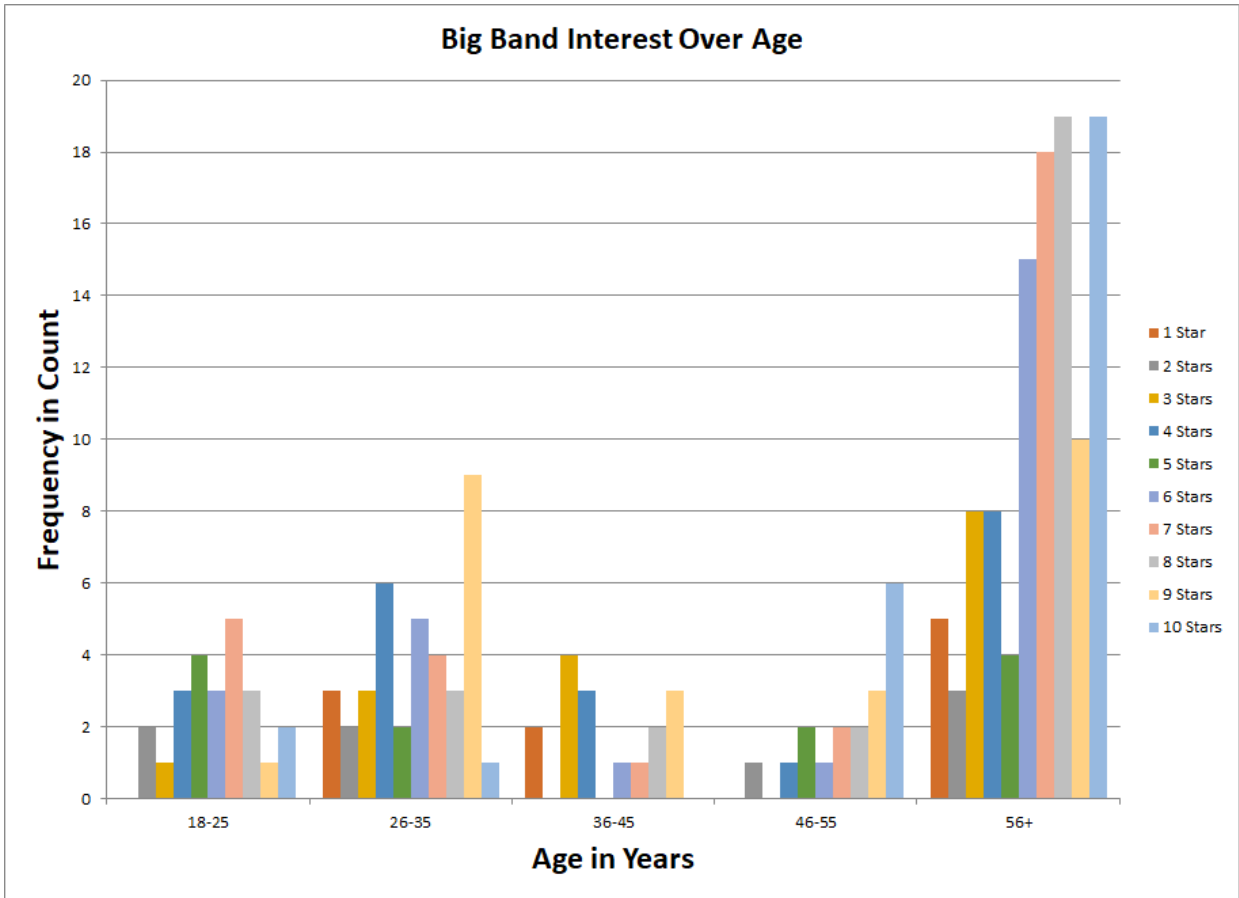
Figure 7. Interest in Big Band rated out of 10 over age in years.
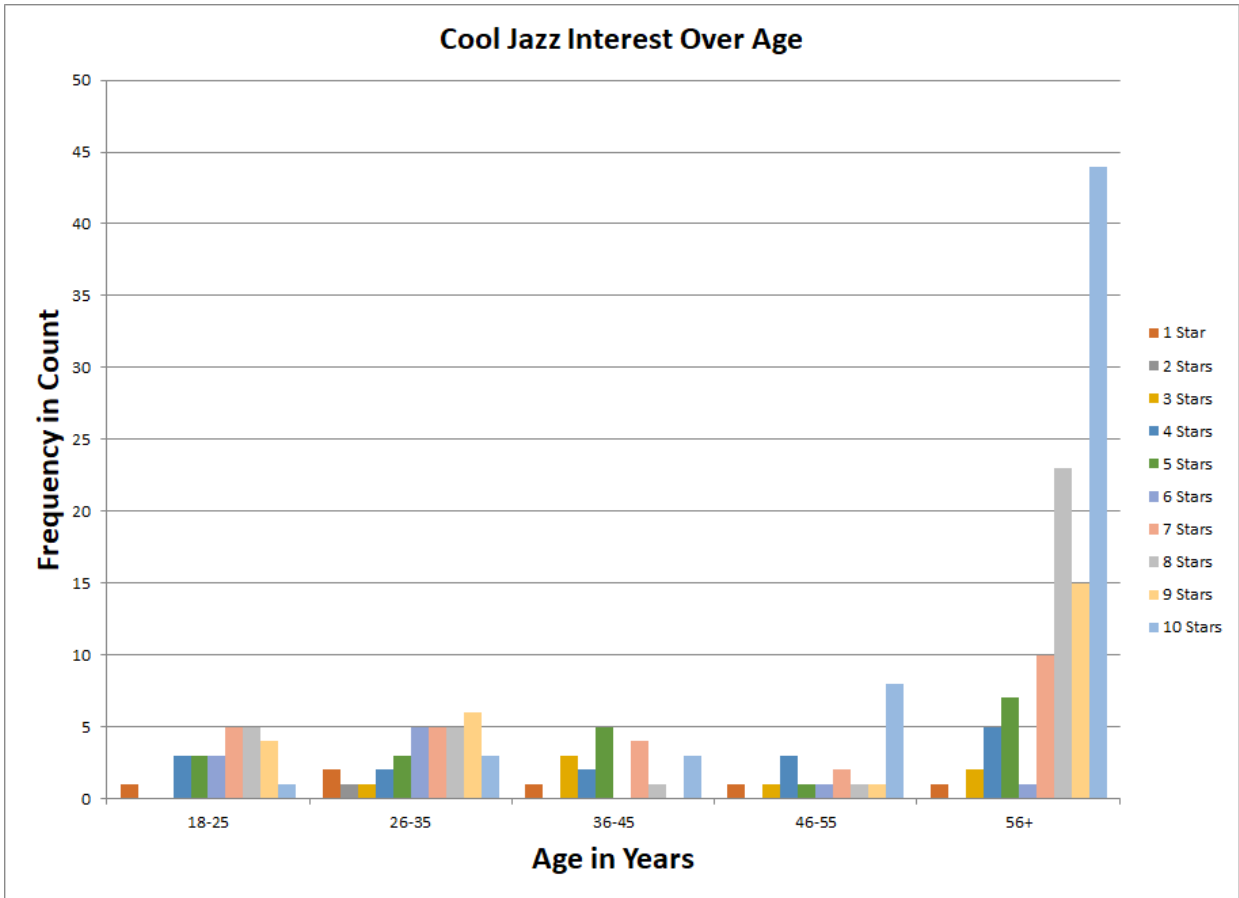
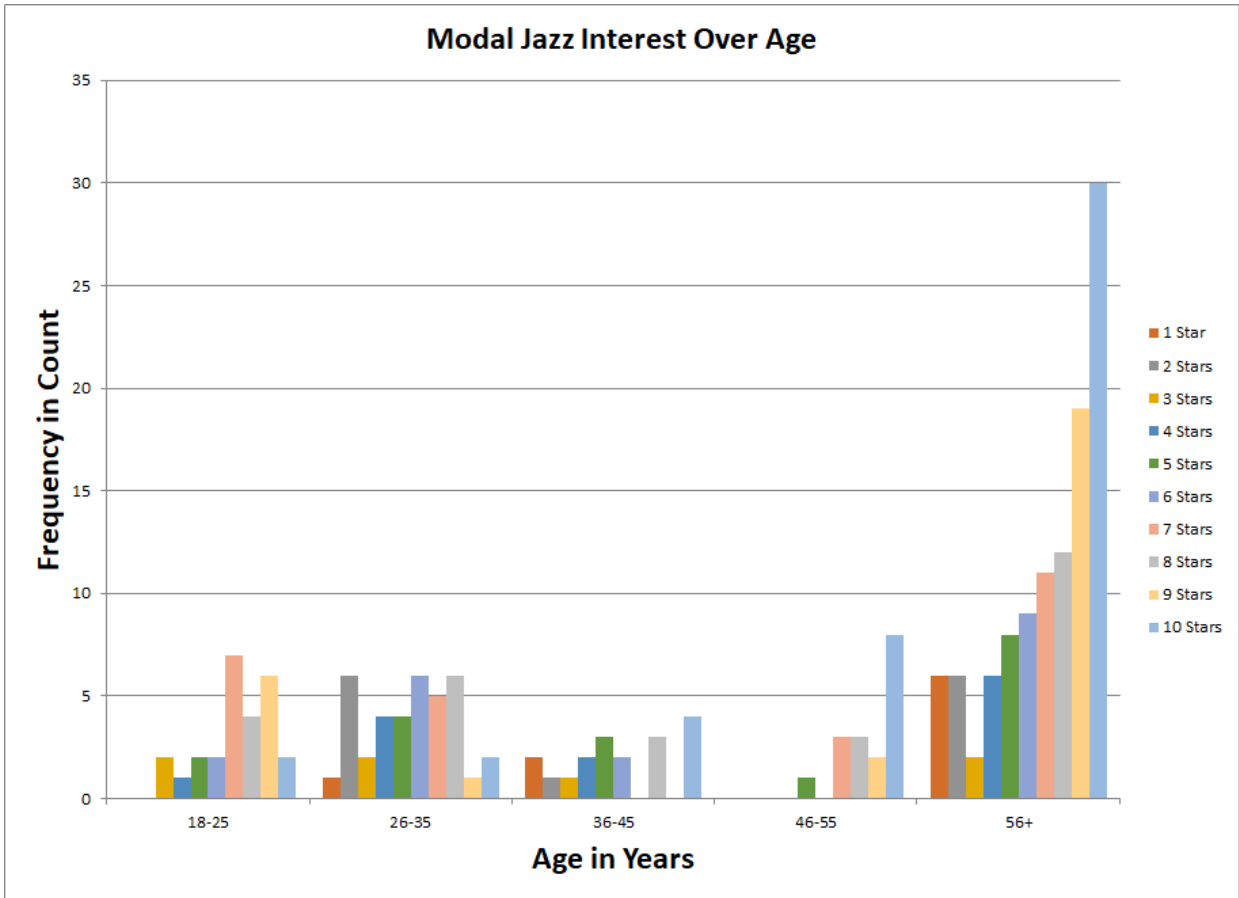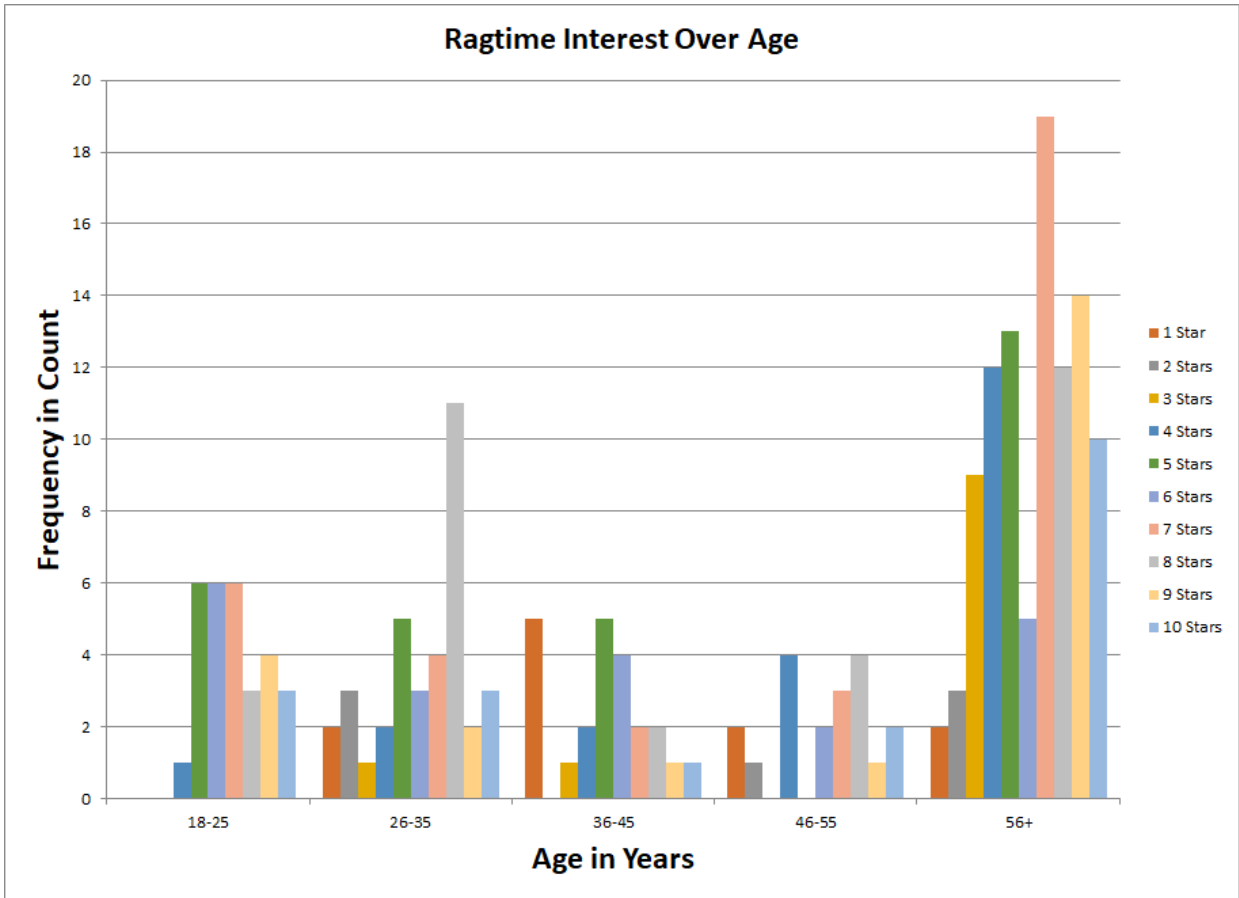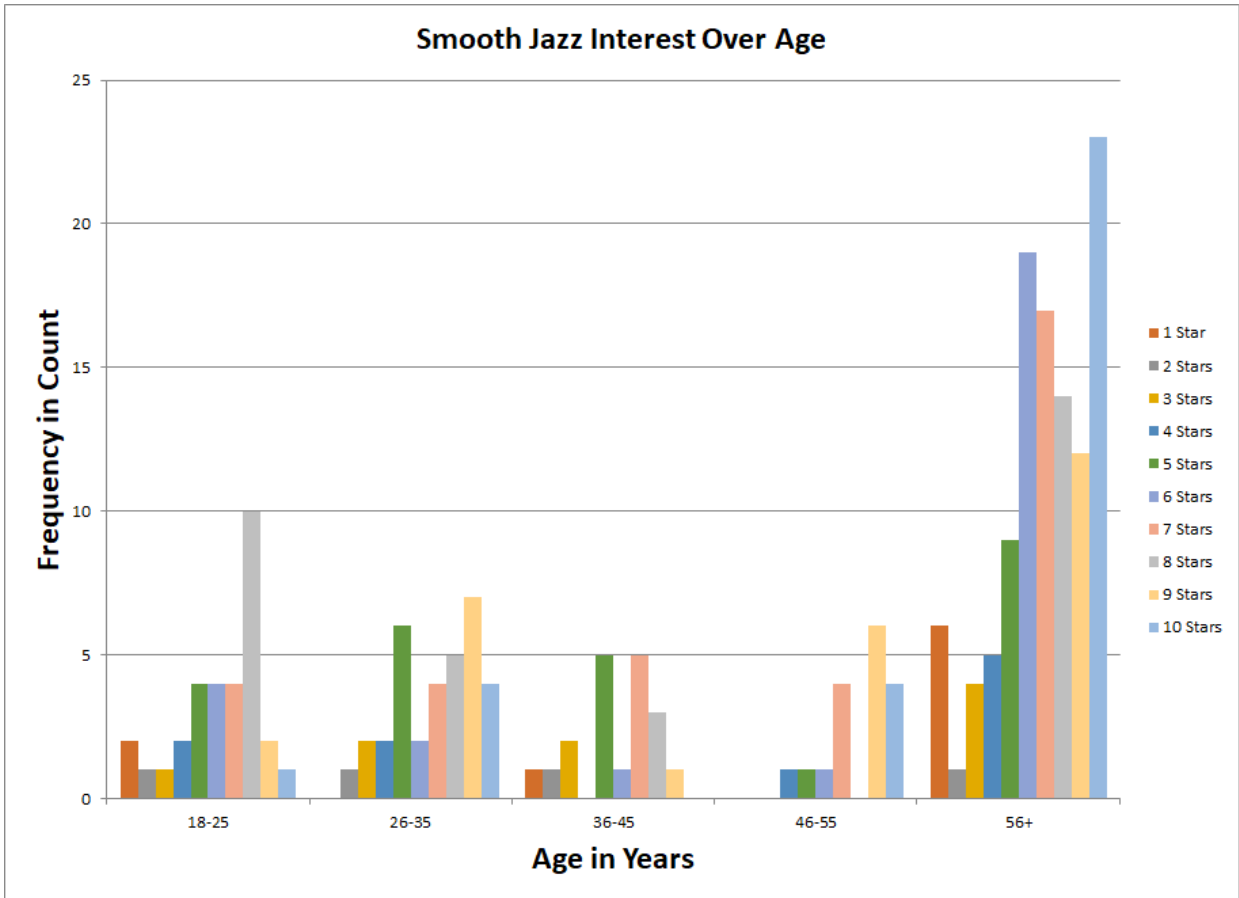*Figure 8. Interest in Cool Jazz rated out of 10 over age in years.*
