SOFACOMMENTATOR

An Alternative Way to Watch Television

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ABSTRACT

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In 2013, Yle commissioned the creation of a concept which was to transform the way live television is watched. It was a plan for a service called Sofacommentator which would have allowed people watching television programmes to voice their own commentary over the program they are watching for other people to listen to. However, this idea did not materialise into a working service.

The purpose of this study was to investigate the history of live event commentary on media and Internet as well as to test the commercial potential of the Sofacommentator service. A simple prototype of the Sofacommentator service was created for testing. Data about the commercial potential were collected by conducting user tests where the test users watched a television program while using the created service with pre-recorded commentary tracks.

Creating a simple version of the service website was successfully done using a modified Wordpress theme and free versions of online radio hosts. The results of the user tests showed a positive response towards the general idea of the service and users told they would be willing to use the service were it available.

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Key words: television, commentary, commercial, internet, new media, radio

CONTENTS

GLOSSARY

Demola	An international organization that facilitates co-creation projects between university students and companies
DNAS	Distributed Network Audio Server, a server sending audio data and using SHOUTcast to do it
DVD	Digital Video Disc, a computer disk containing a movie or other information
Internet port	A number that indicates what kind of protocol a server on the Internet is using and allowed the use
IP address	Internet Protocol address, an identifier assigned to every computer and used to locate and identify that computer
Plugin	A small piece of software adding something to a larger program
To stream, streaming	To transfer digital data, such as audio material, in a continuous matter for immediate processing or playback
To sync, syncing	To synchronise, to make the sound simultaneous with the action
TAMK	Tampere University of Applied Sciences
Webhost	A company leasing and selling space on an Internet server
Yle	Yleisradio, Finnish National Broadcasting Company

1 INTRODUCTION

This thesis is going to investigate the potential of an idea created for the Finnish National Broadcasting Company Yleisradio, or Yle, in Demola Tampere in Autumn 2013. In Demola, companies may request students and other volunteers to create digital products or concepts for them and in the end of the project the company may purchase the result of the project itself or the intellectual rights to itself. In the case where the company does not want to buy the product the intellectual rights stay with the creators.

The project this idea was developed in was called Live interaction with YLE and it was commissioned by Yle in order to create ideas for ways to connect the live television audience with the broadcast itself. There were five different groups of three creating ideas. In addition to me my group included Daryna Barsukova and Jarkko Rinkinen. Our facilitator on this project was Janne Eskola and the contact person with Yle was Yle's Entrainment manager Arttu Nurmi. Both Barsukova and Rinkinen have given their permission to use the template of our project in this thesis.

The final idea of our team was called Sofacommentator (picture 1). The concept was a website through which people could submit and stream their own commentary over a live broadcast and other people could choose to listen to them instead the ones the broadcaster is providing.
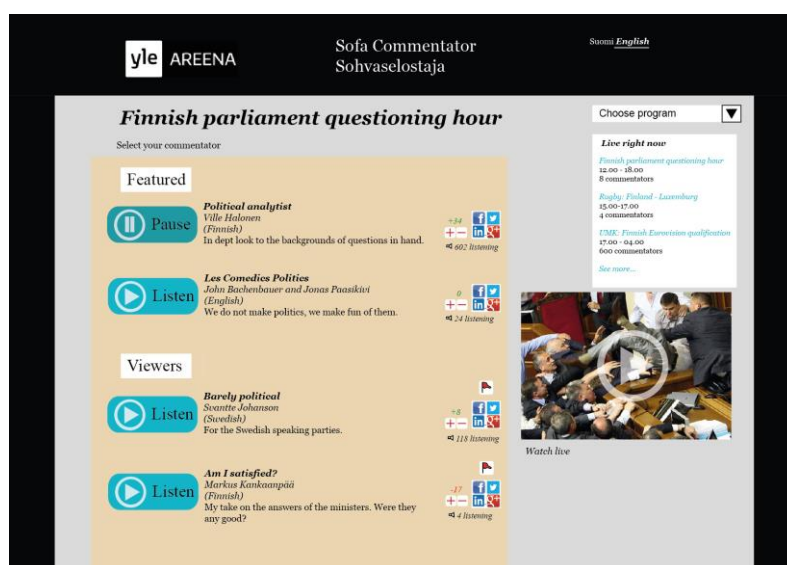
PICTURE 1. A concept picture of Sofacommentator service created for the original the Demola project (Nieminen, Barsukova & Rinkinen 2013).

In theory, this could open a possibility for new and different types of commentary (picture 2). One could imagine a comedy commentary on Eurovision Song Contest, a political and analytical commentary for the questioning hour of the Finnish parliament broadcast or a beginner's guide to ice hockey for the IIHF Ice Hockey World Championships. The possible downside could be that because everybody would able to make their own commentary, it could be possible for racist, hateful or offending voices to channel their messages through the system and it would necessary to place systems to minimise such usage.

PICTURE 2. An illustration from the original Demola Project (Nieminen, Barsukova & Rinkinen 2013).

Another possible use for the service could be art, especially modern exhibition art. This kind of service could be able provide an artist chance to communicate with the audience directly. It is not hard to imagine how an artist could live stream his or her presentation, introduction or comments on the opening night of his or her exhibition. If the artist, or even expert on the art of the said artist, would able to introduce art gallery visitors to the exhibition, this could give new-comers to the art world easier time to learn about art work and the art world. This could then expand the audience who might visit art galleries and probably would be increase the coverage of modern art in general. Also, because the artist only has to be at one place, he or she can then via the website service stream the same introduction to many exhibitions on the different corners of the world at the same time.

It is already known from the original Demola that Yle, according to Arttu Nurmi, has shown interest in the type of service described but does not want to create it under Yle's

brand. According to Nurmi, it would be difficult or impossible to guarantee that the service would not become a platform for people using racist or insulting language or other slander.

This study is going to research if building a simple version of Sofacommentator service is possible and would people use such service enough to have commercial potential.

The first part of this thesis is going to investigate the history of commenting of live events on television and radio broadcast as well as reports of them in newspapers. Part two is looking at how commenting on events and other media is done currently on the Internet and new media and how they interact with the events themselves. In the third part a simple prototype of the Sofacommentator service is created and its technical potential and challenges investigated. In the fourth part this prototype is tested by conducting observational experiments and recording the opinions and reactions of the users towards the concept.

The appendix 1 includes the results of time delay tests on services offering online audio stream hosting. The appendix 2 describes the code used for creating admission for the users. The appendix 3 includes the written instructions for the commentators who created audio streams for users tests of for the service and the appendix 4 spells out the complete results of those user test.

2   LIVE EVENT COMMENTARY ON TRADITIONAL MASS MEDIA

2.1   Traditional mass media vs. new media

Merriam-Webster Dictionary (2016) defines a mass medium as "a medium of communication (as newspapers, radio, or television) that is designed to reach the mass of the people." In practice, this definition can include any number of digital and non-digital media which is able to reach a large audience or a following.

The three mentioned forms of media, newspapers, radio and television, as well as other printer forms of media such as books, can also be classified as old media or traditional media (Kamdar 2016; Penn 2016). While there is no clear cut on what media counts as traditional, it usually means a media which is not digital or online. In contrast to this, so-called new media has come to mean media available on the Internet, accessible on any digital device; online newspapers, blogs, wikis, social media and online streaming services (Krishnasamy 2011; Penn 2016).

The main difference between traditional media and new media, especially when reporting about live events, is their respective speed and the amount of editorial content. During live events, which Dayan and Katz (1992, 5) define as events covered in real-time which have a clear beginning and end and range from news events to entertainment, the traditional media must obey the editorial process and use professional experts to commentate while in new media most of the content is generated by the public (Krishnasamy 2011).

2.2   Newspaper

The newspaper is a slow medium to cover news and events since the most current newspapers are published only once per day. This means that even the most current information is at least hours old, having been through writing, editing, layout and print. (Singh 2010, 213.) That is why newspapers often have more descriptive and deeper, analytical commentary on current events than radio and television (picture 3).

Because voice, body language or other non-verbal ways of communication are not possible to convey through written articles, the journalist must express his or her perspective

and comments through text alone. This forces the writer to use word choices and opinions "to present the writer as categorically aligned with a given value position and thereby bidding to align the reader into this point of view (White, Martin 2005, 115-116)." Phrases like 'Speaker *falsely* claims that' or '*Most* experts believe that' are meant to nudge the reader to an opinion as well.

In written media, it is also harder to separate who is speaking which is why, especially when telling about more subjective events, the journalist may deliberately choose to use neutral phrases and expressions (Thomson & White 2008, 187). This is very common especially in news media where the reporters are expected to separate themselves from the events and present themselves "as having nothing invested in the position being advanced in the reported material" (White & Martin 2005, 115). When the journalist positions himself or herself to be separate from the story it is also easier for them to give to point of view of the others. This is often the case with interviews.

PICTURE 3. Cover of Australia's The Daily Telegraph a day after the 2012 Summer Olympic opening ceremony (The Daily Telegraph 2012, 1).

2.3   Radio

Radio is a non-visual medium. Because of this a commentator in radio covering an event must be more descriptive of the situations because the audience cannot see the event itself. (Marriott 2007, 5.) This also means the voice and the descriptions used as well as the excitement of the announcer or commentator in the broadcast are extremely important to the listener. John Hamilton describes the key for a of good radio commenting as good delivery of every single word: "If you pay close attention to every word you are saying, your speech can be much more dynamic (Prezi Blogs 2015)".

Radio has been used to cover live events as soon as it became a consumer medium. Small local broadcasters aired reports from sporting events as they received information from the event itself by telegram. Play-by-play commentators would work in the studio and would not see the game themselves, rather relying on messages from others on location. Sometimes the radio operators added sound effects and crowd noises to the broadcast to create a feeling that the coverage would come from the stadium itself. (Richter 2006, 51-52.)

The first announcers in sport were sportswriters from the printed media or people who had worked on radio in but only in studio environment (Smith 2001, 18-20). This had its problems, however, since the sportswriters had little idea how to describe the game real time and the radio workers could not give enough information on the game itself. Nowadays the commentary in sports is often provided by an announcer describing the action on the playing area and analyse plays, game trends and developments that affect the game and a commentator offering personal opinions or strategy insights (Morgan, Scott. N.G). Same version of this arrangement is popular in other event broadcasts as well, both in radio and television.

2.4   Television

Television is a medium combining both visual and audible communication. This allows the viewers of a television broadcast to also observe the non-verbal communication of the presenters and they can see the physical make-up of the broadcast or event location itself. (Marriott 2007, 5.) Because an event can be also seen by the audience, the role of the

commentator is very different from the radio announcer because they do not need to describe the big picture and can concentrate on finer details (Walker & Bellamy 2008, 259). On the other hand, the commentators must take care of their own presentation as well since they can also be seen on the camera.

With live television, the role of the announcer becomes also the role of bringing the viewers at home to the location. The purpose here is to immerse the audience and give a feeling that the event happens right now and the time of reception are one and the same. (Marriott 2007, 5.)

A television announcer needs to talk much less than their radio counterparts. On radio the commentators must avoid the so-called 'dead-air', silence without talking, but on television short breaks in speech are often preferred as the audience wants the picture to tell the story (table 1). Often the commentator works in the studio with an analyst who is an expert on the field of the subject matter and can give more analytical comments on the event in question. However, television commentators are more often subject to more directorial input in their work than their radio counterparts. (Walker & Bellamy 2008, 259-280.) This is partly due to the more commercial nature of modern television but also because the commentators must account their commentary to what is happening on the broadcast sent to the homes. Thus, they must only comment things the audience can see.

With particularly sporting events the commentary and analytics over the gameplay are often taken as granted on television broadcasts and the viewers are very accustomed to it. This was partly proven by the experiment made by an American broadcaster NBC on December 20th 1980 during the regular season ending National Football League game between Miami Dolphins and New York Jets. The match was broadcasted nationally without any spoken commentary. Instead, the network displayed more than a usual number of graphics and text on screen providing information on the players and other things the announcers would normally talk about. Known as the 'Announcersless Game', the experiment failed to increase the viewership but made the otherwise relatively uninteresting game a talked event. After the Announcerless Game no network has aired an American football game without commentary, except through alternative feeds. (Garber 2010; Wikipedia 2016.)

TABLE 1. Baseball announcer Bob Wolff gave on action-by-action comparison of how to describe an event during a baseball game on radio and television in October 1956 edition of Baseball magazine. (Wolff 1956, 36.)

	RADIO	TELEVISION
1	"Jones looks in to get the sign. Here's the windup — and the pitch."	No comment necessary. (Sometimes during the game the sportscaster may comment on Jones' unusual windup, if he has one, or on any particular noteworthy mannerism which he displays on the mound.)
2	"Smith swings and misses for strike 2."	"That's strike 2." (If the batter took a particularly hard cut at the ball, a comment might be added to the effect that "Smith was really trying to powder that one, wasn't he?" Or, "That was a mighty good curve ball that Jones dished up that time.")
3	"There's a hard hit ground ball going two hops to the shortstop, Johnny Brown. There's the throw to first and Smith is out on a close play. There are two away."	"That's Brown making the throw. Two out."

2.4.1 Satirical news shows

Some television programs comment the ongoing and current news stories through the lens of satire. Satirical news programs, like the Daily Show and the Tonight Show, in the United States and Noin Viikon Uutiset in Finland, are a mix of humour and commenting on current events, with the usual main emphasis on politics. These shows are heavily scripted and researched which means the events and stories they are present or make comedy about are at least a day, sometimes a week old. They usually do not aim for telling new information about the events or news themselves but deliver their comedy from commenting on video clips and news clips from real television news and other programs. (Pew Research Center 2008.) Because of this, these satirical news shows usually define themselves as nothing more but entertainment. However, some people, particularly in the United States, find these satirical news programs as the source of at least some of their

news. Studies on the subject also show the viewers of these shows are more informed on some political topics than those who got their news from newspapers, online publications, or cable news. (Diep 2015; Anderson & Gottfried 2014.)

### 2.4.2 Television shows commenting on non-live events and media

Television shows making comments over entertainment and other media have also been created by teams with no connection to the original source material. They are also not aired live, either due to that nature of the program itself or the media being commented on. One of the most well-known of these shows was called Mystery Science Theater 3000. Created by Joel Hodgson and airing from 1988 to 1997 and from 1998 to 1999, the idea of the show was based around a team of comedians watching and ridiculing entire small-budget films, one per episode (Hirsh 2013; Mystery Science Theater 3000… 2016). The show has been highly influential, partially contributing towards the practice of 'social television,' where viewers at home would also comment on what they were watching with their friends. (Garber 2015; Mystery Science Theater 3000… 2016.)

Another television show based on social television is a British show called Gogglebox, aired by Channel 4. In Gogglebox, people are filmed in their homes reacting and commenting on television programs they are watching (Gogglebox 2016). The reactions are then edited in with footage of other people watching and with clips the show they are watching. Because the show is not aired live, Gogglebox includes a great amount of editing of the shows being watch and comments of the people watching it. (Programme Information: Gogglebox 2013; McNulty 2013.) Additionally, there are multiple different television programs being watched during a 30-minute episode so there are only small bits shown and commented on from each show. In February 2015, Yle started to air a Finnish show based on the British format called Sohvaperunat (Clusius 2015).