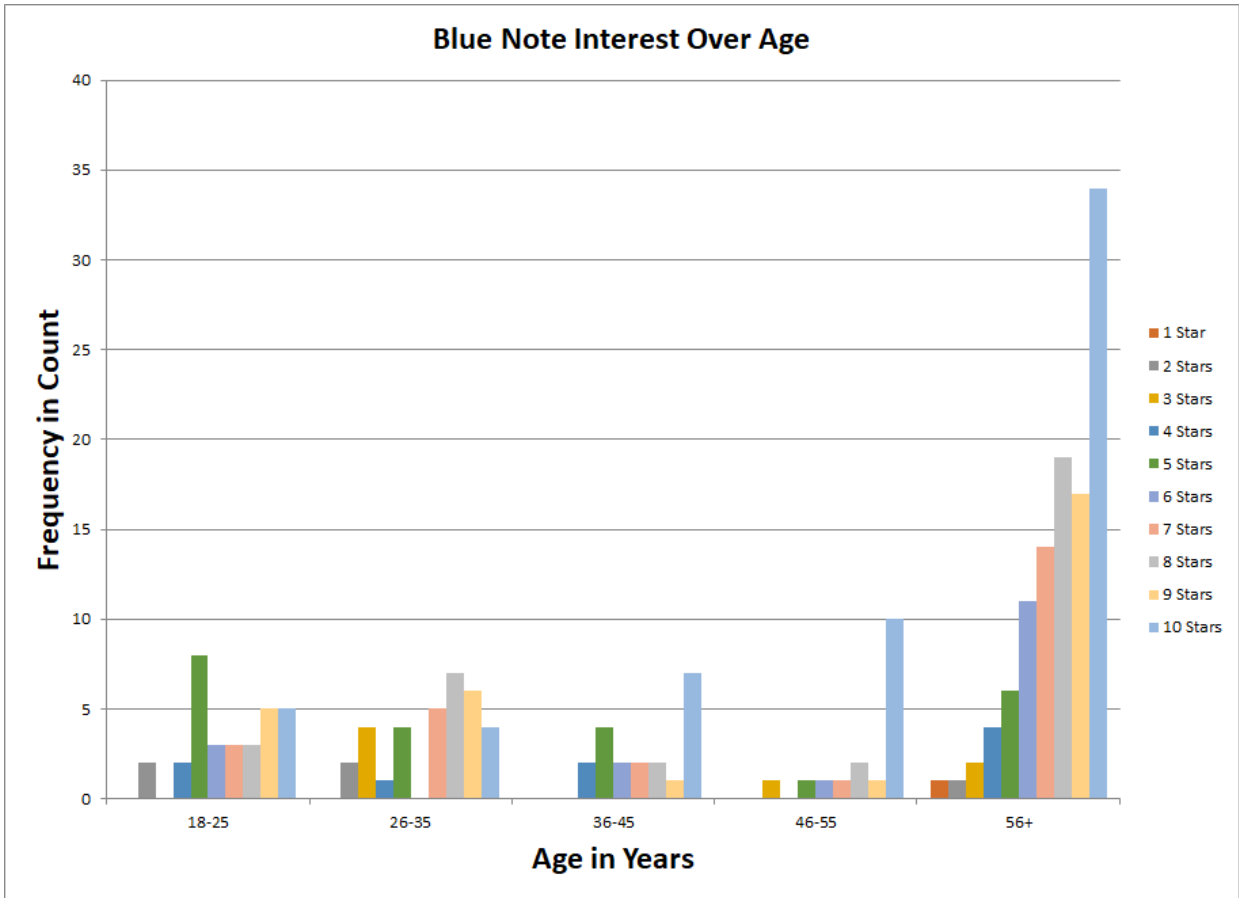
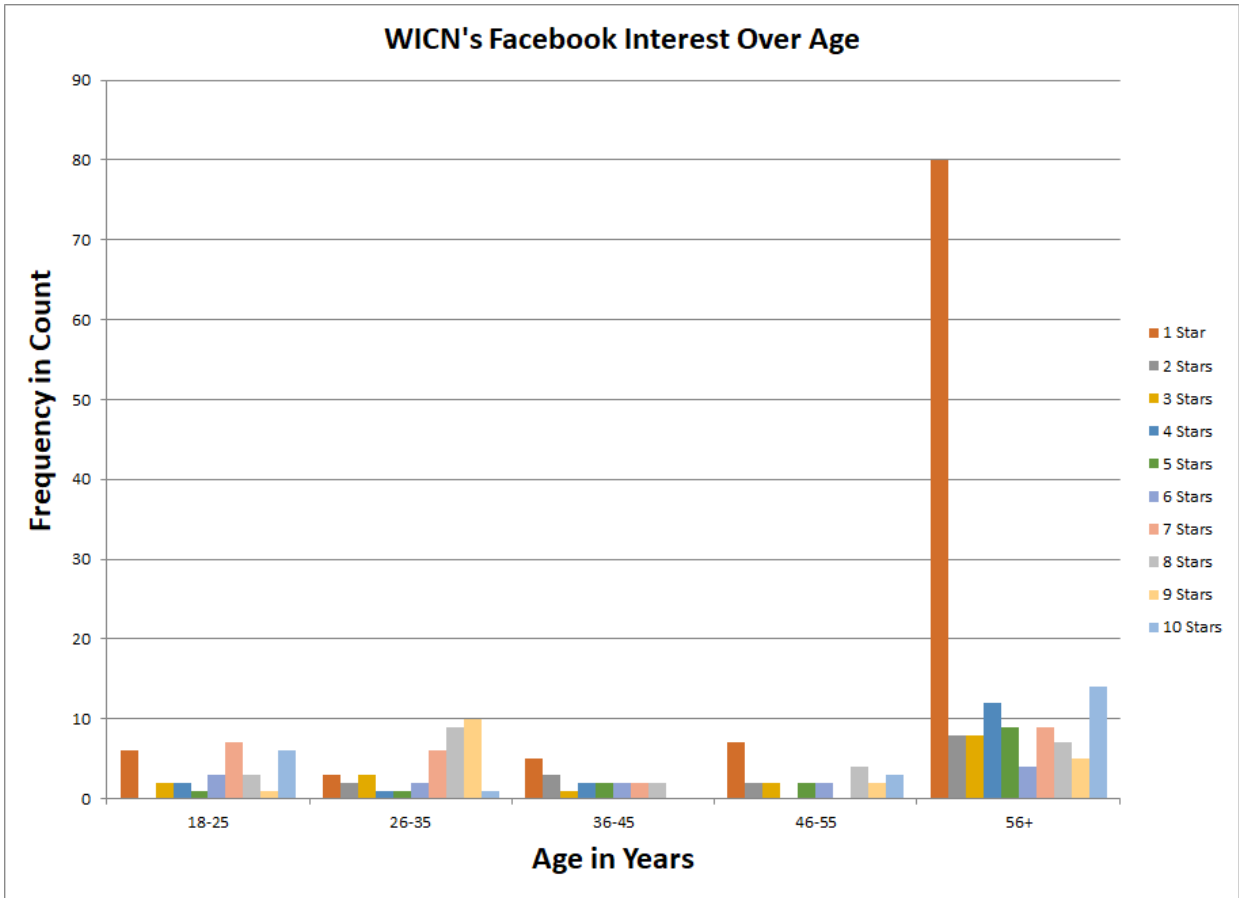*Figure 9. Interest in Blue Note Jazz rated out of 10 over age in years.*
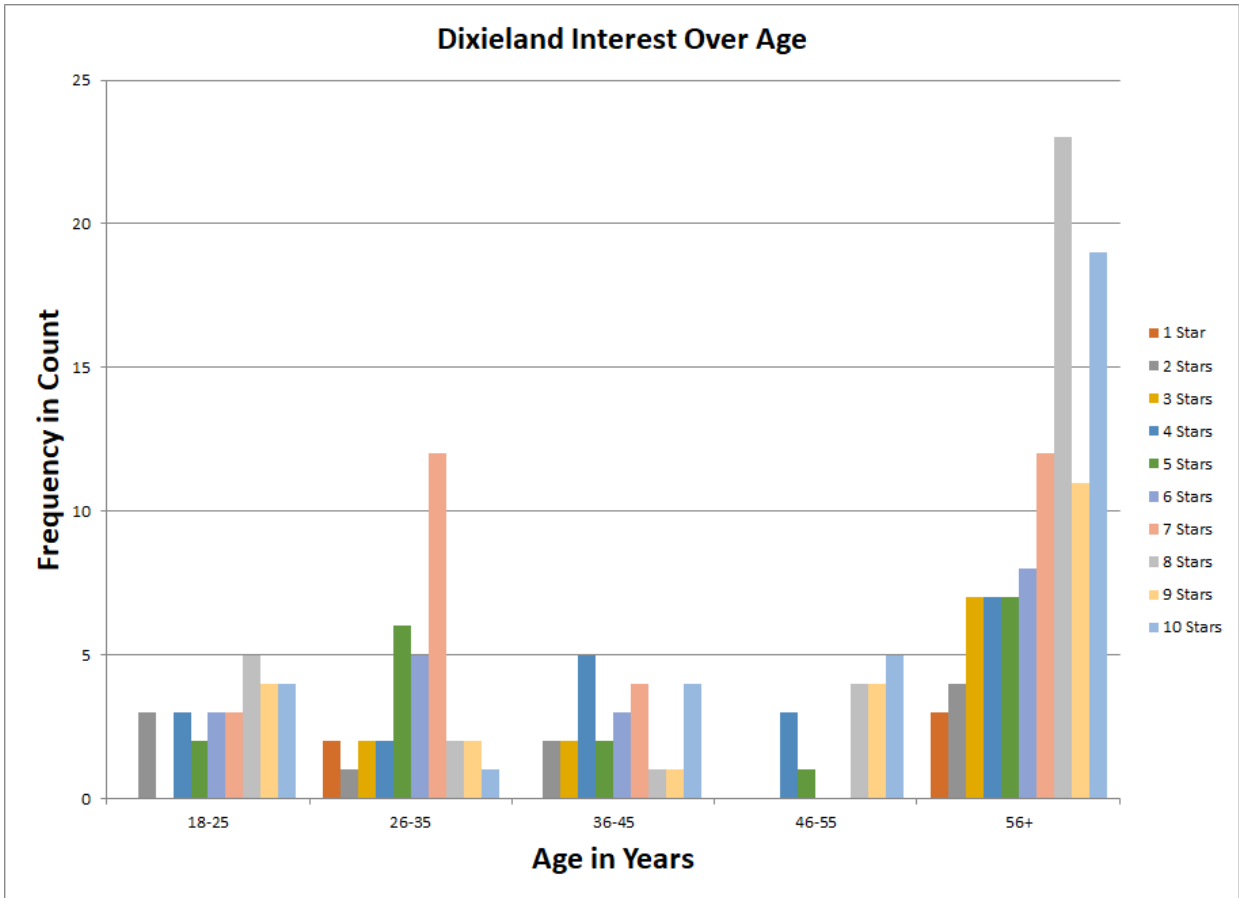
Figure 10. Interest in Dixieland rated out of 10 over age in years.
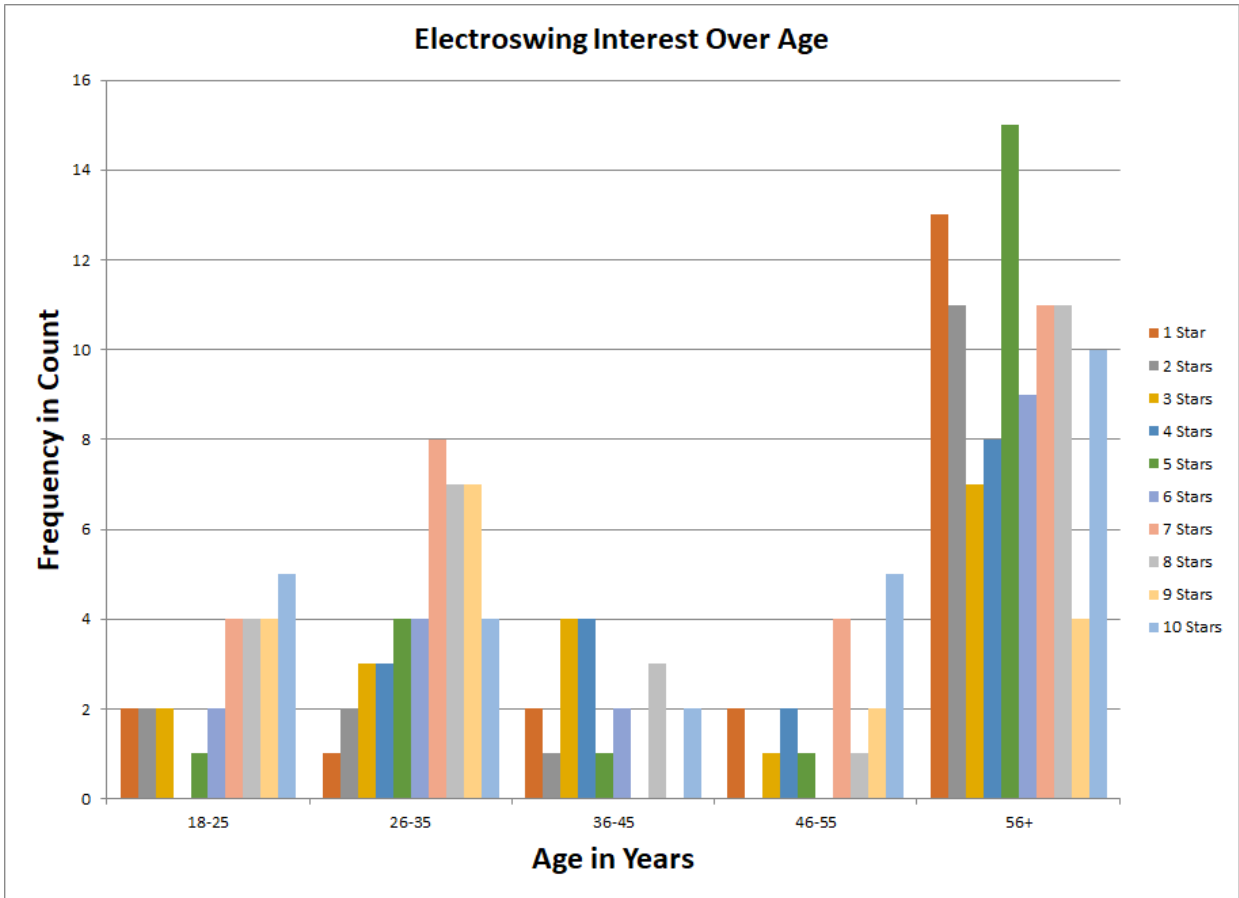
Figure 11. Interest in Electroswing rated out of 10 over age in years.