3 EVENT COMMENTARY ON INTERNET AND NEW MEDIA

3.1 Social media

Microblogging service Twitter, launched it 2006, has become of the most popular sites on the Internet for people to comment live events. In 2014 Twitter users sent half a billion messages, known as tweets, per day. The users can categorize their tweets on certain topics by using hashtags (#-symbol) and during big media events Twitter is filled with tweets with certain hashtags. (Boulton 2014, 172-3.) In fact, Twitter has become so popular ground for online conversation during live television, television broadcasters often create hashtags for events to start conversation about the event anybody can follow. Some broadcasts also embed tweets with event's hashtag to the broadcast itself (picture 4). However, because of the huge number of tweets sent, a conversation can easily disappear into the mass.
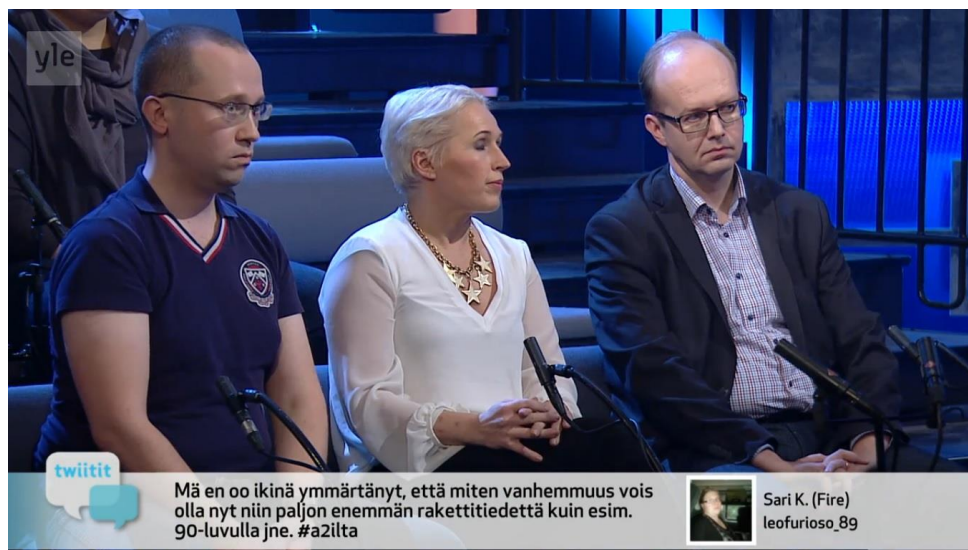
PICTURE 4. Tweets embed in a conversational live event, "A2 Vanheemmusilta" broadcasted by Yle on 1st of December 2015 (Vanhemmuusilta, Finland 2015).

Inspired by Twitter, the social media service Facebook also added hashtags to their media feeds in 2013 in an effort to create conversation through Facebook (Everything you Need to Know… 2013). However, because Facebook allows publications to stay private with the user's friend circle, public discussion on the same scale as in Twitter does not happen on Facebook (Knibbs 2013). On the contrary, Facebook may create discussion on certain post commenting an event within the person's friend circles.

Taking the social media conversation during media events, a Finnish service specifically created for online event commenting called Sofanatics was launched in 2009. The concept of Sofanatics was the create fans of football a place to cheer their team during matches of that team. (Korkiakoski 2012.) The service combined feeds from Twitter and its own system and was aimed to create a "stadium feel on home." However, in 2012 it was announced that the service would shut down because it failed to create revenue and a profitable business (Kauppalehti 2012).

3.1.1 Second screening

The practice of second screening means that a consumer is following two different media streams at the same time: a television broadcast and a social media feed from a tablet device, mobile phone or a computer. According to Tata Consultancy Services (Second Screen Revolutionizes… n.d.) and Greenwood and Yorke (2014), 77 to 80 per cent of people owning smart devices browse web and/or follow social media discussions while watching television. There is no uniform pattern of what people do with the second screen. Some users use it to gather information about the program they are watching while others want connect with the larger group following the same broadcast and have their voices heard (Greenwood & Yorke 2014). There are also second screen directed applications on mobile devices, such as Miso and GetGlue, which allow users to select a television show they follow and join the conversation with others in their network, even if the show is not being aired at that time.

In a Pennsylvania State University study (Mukherjee, Wong & Jansen 2014) on what kind of Twitter messages people send during television shows reveals that "[v]iewers prefer posting undirected messages, […] most on social media while the TV show is telecast live." During taped shows, however, the conversation on Twitter consists more of jokes and referrals made towards to show. According to the study, "during live TV show users do not want to be distracted and intend to maintain their focus on TV show content." This means the comments sent on Twitter during live programming reflect how people feel about certain shows.

3.2 Liveblogging

As previously established, traditional printed newspapers cannot cover events in real time. However, when many of the newspapers also started to publish news on their own websites, some started to also publish live reports there. The practice of providing commentary on ongoing events with frequent, short updates, typically on the web, is called liveblogging (Oxford n.d.). These are mainly text-based, mixing posts from Twitter and other social media service with original updates from the news sources by the feed editors. Sometimes multimedia, like pictures and videos, may be added to the feed. (Wells 2011.) The types of events life blogs follow include current news stories, topical events and sports events (table 2).

The main advantage of live blogging compared to writing, updating and editing longer and more researched articles is the fast tempo live blogs can be written and possibility to use more casual tone than in news articles. However, a rush to do quick-fire updates makes it more likely that live blogs may include serious mistakes and misinformation. (Thurman 2013.)

Live blogging is also increasingly popular with individuals who do not work in news industry (Thurman 2013). Services like Tumblr, Twitter, Reddit and CoverItLive are used to both report on current events as well as give information and commentary on current events. These are often much more opinionated and subjective than the ones created by established media organisations. Media organisations and online newspapers often use these individual live bloggers to fill their own media feeds, especially if these individuals are public figures.

TABLE 2. The requirements and styles used in different kinds of event live feeds according Reuters Institute's survey by Neil Thurman and Anna Walters (Thurman & Walters, 2012).

Type	Characteristics
News	- Scheduled well in advance, semi-scheduled or completely unscheduled. - Major breaking news stories, generally with a more serious tone. - Examples include natural disasters, protests and riots, unfolding political scandals.
Sport	- Predictable - Casual in tone - High level of direct interaction with readers - Fewer multimedia elements - Links and multimedia elements often included for entertainment purposes, may not be directly relevant to story
Series/Subject	- Cover a subject, not a single story - Usually public affairs topics - Examples include: Politics Live, Middle East Live, and a Live Blog on planned reforms to Britain's National Health Service.
Other Scheduled Events	- Planned in advance and of finite duration. - Cover soft news, such as the Cannes film festival, the Eurovision Song Contest, and television series such as The Apprentice and X Factor, which are live blogged at the same time each week.

3.3 Podcasts and video podcasts

Podcast is a relatively cheap method for individuals to comment and give their opinions on ongoing news stories and entertainment, as well as hobbies and other personal interests. These are usually not live broadcasts but instead are a way for either individuals, groups or business representatives to talk about the events in audio form, either with either scripted talk or flowing conversation. The requirements for an audio-only podcast are low, requiring only a microphone, a basic audio editing software and a website to upload the resulting audio tracks to. (Gray 2015.) Some listeners also find at least some of their

news from podcasts and the popularity of these talks has created some demand for advertisers to promote their products with well-known podcast creators (Quah 2016). Podcasts can also be created in video form. The podcast maker in that case usually talks directly to the camera or talks and comments over footage of a news story or some other video material.

3.3.1 Commentary on other non-live media

The Internet has also given an opportunity for independent groups to create downloadable or streaming commentary tracks for films and television shows. These work mostly the same way that commentary tracks on DVDs where the addition audio commentary is put over the original audio. One of the most well-known of the media commentary podcast for films is called Rifftrax. Formed by the comedians behind Mystery Science Theater 3000 after its cancellation, Rifftrax creates downloadable comedy commentary tracks for feature movies (RiffTrax n.d.; Sloan 2012). Because unlike with Mystery Science Theater 3000 the team is unable to licence the films being commented on, Rifftrax is limited on commenting, or 'riffing', films which are already on wide circulation and on DVD or digital format (RiffTrax 2016). The consumer must both acquire the film itself and sync the film with the RiffTrax commentary audio file.

4   CREATING THE SOFACOMMENTATOR SERVICE

4.1   Creating the website template

The base for the Sofacommentator service webpage was created on free Wordpress.org template using Byethost Web Hosting as the hosting service for it. Wordpress was chosen due because of the easy customisation possibility and the ability to use plugins to create elements for the site. The website was based on a Wordpress theme Simtiful which was modified to better suit the needs of the service (picture 3).
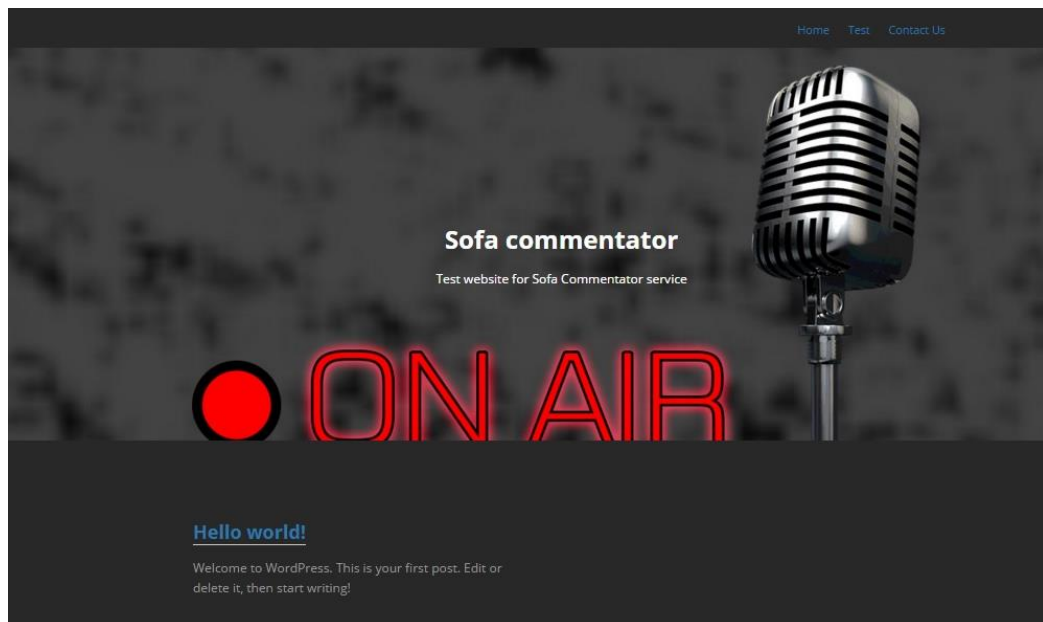
PICTURE 3. Sofacommentator website after creation (Photo: Teppo Nieminen 2016).

Two custom domains were created for this project: sofacomment.cu.cc and sofacommentator.cu.cc, in addition to the default Byethost domain sofacomment.byethost11.com. Cu.cc is the country code top-level domain of Cocos Islands which can be registered for free. However, because cu.cc is a free domain, some firewalls and anti-virus software register sites using it as a malicious website (Stemm 2013).

4.2 Streaming service research

The concept of Sofacommentator was to host audio streams user sends to the service and allow other people to listen to them. This required that the service would be able to host audio streams. However, to simplify and focus the project, it was decided to use services already offering online radio and stream hosting service for this purpose. 21 different free Internet radio and streaming services, applications and solutions were tested and evaluated for this project and its needs.

4.2.1 SHOUTcast & Icecast

Most services offering online radio hosting are using one of two network service solutions: SHOUTcast, developed by Nullsoft, Inc., and Icecast, developed by the Xiph.org Foundation. Both are systems based around a 'client + server' configuration which allow the user to run a Distributed Network Audio Server, or DNAS, either directly or via a hosted service. They can then provide a stream connecting the server to any listeners with DNAS server's IP address. (Shoutcast Developer Wiki 2016.) Both solutions are also capable of streaming video.

When using a service online, the user connects to an external host server, which uses SHOUTcast or Icecast based configurations, to which user must connect. Then the listeners may connect to the servers IP-address and right port to listen the stream.

Both SHOUTcast and Icecast allow the users to create a non-commercial server to users' own computer for free. This makes the user' computer a server which handles all requests and traffic created by other users connecting to the stream. SHOUTcast gives a very detailed written tutorial on how to set up a server and has a step-by-step guide to start streaming. It, however, requires the use of Winamp Media player, also developed by Nullsoft, with a SHOUTcast plugin in order to stream.

Icecast has a less detailed manual for creating a new server but tutorials for this setup are widely available online. The installation package includes two pieces of additional software: libshout, a library for communicating with and sending data to an Icecast server handling the socket connection, the timing of the data, and prevents bad data from getting to the Icecast server, and IceS, a program that sends audio data to an Icecast server to

broadcast to clients (Icecast: FAQ 2004). Settings for Icecast server are also done on the Internet browser but requires a third-party software to stream audio.

Broadcast Using This Tool, or BUTT, created by Daniel Nöthen, was used for all streaming tests.

No tests could be conducted using self-created SHOUTcast or Icecast servers, however, since no Internet router available during the test period allowed or were capable of streaming from the computers tested. Self-created streams could still be linked to a website using senders IP-address and Internet port.

4.2.2   Mixrl

Mixrl by Mixlr, Ltd., allows the user to create live audio streams from both user's computer and smartphone. It does not use SHOUTcast or Icecast for audio streaming and instead requires an installation of a custom Mixrl software the user must use to stream. With the free version, the user can only stream for one hour within 24 hours. (Mixrl 2016.) This limits the practicality of free version of Mixrl during longer events.

The stream broadcasted with Mixrl can only be listened from either Mixrl website or from Mixrl media player embed to a website (picture 4). Mixrl also provides guides for using both the custom streaming software and the embeddable media player.
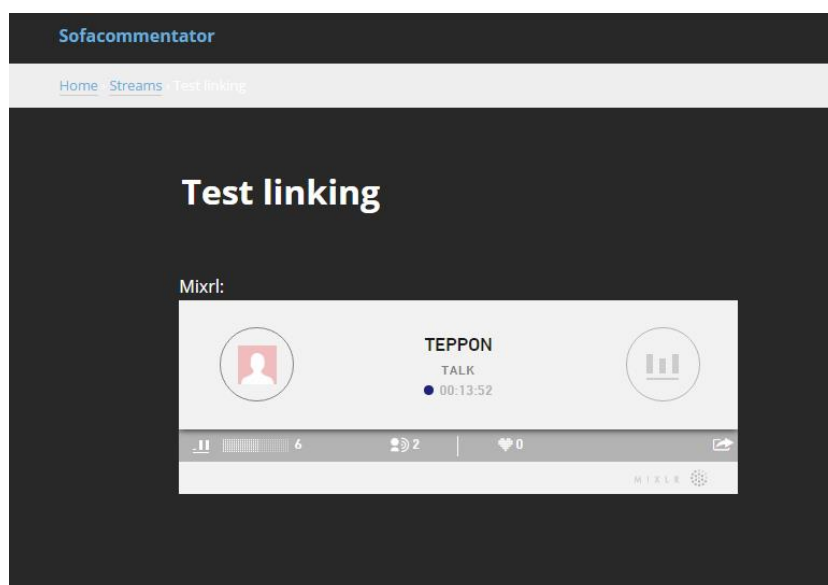

PICTURE 4. The Mixrl embedded player on the Sofacommentator website (Photo: Teppo Nieminen 2017).

4.2.3 MyRadioStream

MyRadioStream, by Bell Online, Ltd., is a SHOUTcast based host server for audio streams with SHOUTcast based server solution. Using it requires the user connect their streams to MyRadioStream's servers with a third-party software, like BUTT, in order them to be broadcasted. The free version of MyRadioStream, known as Webcaster Basic, has advertisement for users, less compatibility with different media players than the paid version and the stream cannot be listened on mobile devices. The amount of bandwidth is also limited to 2000 gigabytes per month, bitrate is limited to 128k and the maximum number of listeners is 50. (MyRadioStream 2016.)

Setting up the stream required somewhat more work than Mixrl did but MyRadioStream website provided a guide on it. Still it requires more technical knowledge on audio and streaming than Mixrl. MyRadioStream also has a media player of its own the user can link to their website with simple HTML (picture 5).
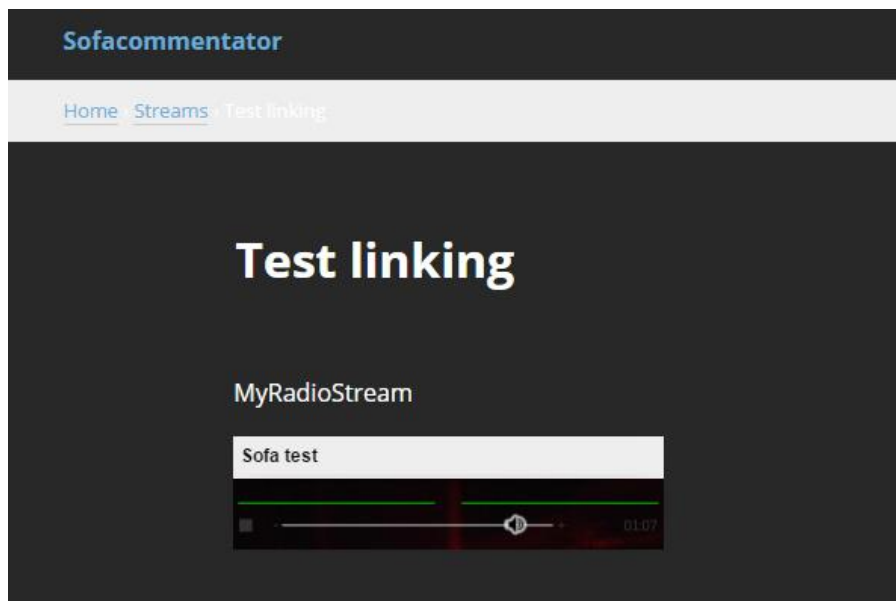
PICTURE 5. A MyRadioStream media player embedded on the Sofacommentator website (Photo: Teppo Nieminen 2017).