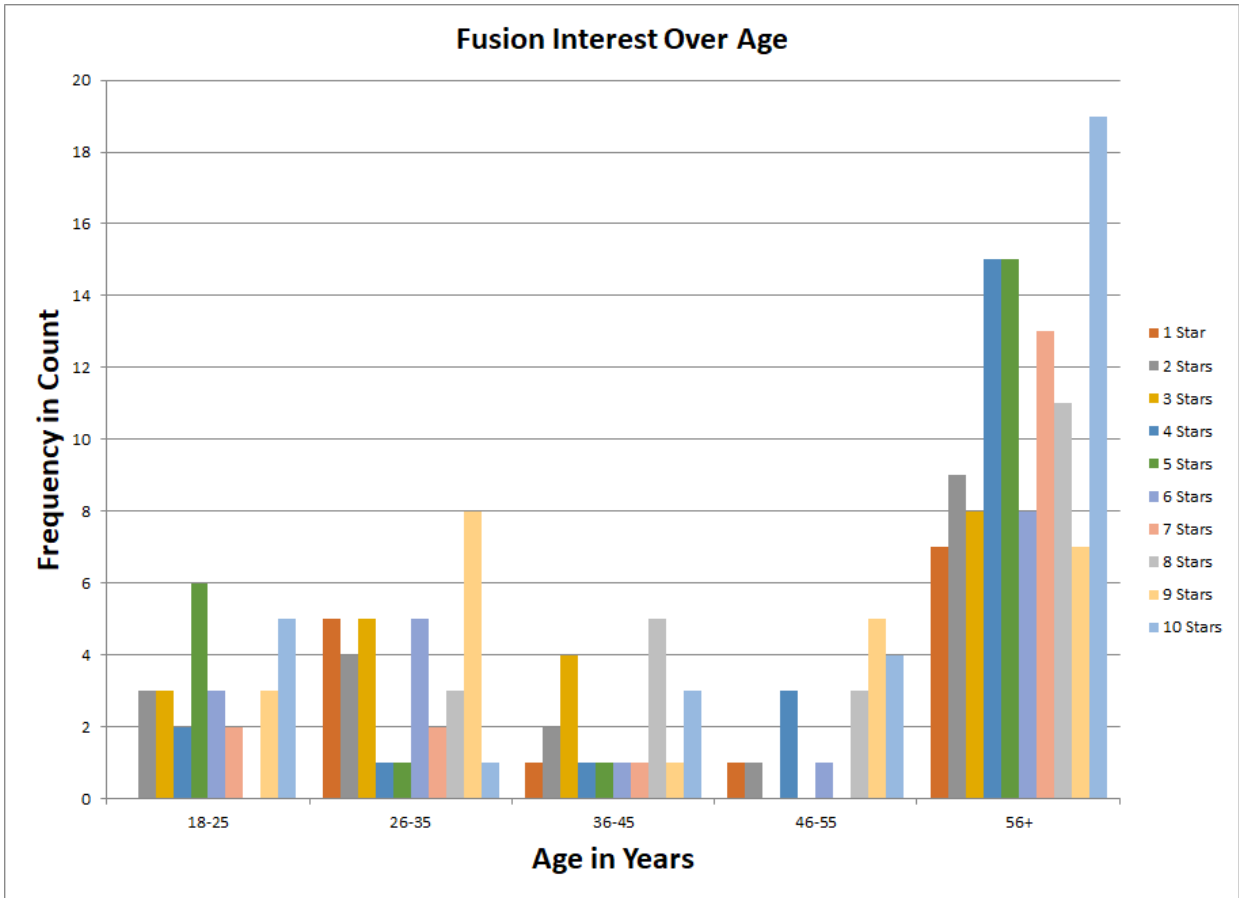
Figure 12. Interest in Jazz Fusion rated out of 10 over age in years.
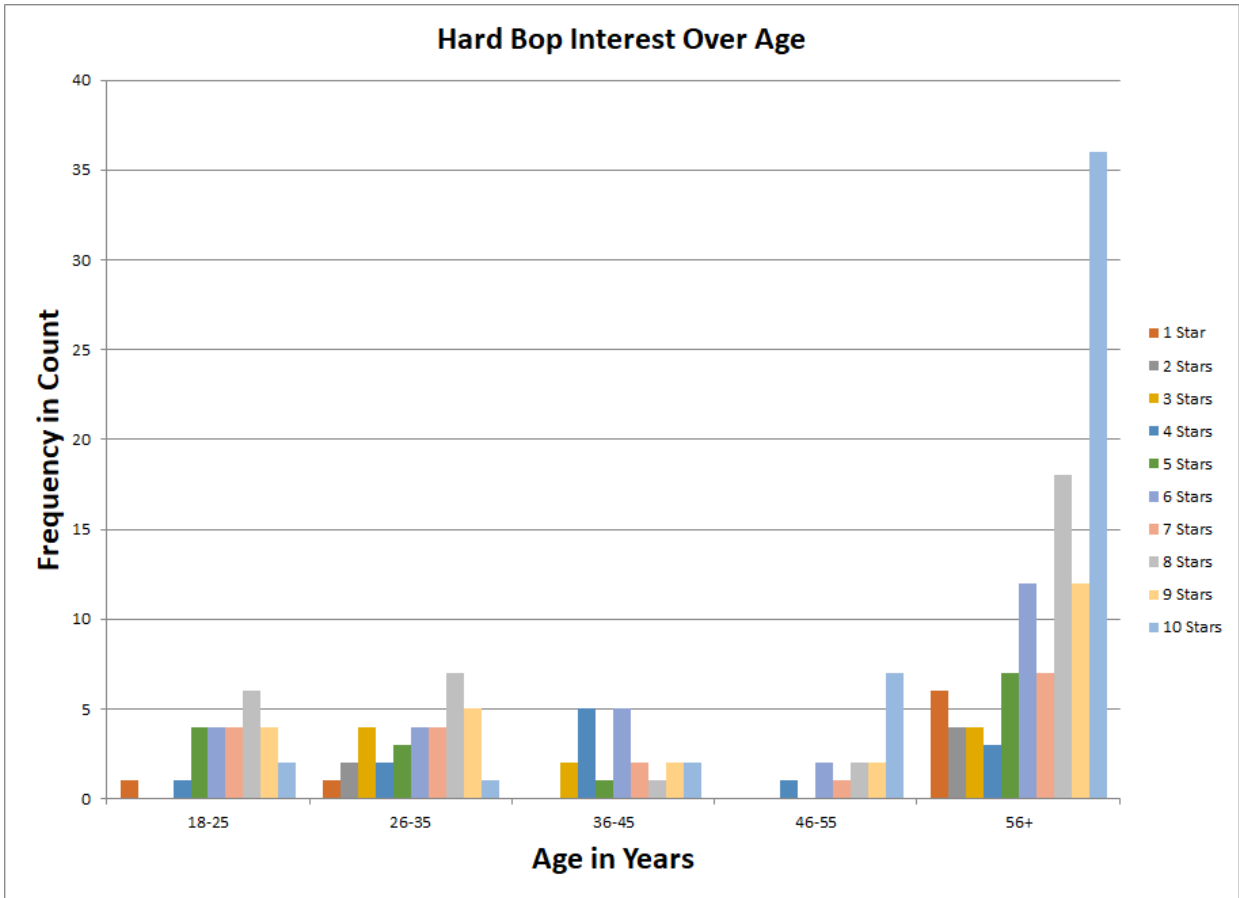
Figure 13. Interest in Hard Bop Jazz rated out of 10 over age in years.
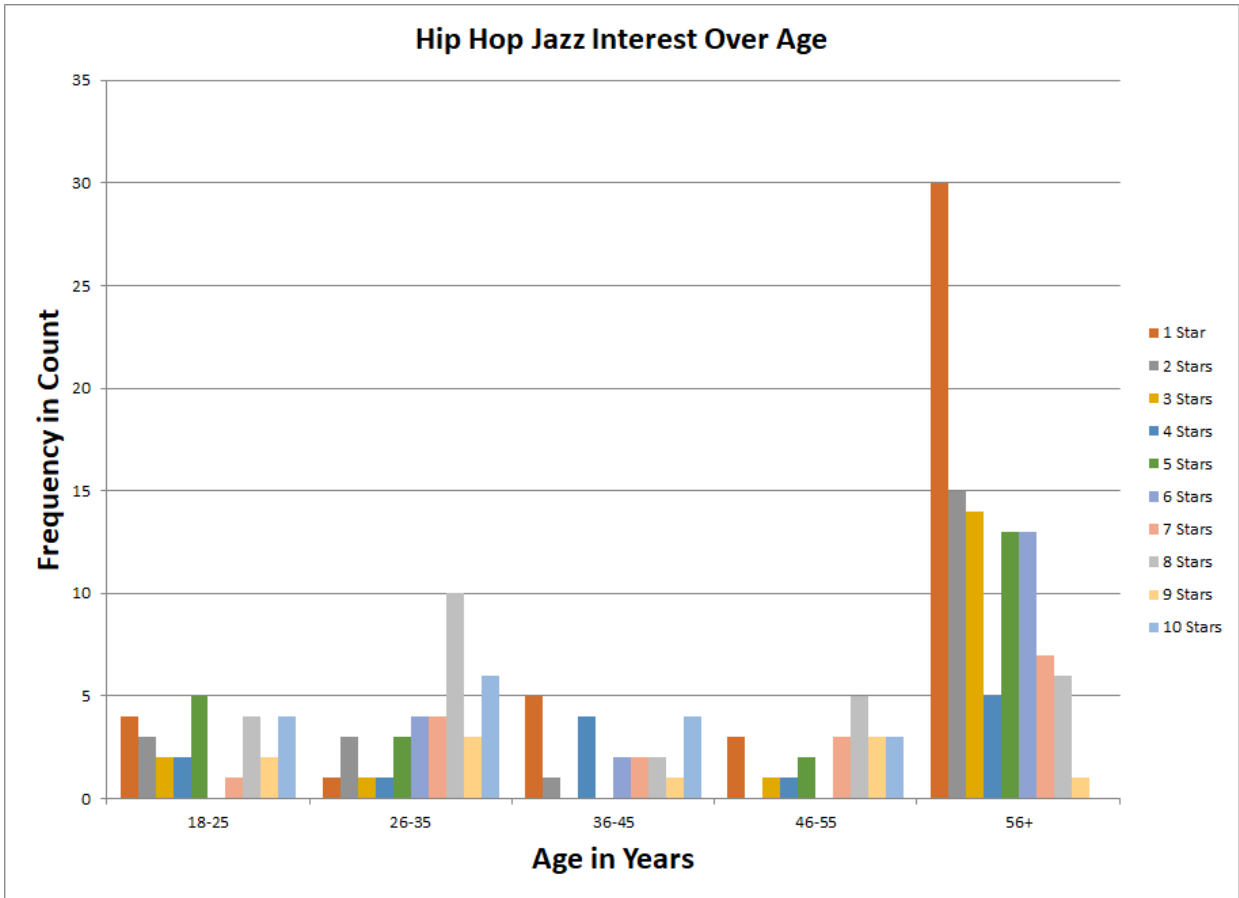
Figure 14. Interest in Hip Hop Jazz rated out of 10 over age in years.