4.2.4 Listen2MyRadio

Listen2MyRadio, by listen2myradio, Ltd., is a service similar to MyRadioStream in that it is a service offering a host server for audio streams. The user also needs an external

software in order to link the audio from the computer to the server. According to Listen2MyRadio the stream can host 5000 listeners per stream. (Listen2MyRadio 2016.)

Listen2MyRadio has no embeddable media player of its own and its terms of use do not allow embedding the stream with a third-party media player on the free version of the service. Instead, Listen2MyRadio offers four different subdomains with custom media players users stream can be listened through, all of which are advertised.

4.2.5   Caster.FM

Caster.FM, by Caster.fm, Ltd., is a service also similar to MyRadioStream and Listen2MyRadio but using Icecast configuration instead of SHOUTcast. On free accounts a stream can host 400 listeners per stream (Caster.FM 2016). The free service also has advertisement both from external sources as well as pointing the user towards the paid service. The service wants to point the listeners to its own domain that is created for the user but also allows embedding a media player of its own for external websites (picture 6). However, if using the player embedded, entering the page the player is embedded will trigger a pop-up advertisement on that page.
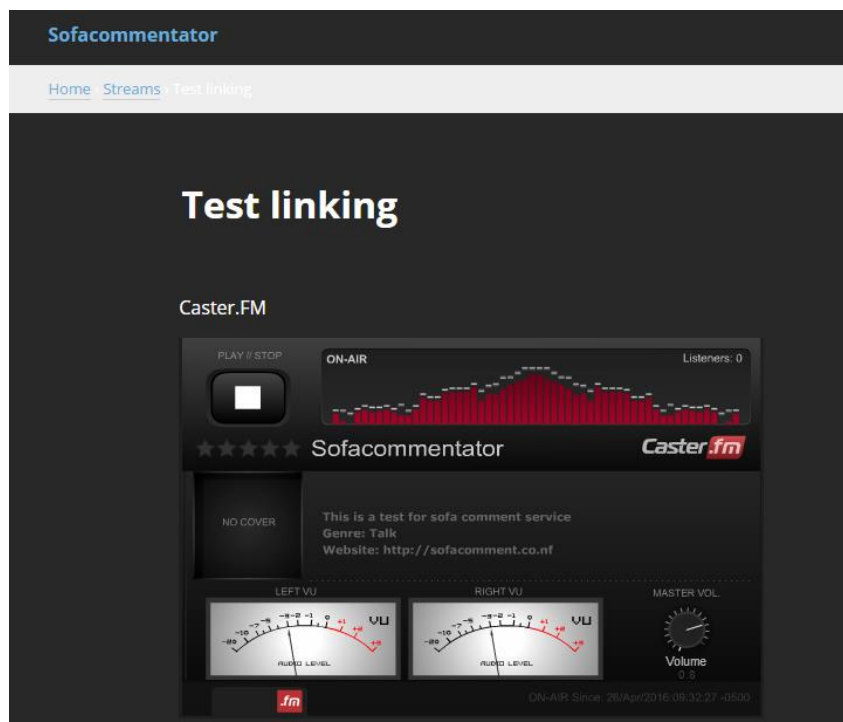
PICTURE 6. Caster.FM media player embed to the Sofacommentator website (Photo: Teppo Nieminen 2017).

### 4.2.6   Youtube & Google Hangout

Youtube, owned by Google, Inc., offers a possibility to do create live video streams with Google Hangout on Air service. The use of it requires a Youtube account with no copyright infringements as well as a Google+ account connected to the Youtube account. (Hangouts on Air 2016.) The accounts also must be verified with a text message and the user is required the installation of Google Talk software on user's computer, elimination the need for a third-party streaming software. It is still possible to use a third-party software to create a stream (Set up your live streaming encoder 2016). However, Youtube is a video-only service and thus requires a video recording device in addition to a microphone.

Youtube allows a broadcast to last up to eight hours. Google also gives lots of instructions on the live streaming in multiple languages and allows customisation on the stream, for example in the publicity and commenting on the video. The difference on creating a stream with Google Talk and a third-part software is that when setting up a stream with Google Talk, a new video is created and thus the video must be changed on the receiving end every time new stream is started. Connecting with a third-party software the same link can me kept. Because Youtube stream is in video form, it needs more data to transfer than an audio stream, which might require more server power from the embed website host.

4.2.7   Periscope

Periscope, developed by Twitter, Inc., is an application for mobile devices where the user can send live video streams to other users as public presentations. Because the service is owned by Twitter, the user must have a Twitter account to login and stream. The streams can only be created on mobile devices but it can be viewed both on the app itself on mobile and on Periscope website on other devices. (Periscope: About us 2015).

Periscope is a video-only streaming service. The video is a public one unless it is limited to only few users. Additionally, the stream can only be viewed from the Periscope website or mobile application and if the stream is embedded to an external website, the linked code only will only give a notification weather the live stream is on or not (picture 7).
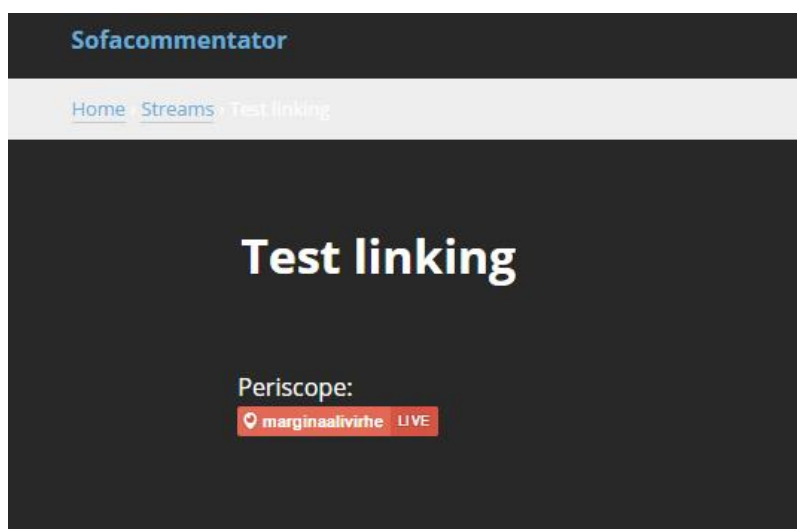
PICTURE 7. Periscope embed on the Sofacommentator website, showing the user is currently doing a live stream (Photo: Teppo Nieminen 2017).

### 4.2.8 Tests on delay of the streaming services

Test on the delay of the previously listed services were carried out on July 12th, 2016 on the main campus of TAMK. The tests were done to each streaming service individually. In addition to the test leader, present were four test assistants. Delay of the streams was tested on four platforms: home pages of the service on web browser, stream embed on the Sofacommentator site on web browser, home pages of the service on mobile device and stream embed on the Sofacommentator site on mobile device. Each test assistant one of four web browsers on their computer: Mozilla Firefox, Google Chrome, Apple Safari and SRWare Iron. The tested mobile operating systems were Android, iPhone and Windows Phone.

In the beginning of each test run, the test leader would connect to the tested service, direct the assistants to the right web address and say "Three, two, one, now" into the microphone. On the word "now", the participants would start a stopwatch and stop it again when they hear the word "now" from their speakers. They would then record the time the stopwatch reads. The test was repeated three times on each tested platform. Each participant and the test leader used the same Internet connection to eliminate factors in the connectivity.

The results of the tests (Appendix 1) showed the delay of the streaming services to be between three and 18 seconds, depending of the used service and device stream was listened on, with the average delay being about 12 and a half second. In average, Mixrl had the least and Listen2MyRadio the least delay. In addition to the previously listed services, a test was also conducted on mobile streaming application Meerkat, developed by Life On Air, Inc. However, the service was quietly shut down on October 2016 (Mlot 2016).