Figure 15. Interest in Latin Jazz rated out of 10 over age in years.

Figure 16. Interest in Modal Jazz rated out of 10 over age in years.

Figure 17. Interest in Ragtime rated out of 10 over age in years.

Figure 18. Interest in Smooth Jazz rated out of 10 over age in years.
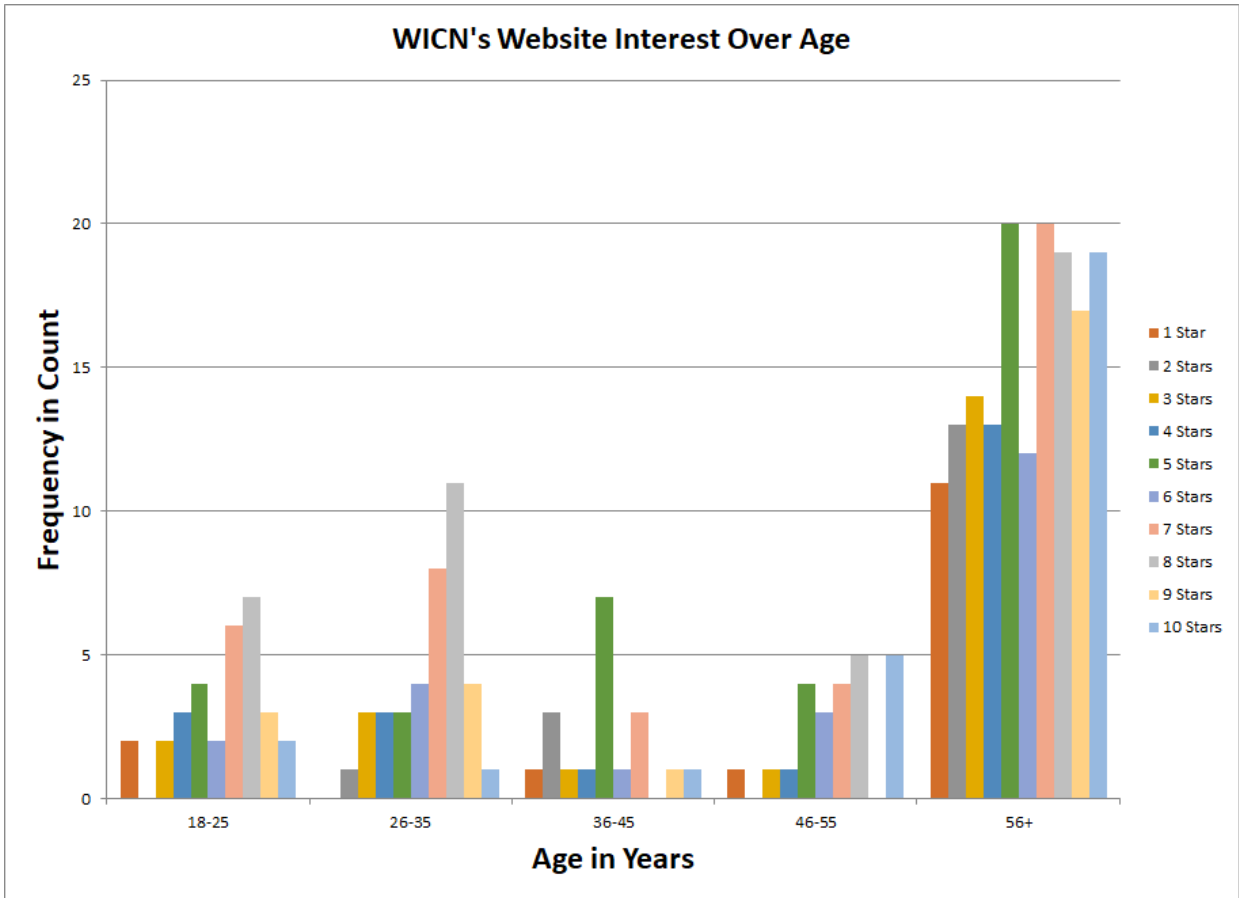
Figure 19. Interest in WICN's website rated out of 10 over age in years.