4.3   User interface

The Sofacommentator website was planned as a service where registered users may create streams for other people to listen to. This means that a user should be able to register, link their audio stream to their profile page and tell other users which events they are covering so that people who might want to listen to them are able to. For creating user profiles, Ultimate Member plugin was used. It allowed the creation of personised profiles (picture 8) and use of the profile information with PHP language elsewhere on the site too.
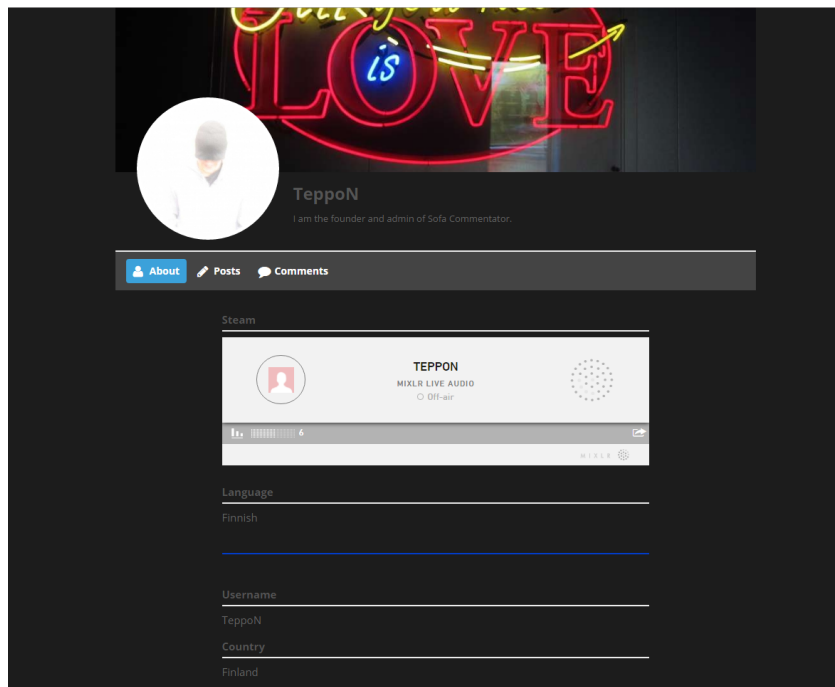
PICTURE 8. View of an example user profile with Mixrl media player (Photo: Teppo Nieminen 2017).

To have embed media players on the website, there needed to be a system in place where users could send their streams on their profile. However, it would be unsafe to let users

embed the media players on the site by themselves since it would allow users to feed pure code to the website, which would be a major security risk.

Two solutions were devised to counter security risks: one where the user would send the stream embed code to the admin as a .txt file and one, where user would have to fill out the stream IP and port on a form, which would be turned then to HTML media player. On both cases the admin may check the security of the link and add it to a hidden text area on the given user's profile page. Both systems were tested briefly but neither got the be tested out on a real environment.
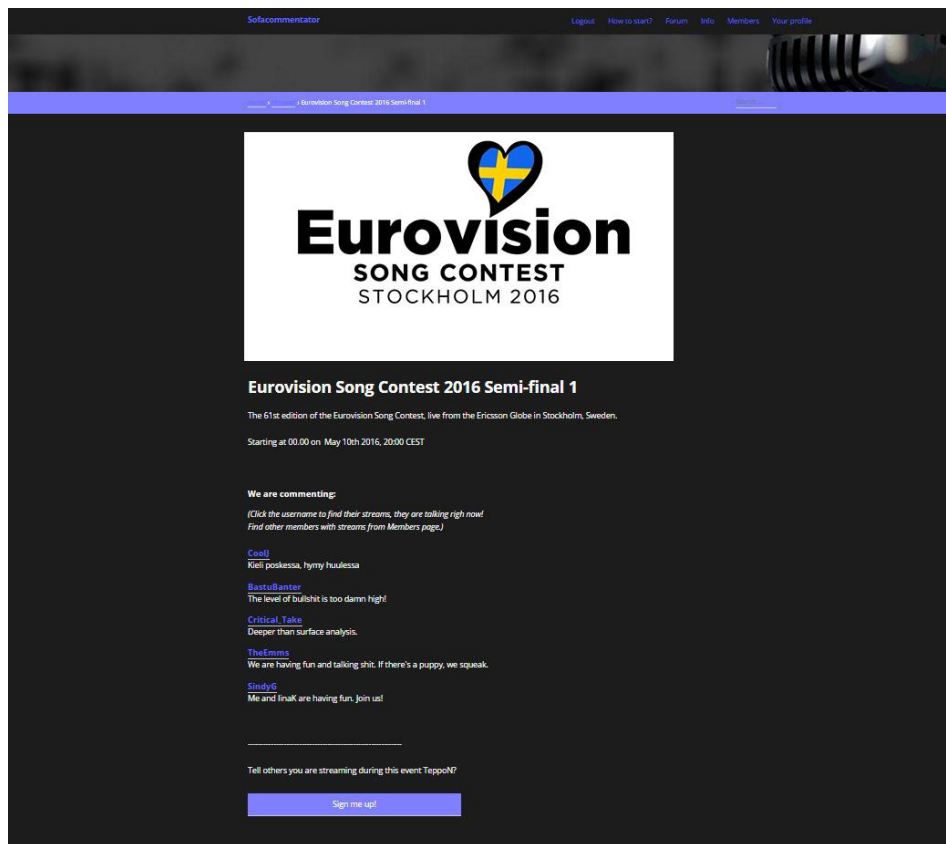
PICTURE 9. Page of an event on Sofacommentator website, where registered users may inform others that they will comment during this event. Commenting users listed under 'We are commenting:' (Photo: Teppo Nieminen 2017).

After users' stream has been added to their profile page, there had to be a way to inform other users that some members are streaming content during and fitting this event. Using Wordpress posts as marking events commented on, mix of PHP and HTML code, as written out in Appendix 2, was added to the post template of Sofacommentator site to check whether the user seeing the post is logged in or not. If the user would be logged in, the

code would check if the user is already listed in the participation commentator list, had something written on their biography and have a stream listen on their profile. If all of this is cleared, the user would be able to click a button, which would add them to the participation list. At that point, the user's username and biography are read from the profile created by Ultimate Member plugin to a post expanding plugin Advanced Custom Fields and is then shown at the bottom of the event page (picture 9).

5   USER TESTING

5.1   Material and copyrights

To research the public interest towards Sofacommentator, user tests needed to be conducted. Video material from real live television broadcasts were the ideal material to show in these tests and to acquire a permission to use such material, biggest television companies in Finland, namely Nelonen Media, MTV Media and Yle were contacted. Also approached was the Eurovision Song Contest, a popular annual television event by European Broadcasting Union, which uploads every event at full length to their Youtube channel.

From Yle, the Sales Executive of Yle Archive Sales Raija Pösö and Commissioner of Culture and Entertainment Content Arttu Nurmi, who was also the contact person Yle for the original Demola project of Sofacommentator, answered the messages sent. They assured in conversations over both telephone and email that Yle's legal department would allow the use of video material in Yle Areena could be used in the test scenarios described but the test sessions could be done to only one person at a time, the videos must be shown from Yle Areena and the logo of Yle in the videos should not be removed.

Alex Walker from Eurovision.tv also sent a reply. He told, that videos from the Eurovision Song Contest Youtube channel could be used and even downloaded with the conditions that they would not be spread or published publicly or used commercially and were only used for non-profit research purposes.
Nelonen Media and MTV Media did not respond to messages sent to them.

In the user tests only a clip from 2016 Eurovision Song Contest Semi Final 1 was used to simplify testing procedures.

5.2   Audio streams for user tests

In order to test the service as realistically as possible, the test session needed pre-recorded commentaries to play and stream via Sofacommentator website which the test users could listen to while they watched the recorded broadcast of Eurovision Song Contest. With

instructions given (Appendix 3), five commentary tracks were created by a group of vol-unteers (table 3) and these tracks were used in all user test sessions.

TABLE 3. Streams used for the user tests, with people who created them and some info about them.