Figure 20. Interest in WICN's Facebook page rated out of 10 over age in years.
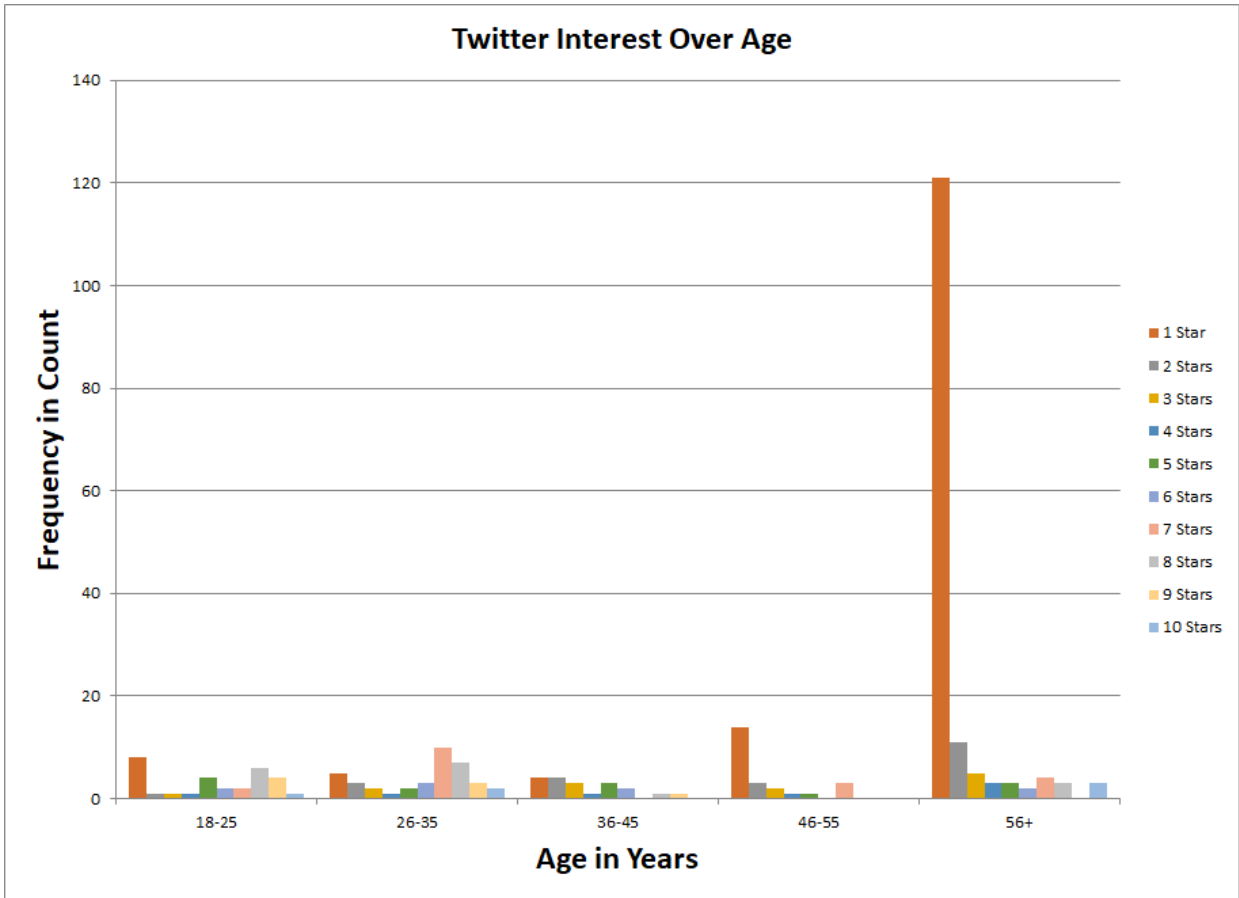
Figure 21. Interest in seeing WICN's content on Twitter rated out of 10 over age in years.
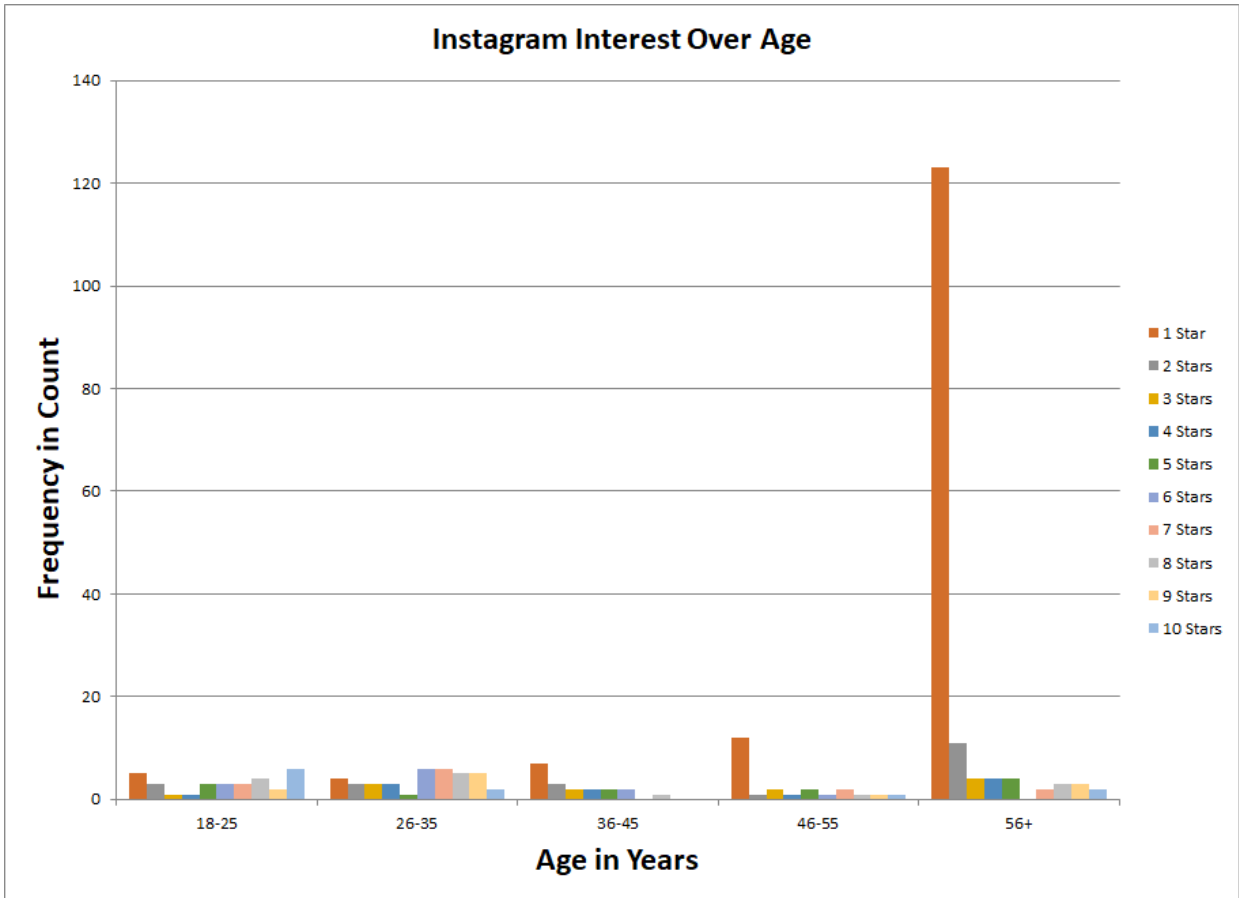
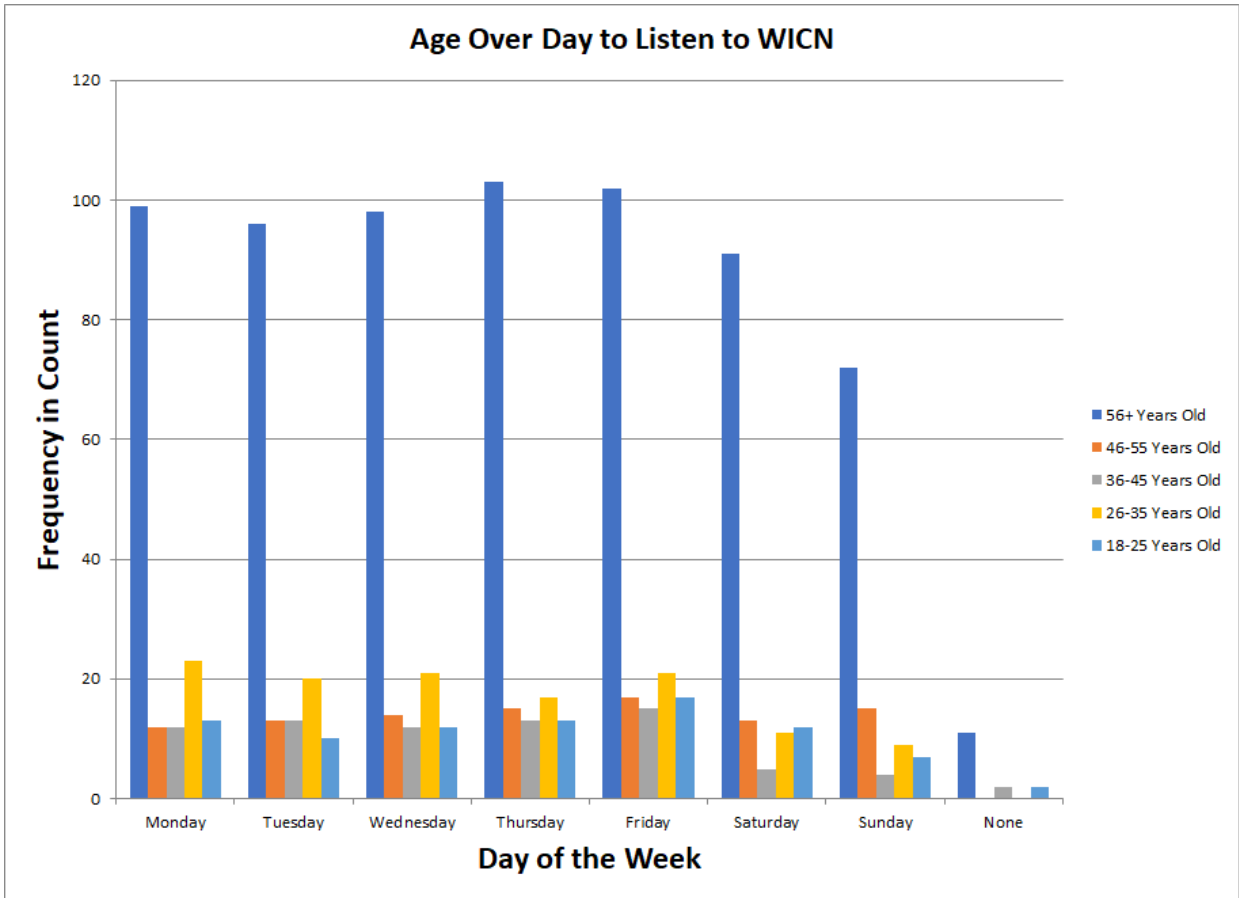*Figure 22. Interest in seeing WICN's content on Instagram rated out of 10 over age in years.*
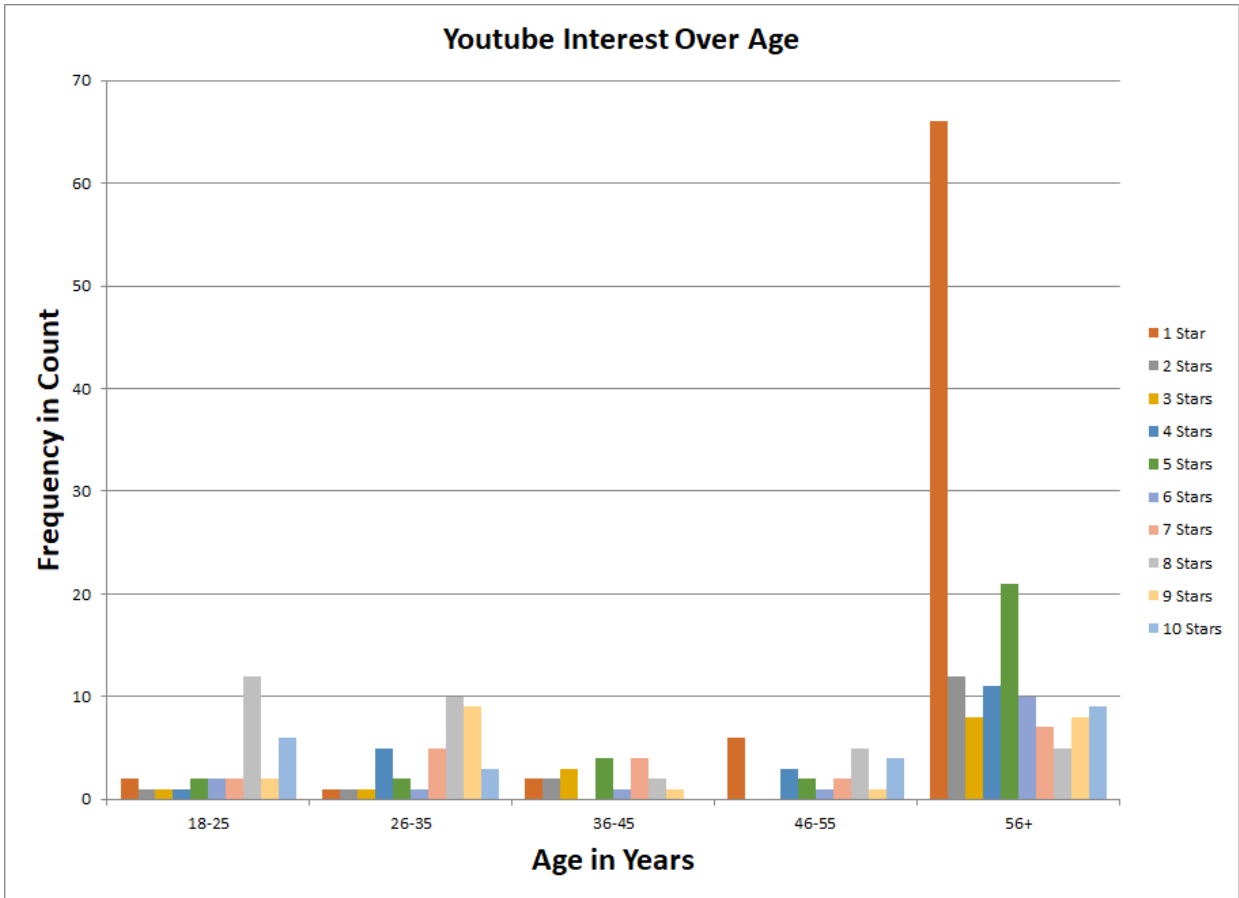
Figure 23. Interest in seeing WICN's content on Youtube rated out of 10 over age in years.