NAMES	SCREEN NAME	LANGUAGE	STYLE
Teppo Nieminen	Critical_Take	English	Review, analytical
Janne Lesonen	CoolJ	Finnish	Humoristic
Emmi Nieminen & Emma O'Neil	TheEmms	English	Humoristic, reaction
Iina Kuula & Sindy Giraldo	IinaK & SindyG	English	Commentary, reaction
Andreas Heinrich, Sasu Luhtala & Tuomas Tulijoki	BastuBanter	English	Reaction, chatter, commentary

Listen2MyRadio, MyRadioStream and Caster.Fm were the streaming services used for relaying the audio tracks. To them a connection was made by a media player (where they audio tracks were playing during the tests) from one of two computers used by the test conductor. Media players used in these tests were Mixxx by Mixxx Development team, Winamp with Edcast Plugin by Nullsoft and PlayIt Live by Jason Allen.

5.3 Conduction of user tests

Two types of tests were conducted: on location and online. On location tests were test sessions where the test users arrived at a fit for purpose set-up room at predetermined times, with only one user tested at the time. Online tests were tests where the test user and the test conducted were physically in different places and the test instructions and direc-tions where given over the Internet. The online test was devised due to the interest on the test but many people not able to attend to on location test sessions. The user only had to take part in one of the test types.

On location tests were held in Mediapolis, Tampere Finland on 16th and 17th of March 2017. The online tests were done between March 15th and March 26th, 2017.

5.3.1 User test setups

On location user tests were conducted as follows:

Test users arrived at the test session in Mediapolis one by one on pre-determined times. The users were led to a test room which had headphones, a laptop and a television with a remote control (picture 10). A simple brief was told about the test and users were informed on how to test would go. Then the test conductor started all the pre-recorded audio recordings from media players to the video from the television. Users were then free to use the Sofacommentator website and listen to what they wished. After a maximum of an hour, the test ended and the users filled in a short form, while also giving verbal feedback.
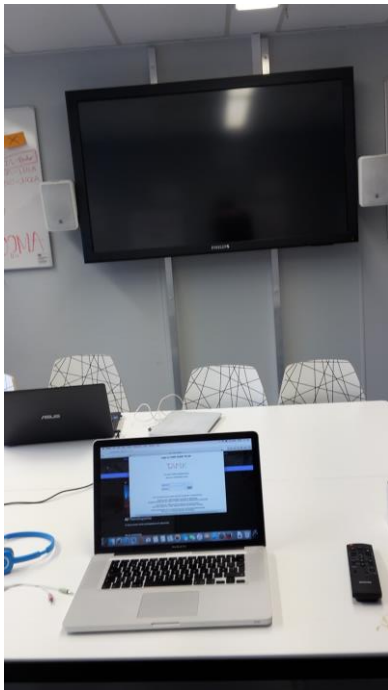
PICTURE 10. On location test setup from the perspective of the test user (Photo: Teppo Nieminen 2017).

The online tests were conducted as follows:

Signed up test users for each test would be added to a Facebook chat on a pre-determined time, while they were their own homes. The test conductor would then instruct users to open the test show video from Youtube on Eurovision Song Contest channel and pause it, open the Sofacommentator website and enable Flash player on their Internet browser. Once all test users had completed these, the test conductor started all the pre-recorded audio recordings from media players and counted down from ten on the Facebook chat. Once the count hit 0, the test users started the Youtube video and the test would begin.

After 50 minutes, once all the streams had ended, the test conductor would announce in the Facebook chat that the test was over, and ask all the participants to fill in a short online form and ask for verbal feedback as well.

5.4   Test results

Total number of the users who participated on the user tests and gave feedback was 18. Of these, six participated to the on-location tests and 12 to online tests. The test users were all ages between 20 and 50, with 39 per cent of them between 20 and 25.

According to the results on the survey given to the all the user test participants, as fully detailed in Appendix 4, 83 per cent of the test users told they watch television at least a few days a week. However, only half of all users told that they watch live broadcasts in some way or form weekly. The types of programming most test users told they prefer to watch live are political debates and current affairs panels, as well as big one-time events, including speeches by a head of state and breaking news. Concerts, award ceremonies and sporting events were also preferred to be watched live.

During the test sessions, 72 per cent of the test uses told they used the Sofacommentator service the whole or most of the test session. The best feature of the service in their opinion was the entertainment value of the commentators tracks by themselves, with 12 people choosing this option. Ten users also liked the different styles of commentators while nine liked the different personalities speaking and the same number thought that the comments made the program more interesting. Interestingly three different answerers wrote outside of the pre-given answer options that they liked the fact that listening to the comments made them feel like they were not watching the show alone.

The worst detail of the service according to the test users was the timing difference between the program and the commentators and the sound quality of the audio streams, with eight people choosing this option. Other frowned upon features included the stream sound quality of the streams with seven answers, usability of the website with also seven answers and the volume level of the streams with six answers. Other only one the user wrote here but many others mentioned during the test or after if were the problems with Adobe Flash problems, Flash being used on some of the embed media players.

Out of all of the 18 people who tested the Sofacommentator service, 15 said they would, at least conditionally, use the service when watching live television if the service was available. The main condition for using Sofacommentator were the personalities speaking and if they were entertaining or interesting. Some also mentioned, that might only use the service if they were alone. Only one of the test users would be unlikely to use the service.

The type of programming the test users were most interested to use Sofacommentator with was, according to their answers, awards ceremonies with 15 answers. The users would also use like to use it during political debates and current affairs panels, with 10 answers, and sporting events, with nine answers. The test users would be most likely to listen to insider's, participants or maker's view commentaries, with 14 answerers choosing that option. Other popular commentary types would be professional opinions and comedy talk with 12 answers each, as well as analytical take and reactions type commentary, with them ten test users choosing them.

Most test users, however, were unsure if they would create commentary tracks by themselves. Only two were sure they would, with another two telling yes if the programming that would be on air would be interesting and if they had friends to do it with. One told they would only like to commentate textually. Rest were either unsure or told they would not comment. Those test users said they did not feel like they were interesting enough, did not like their voice or felt unsure about spreading their thoughts.

In general, the test users told that the service was interesting and worth developing but requiring work when it comes to the technical presentation, most notably the time difference between the show and the commentary tracks. The users also pointed out that website users interface should be laid out so that all the audio players of the commentators could be found from the same page and all the audio players should be uniform in look and usability, with some other improvement ideas also directed at the website design. Some users pointed out the service would be interesting also with the programming that is not aired live. Full details on the test user responses can be read from Appendix 4.

6   CONCLUSION AND DISCUSSION

The aim of this study was to investigate the current and past ways on how commenting on live events is being done currently and what other ways of commenting of media are there. This study also set to find out if building and upkeeping the Sofacommentator service planned for Yle was possible from a technical standpoint and if so, would there be interest on the public to use such a service.

During the research of current and past ways I realised the topic of commentary on media was much wider than I had considered. The medium of Internet has greatly changed and evolved the techniques used to relay and comment on live events, and given public more ways to participate in to the process of making them. Traditional media, mainly radio and television, have started to work more and more with the new media, such as social media and blogspace, so that these two medias are supporting each other and creating content for the other to use. It also seems that despite the fast speed information can be gathered via Internet, many still want to hear more analytical comments created some time later, for example from newspapers and satire news shows.

What it comes to the Sofacommentator service, it is possible to build at least a simple version of such service. I build this test site with Wordpress template and with a free online hosting, both of which have restrictions on the flexibility of the site and amount of traffic it can handle. However, this kind of service needs to transmit and relay a vast amount of data which requires much from the hosting service. Ideally the site should also have a built-in streaming service so external services on audio streaming could be avoided. The solution I used worked fine but use of any third-party services brings complications and compatibility issues on different devices, thus giving more work to admins, webmasters and moderators. They can also be a security risk. Therefore, an internal system, although likely heavy and complicated, would ease the work in the long term.

There are many things I have learned about web programming and website usability during my work on the service. If the service were to be built as a commercial service, the user interface would have to be streamlined and made more approachable for people with less technical knowledge and skills. I would also eliminate the need for Flash-based media

players since they seemed to cause the most problems with compatibility across different browsers and operating systems.