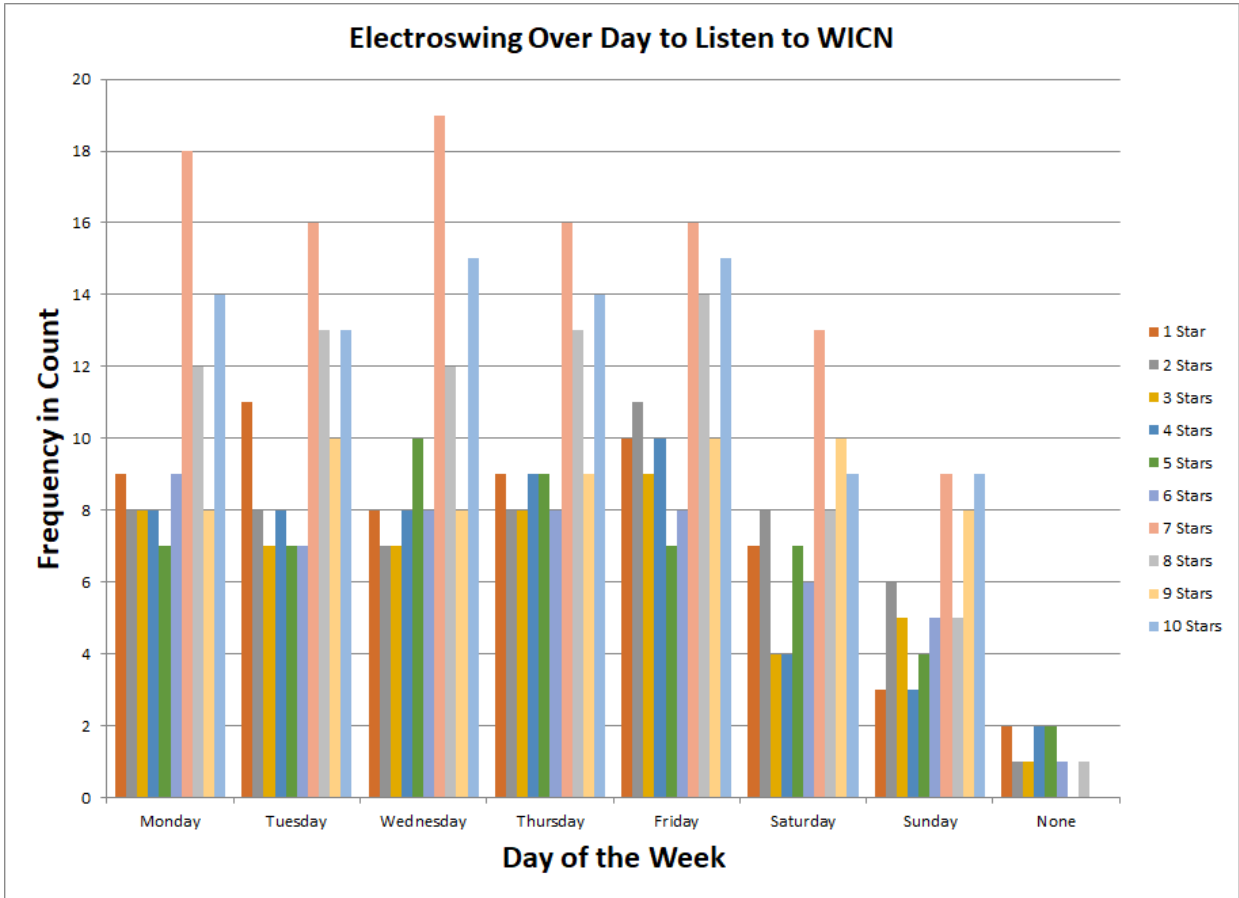*Figure 24. Age over day of the week that people listen to WICN.*

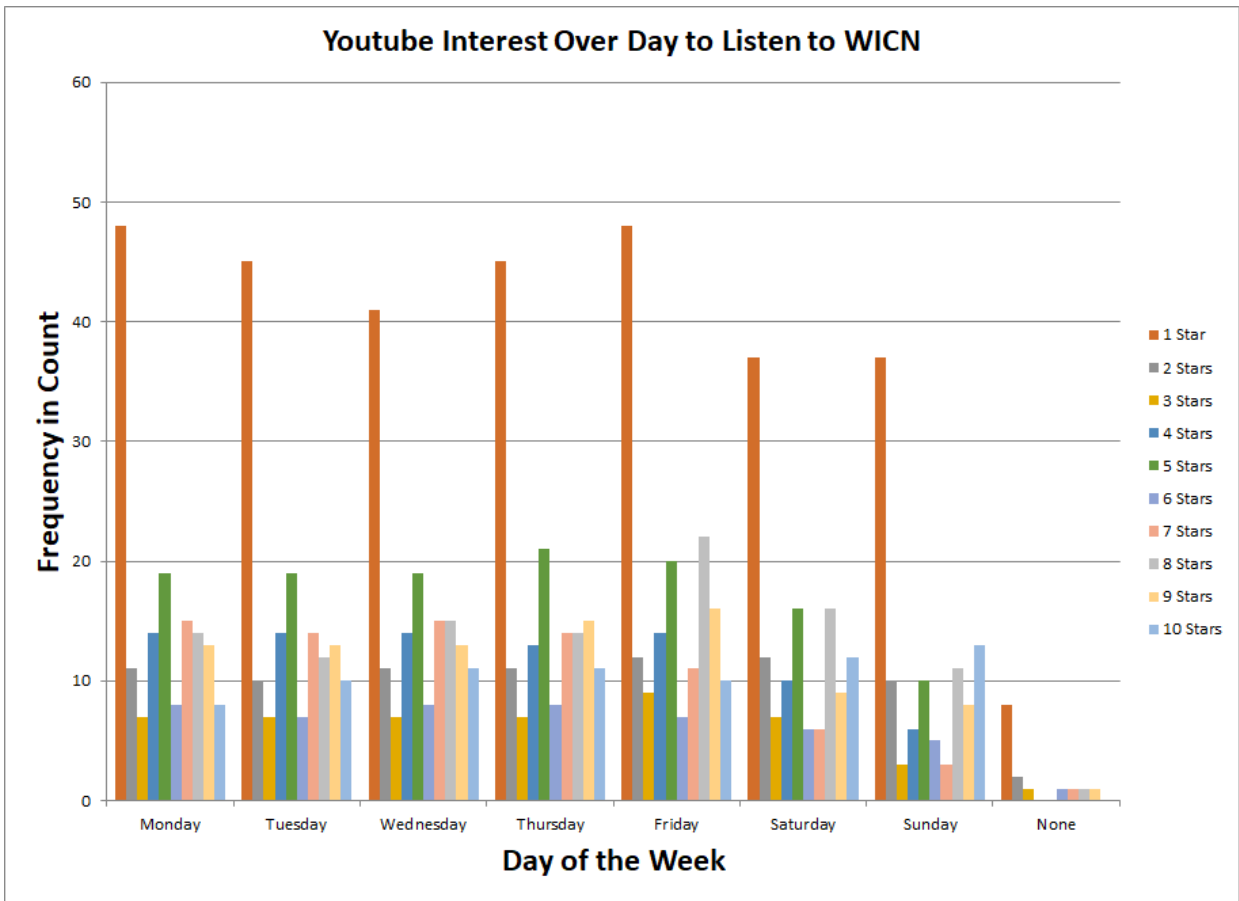*Figure 25. Interest in Electroswing over day of the week that people listen to WICN.*

Figure 26. Interest in Youtube over day of the week that people listen to WICN.
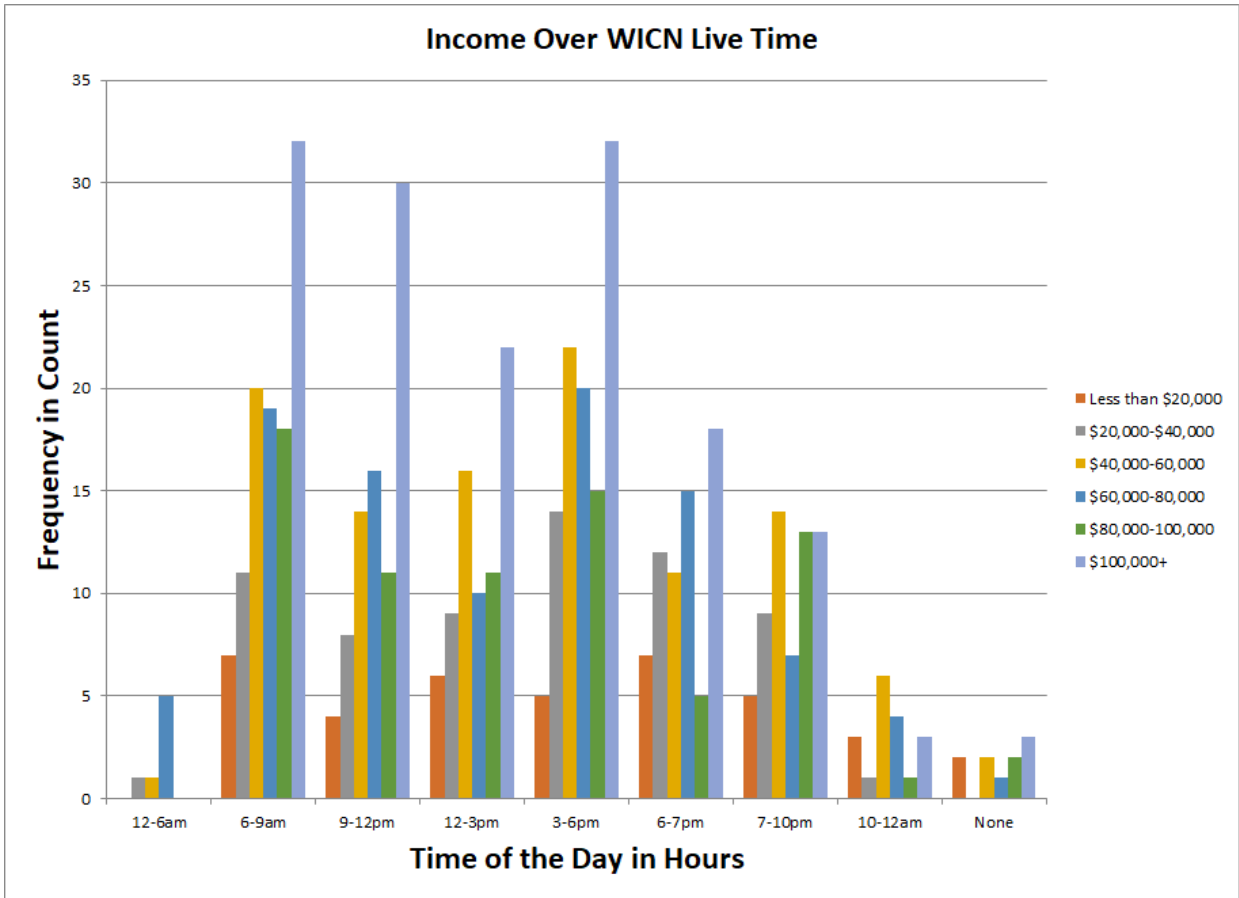
Figure 27. Income in dollars over time of the day in hours that people listen to WICN.
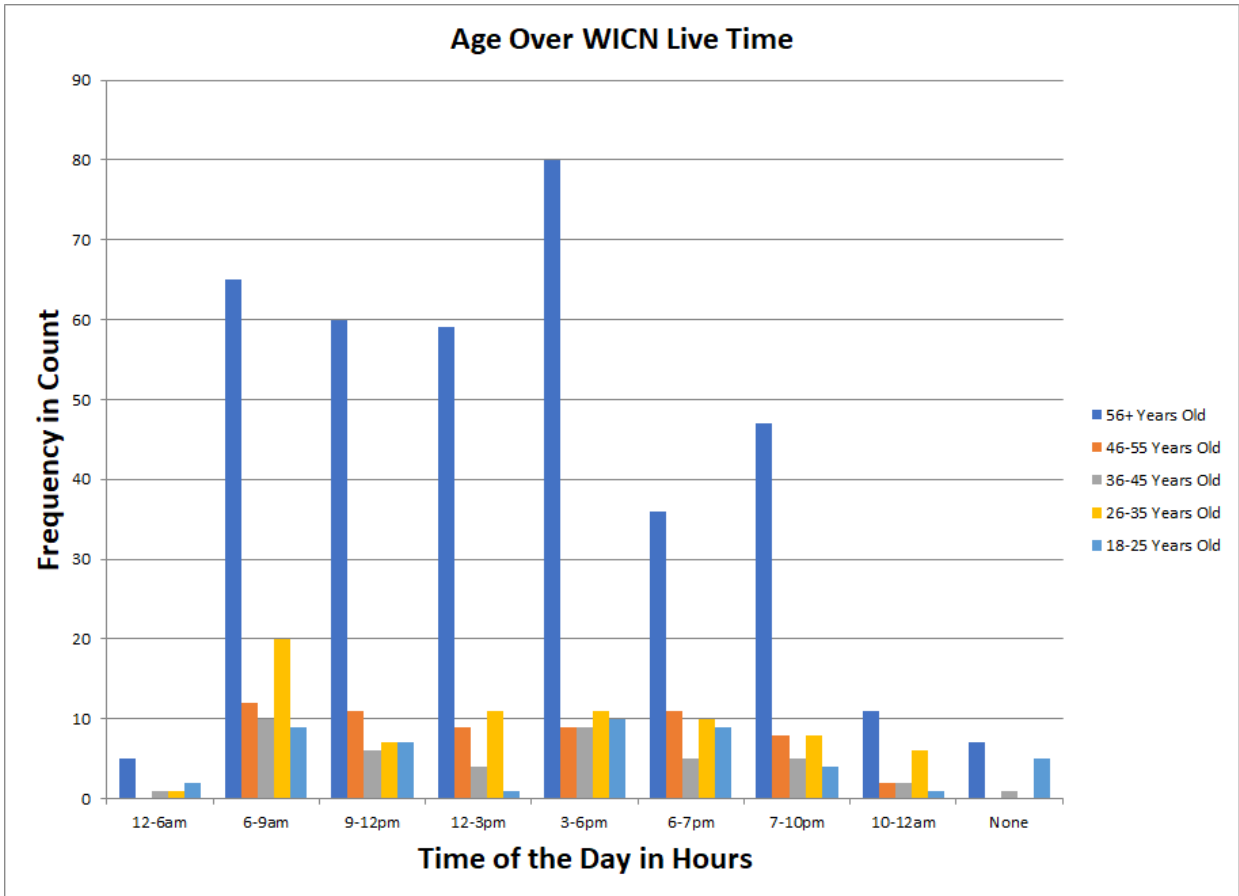
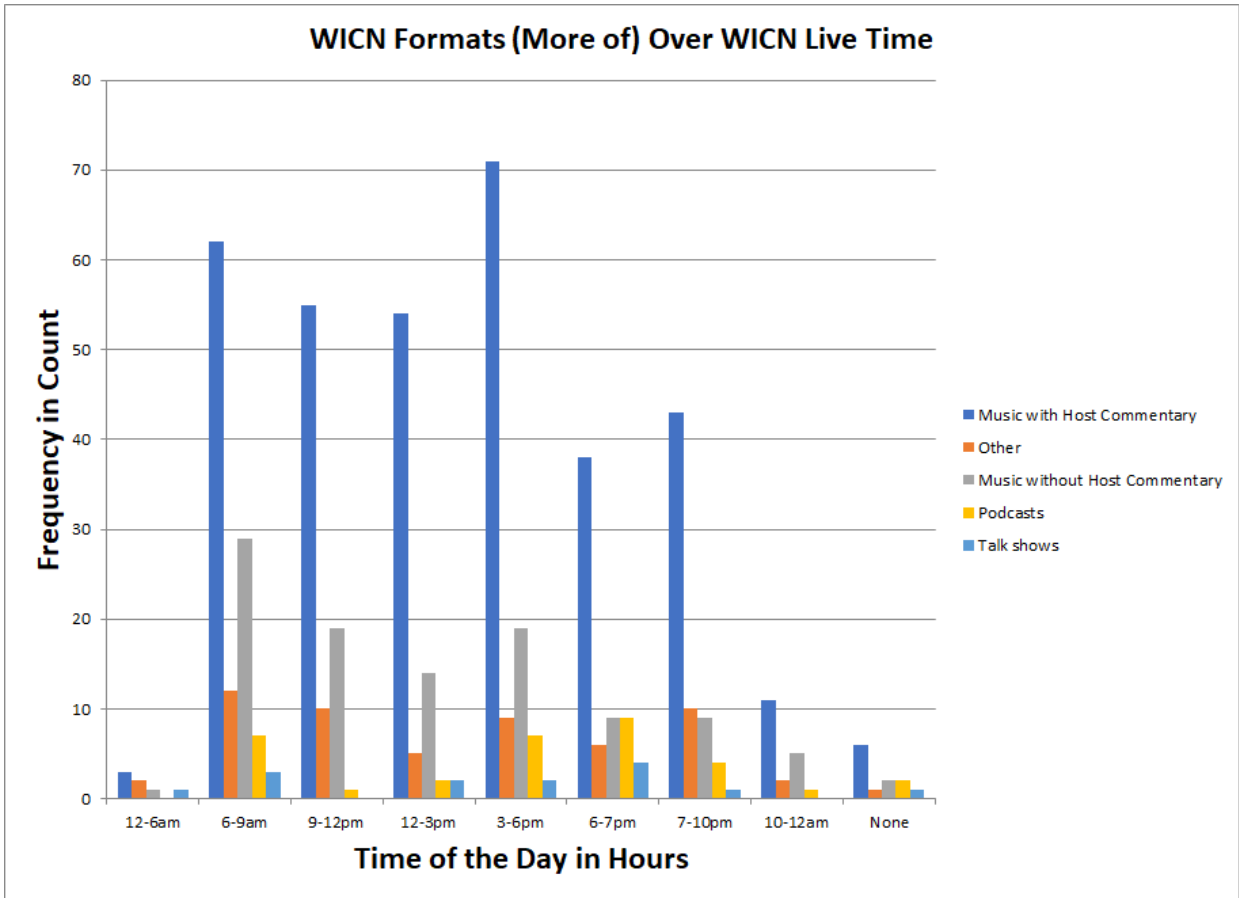*Figure 28. Age in years over time of the day that people listen to WICN.*

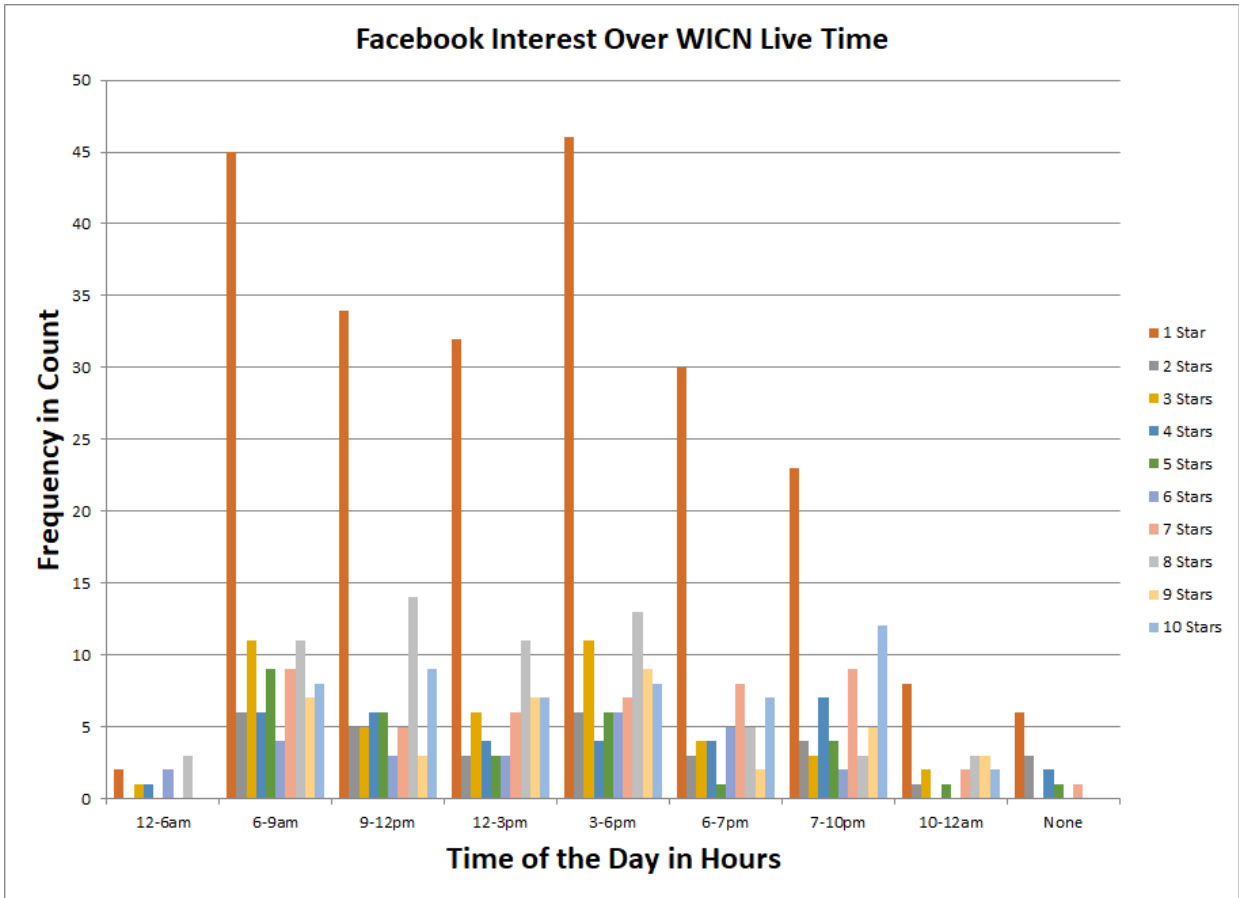*Figure 29. Interest in WICN show formats over time of the day that people listen to WICN.*

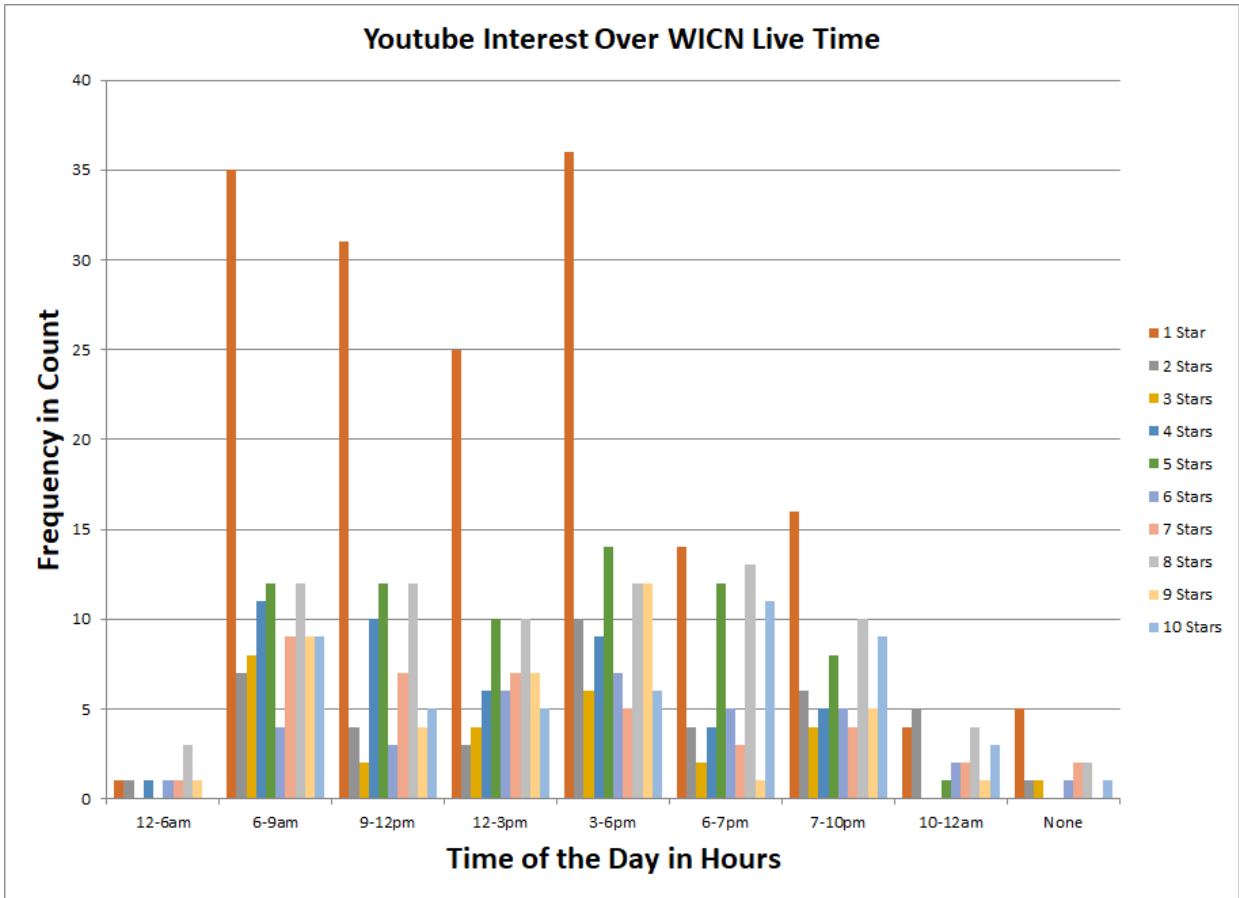*Figure 30. Interest in Facebook over time of the day that people listen to WICN.*

Figure 31. Interest in Youtube over time of the day that people listen to WICN.

Appendix F - Qualitative Analysis

What do listeners like about WICN?

What things do people like about WICN? (WICN Listeners)
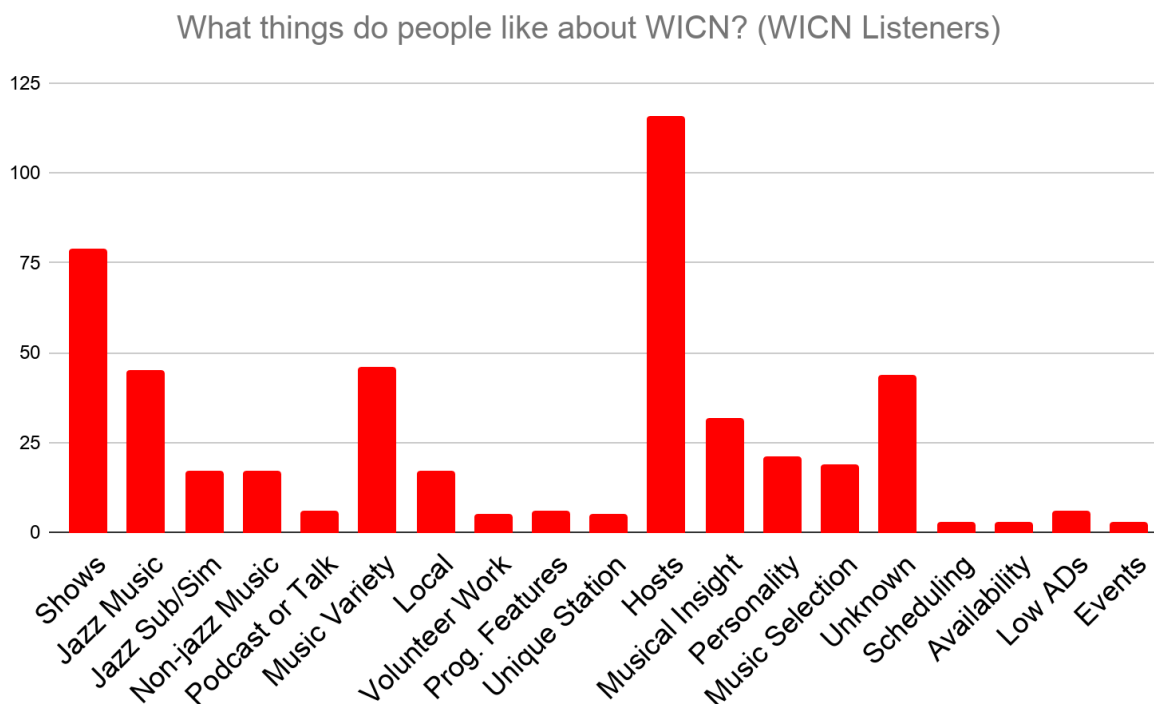
Sub-categories explanation and coding framework:

- Music shows: listeners enjoy one of WICN's music shows or genres either by

  mentioning the show name or the genre(s) the show plays. If people mention a

  host and not the show, we assume they may not like the show.

  - Jazz music shows

  - Jazz subgenre or Similar genre shows

  - Non-jazz music shows

  - Talk shows and Podcasts

- Music variety: listeners enjoy the station's overall variety or selection rather than just a specific set of genres

- Locally produced: Listeners like that most of WICN's content is locally produced rather than manufactured or syndicated. Locally produced content also covers the community aspects of the station.

- Sponsorships or volunteer work: Listeners like what WICN does outside of radio for the local Worcester community

- Other programming elements: Listeners enjoy the other elements of the station such as the news, weather, or PSA's

- Unlike other stations: Listeners like that WICN is unique compared to other radio stations or NPR affiliate stations

- Hosts: Listeners enjoy WICN's hosts. Host enjoyment may fall in multiple subcategories if people have multiple reasons they like a host. If people mention a show and not the host, we assume they may not like the host.

    - Musical Insight: Where listeners enjoy learning about music through the host's talking between songs.

    - Personality: Where listeners enjoy the host's personality or commentary between songs or in general.

    - Selection: Where listeners enjoy the music the host likes.

    - Unknown: The listener simply liststs the host name and gives us no indication of what they like about a host.

- Scheduling: Listeners enjoy the station's scheduling or times shows are played

- Availability: Listeners like that WICN is constantly broadcasting or that it is easily available, especially beyond the broadcast range

- Low advertisement: Listeners like that WICN is mostly commercial free.

- Events: Listeners like WICN's events, they may mention a specific WICN event.

What should WICN change?

What things do people want WICN to change? (WICN Listeners)
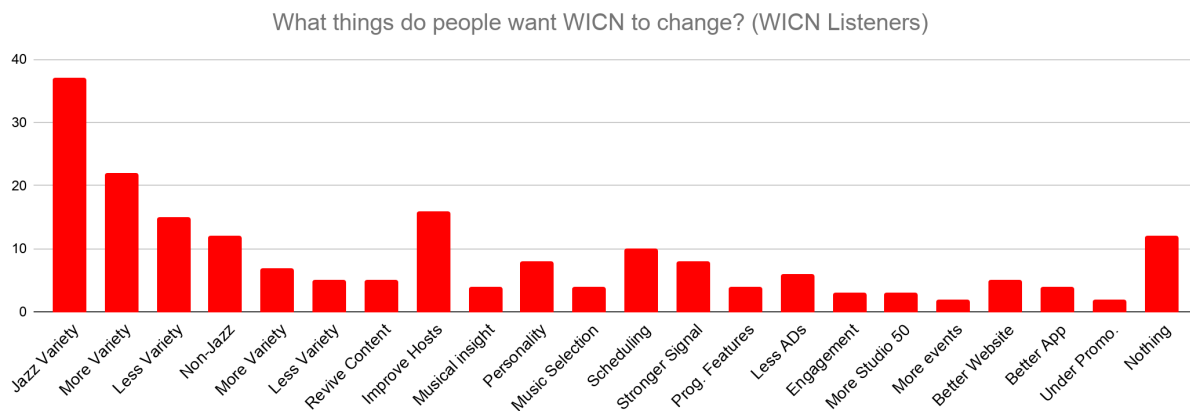
Sub-Categories explanations and coding framework:

- Different Jazz Variety: Where listeners stated they want more or less jazz variety. If someone says they want more of some variety but less of another variety, then they want both an increase and decrease in variety.

  - More variety: If someone says they want more of some jazz variety, then they want more jazz variety.

  - Less variety: if someone says they dislike a jazz variety then they want less jazz variety.

- Different Variety Other than Jazz: Where listeners stated they either want more or less of some variety outside of jazz.

- More music outside of Jazz

- Less music outside of Jazz

- Revive old content: Listeners want a specific WICN show to reair. This subcategory may be impossible to address because a host left WICN or no-longer wants to do that show.

- Improve hosts: Listeners dislike or want to improve a specific host.

  - Musical Insight: Where listeners dislike learning about music or they think the host does not understand the subject enough to add insight.

  - Personality: Where listeners dislike the host's personality or commentary between songs or in general.

  - Selection: Where listeners dislike the music the host selects.

  - Unknown: The listener simply liststs the host name and gives us no indication of what they like about a host.

- More convenient scheduling: Specific shows are not played when people can listen or they dislike the schedule.

- Stronger signal: listeners want WICN's signal to be stronger because it does not not reach where they live currently.

- More other programming elements: Listeners want more news, or weather.

- Less or Better Advertisements: Listeners complain that WICN has too many advertisements, sponsors, or is asking for money too often; they may mention that the ads ruin their listener experience.

- Better community engagement: Listeners want more opportunities to talk to other jazz listeners, WICN, or WICN hosts. Some listeners want more local community engagement.

- More Studio Performances: Listeners want to hear more produced or live shows in WICN's studio.

- More events: Listeners want WICN to host or promote more in-person events.

- Better app: Listeners want the WICN app to work better on their devices

- Better website: Listers want the WICN website to work better or easier to navigate

- Under promotion: Listeners did not know about WICN's app, website, or social media.

- Station is good: Listeners explicitly state they have no complaints or do not want the station to change significantly.

Appendix G - Potential Future Projects

Improving WICN's Website

A research method will be chosen to help WICN understand how to change their website to give listeners more information and connection to shows and hosts. Our best methods for the study we think are DMS, experiments, and online feedback. WICN's website likely does not need a redesign or regular feedback, they need small suggestions or changes that can make user experience better. DMS may suggest a redesign, or the small suggestions they come up with

may not be worth the cost. A possible experiment could be to have two similar versions of the website, when someone clicks the link they are randomly redirected to one version of the website. Then we ask them to perform some tasks on the website. The results would help us decide what features are good for the website based on if the feature made the task easier. There are a few potential problems though, setting up two different websites like this could be difficult and we need to decide what features to include and multiple experiments may be required. As a backup, online feedback allows website users to directly suggest features for WICN to add. Unfortunately, people may ignore this page, not be willing to give suggestions, or the information we get from them will only be in text form where we will know what the feature is but not how to implement it. (We will use the experiment method unless WICN doesn't want to, in which case we will use online feedback)

Improving WICN's Social Media Engagement

We will choose a research method to collect data on the engagement of WICN's Social Media that is qualitative and at least semi-frequent. The method should be able to collect data on the content that hosts should post, what features they use with posts to engage, and the hosts and shows people want to connect with. For the DMS, social media marketing experts or influencers could work really well. It only needs to be done once, but it is very expensive. The data collected through the DMS would be qualitative and very in depth, but it would be infrequent (it would most likely only happen once). A Customer Advisory Board can get data consistently but they will not be good for frequent information. It can get specific ideas and qualitative information for content and posts and target the people who engage WICN's social

media. Asking about social media using Online Feedback could work to ask people what they want to see on. Using the medium itself guarantees that 100% of the sample is from the population of people who have experience using the social media platform. The data would be very frequent but not consistent. It could be set up to be either qualitative or quantitative. We choose Online Feedback because it can be both frequent and qualitative, and it has the best access to the target population.