Results of the user tests, as detailed in Appendix 4, show that there would potentially be a demand for a commercial version of Sofacommentator service. 15 out of 18, or 84 per cent, of those who participated told that they would use the service, at least if the program they were watching would be interesting and they would like somebody who is commenting. To find those who would be interested to comment and interesting to listen to would then be one of the main challenges for Sofacommentator. The other would be the delay between the commentator and the listener, as it was listed by eight test users to be one of the worst features of the service. The delay test of the existing online radios (Appendix 1) shows every service tested has at least some delay, ranging between 5 and 20 seconds when the receiver and speaker were using the same Internet connection, with custom build system likely having at least the same amount. It would also be impossible to make sure that the television show or online stream will reach every viewer at the same time, making the synching of every external audio source with the image by the user also difficult at best.

It is also important to note that the sample size of the user tests is not large enough to be statistically relevant. Additionally, most of the test users were either acquaintance or friends of somebody involved in the project, either me or the people doing commentary audio tracks. The users were also mostly people already interested in media and technology so the results might not be very reflective towards the major part of the population.

I also do agree on the original point why Yle and Arttu Nurmi did not want to licence the original concept in Yle's name. The individual commentary streams and their content are practically impossible to monitor and may develop into a breeding ground for political voices, hate speech and other messages not intended for entertainment use.

In the end, I find the creation of a commercial service out of Sofacommentator as possible but commercially risky. The positive response from the test audience is encouraging but I have my scepticism about the engagement and participation of the public to this kind of service. Also, technical difficulties on creating the service and the failures of past services with similar plans, such as Sofanatics (Korkiakoski 2012; Kauppalehti 2012) are hard to

ignore as challenges the service must face. Nevertheless, I do not doubt that some kind of service incorporating ideas from this service in building something different

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Google Inc. 2016. Set up your live streaming encoder. Read 26.4.2016. https://support.google.com/youtube/answer/2907883?hl=en

Periscope. 2015. Periscope: About us. Read 27.4.2016.
 http://www.periscope.tv/about

APPENDICES

Appendix 1. Delay of the streaming services chart

DELAY OF PUBLICLY AVAILABLE STREAMING SERVICES
Part of Sofacommentator Thesis project by Teppo Nieminen

Times are in seconds

			Mxtrl 1	Mxtrl 2	Mxtrl 3	CasterFm 1	CasterFm 2	CasterFm 3	MyRadioStream 1	MyRadioStream 2	MyRadioStream 3	Listen2MyRadio 1	Listen2MyRadio 2	Listen2MyRadio 3	Youtube live 1	Youtube live 2	Youtube live 3	Periscope 1	Periscope 2	Periscope 3	Meerkat 1	Meerkat 2	Meerkat 3
Reference – Computer broadcast was sent from	Source site	Mozilla Firefox	3.94	2.70	4.26	4.52	4.67	4.57	16.28	16.33	16.34	16.40	16.44	16.27	11.59	11.68	11.77	Note 4	-	-	Note 5	-	-
	Embed link	Mozilla Firefox	2.54	1.77	2.98	10.72	10.82	10.68	16.26	16.31	16.20	16.70	16.72	16.67	11.33	11.23	11.29	-	-	-	-	-	-
	Average:		3.03			7.66			16.29			16.53			11.48			-			-		
Computer devices – Source site / application	Mozilla Firefox		2.85	1.38	2.94	4.92	4.91	4.78	22.43	22.30	22.30	16.83	16.57	16.59	12.70	12.43	12.90	15.12	14.79	14.90	-	-	-
	Google Chrome		3.89	2.67	3.77	4.70	4.67	4.59	16.89	16.99	16.88	16.53	16.50	16.60	11.69	11.18	11.28	13.60	13.27	13.35	-	-	-
	Safari		3.66	1.80	3.73	5.73	5.71	5.71	16.85	16.89	16.85	16.40	16.38	16.40	10.80	10.73	10.88	17.39	17.36	17.23	-	-	-
	Iron		Note 1	-	-	2.50	2.48	2.40	13.83	14.24	14.06	14.21	12.69	13.55	8.61	9.74	7.58	8.56	11.06	13.72	-	-	-
	Average:		2.97			4.43			17.56			15.77			10.88			14.20			-		
Embed link on website	Mozilla Firefox		2.80	4.96	2.77	11.02	10.82	10.73	15.90	16.19	16.20	16.82	16.85	16.82	11.02	11.29	11.25	Note 4	-	-	Note 5	-	-
	Google Chrome		9.30	9.65	9.25	20.04	20.25	20.18	16.22	16.19	16.23	16.64	16.49	16.49	11.03	11.06	11.11	-	-	-	Note 6	-	-
	Safari		3.23	2.13	4.93	10.75	10.75	10.56	16.01	16.15	16.08	16.73	16.64	16.61	10.23	10.30	10.26	-	-	-	-	-	-
	Iron		7.00	7.00	7.00	14.05	14.22	14.01	14.09	12.83	14.33	11.34	12.99	12.86	8.94	6.92	8.66	-	-	-	-	-	-
	Average:		5.84			13.95			15.54			15.61			10.17			-			-		
	Overall average:		6.84			9.66			16.56			17.96			12.33			-			-		
Mobile device – Operating system																							
Source site / application	Android		Note 2	-	-	Note 2	-	-	Note 2	-	-	16.83	16.88	16.68	10.96	10.75	10.88	Note 3	-	-	Note 6	-	-
	iPhone		Note 2	-	-	7.67	6.97	7.53	Note 2	-	-	25.22	25.13	25.26	10.72	10.77	10.27	02.25	2.21	2.23	-	32.11	-
	Windows Phone		Note 2	-	-	Note 2	-	-	Note 2	-	-	Note 2	-	-	14.55	15.90	15.11	Note 3	-	-	-	-	-
	Average:		-			12.66			-			20.06			10.73			2.23			-		
Embed link on website	Android		14.72	13.54	13.82	Note 2	-	-	Note 2	-	-	16.95	16.70	17.11	12.16	12.58	12.16	Note 4	-	-	Note 6	-	-
	iPhone		17.05	16.82	17.19	17.95	17.87	-	17.29	16.38	-	24.80	25.15	25.01	32.10	17.84	33.17	02.25	2.21	-	-	-	-
	Windows Phone		Note 2	-	-	Note 2	-	-	Note 2	-	-	Note 2	-	-	15.22	14.87	15.31	Note 3	-	-	-	-	-
	Average:		15.52			-			16.84			20.95			18.38			-			-		
	Overall average:		6.84			9.66			16.56			17.96			12.33			Not enough data			Not enough data		

The research was conducted at the main campus of Tampere University of Applied sciences on Tuesday 12th of July 2016.
The experiment was lead by Teppo Nieminen and assisted by Reetta Asp, Sasu Luhtala, Oskar Hippula and Markku Laskujärvi.

Note 1 Test assistant using Iron browser was not available for Mxrl Source cite testing
Note 2 Website, link or application did not work on the given mobile operating system.
Note 3 Testing of Periscope mobile application delay would have required the installation of the application to test assistants phones. This was not required by the test assistants. Thus only one delay experiment was conducted with willing test assistant.
Note 4 Periscope does not stream video to third party websites via embed codes
Note 5 Testing of Meerkat mobile application delay was challenging due to technical difficulties. The video streams cut out constantly on both the application's own website as well as on Sofacommentator website via embed video player. Only one test able to be be conducted on Mozilla Firefox browser via embed code video player.
Note 6 Testing of Meerkat mobile application delay would have required the installation of the application to test assistants phones. This was not required by the test assistants. Thus test was not possible to conduct.
Note 7 MyRadioStream has no direct online listening site, instead it directs to play .m3u stream file on a browser or download the file in order to play it in a media player

Appendix 2. Code used for listing commenting users

```php
<?php if( is_user_logged_in()): //Sees if user is logged in

global $current_user; get_currentuserinfo(); //Finds the information of the logged in user

//Finds the user information from their Ultimate Member plugin-made profile
$current = get_field( "members" ); $user = $current_user->user_login;
$bio = $current_user->user_description; $embed = um_user( 'embed' ); $streamlink = um_user( 'link' );

if (empty($embed) && empty($streamlink)): //Checks if user has a stream linked to their profile
echo nl2br ("You don't seem to have a stream yet. You need to have an accepted stream in order to commentate. <br/> ");

elseif (empty($bio)): //Checks if the users biography is empty
echo nl2br ("Please first add a description of yourself and your stream content to commentate.");

//Sees if the user is already marked themselves present
elseif (strpos($current, $user) !== false):
echo nl2br ("You are already taking part <br/> ");

//if everything checks out
else: echo nl2br ('Tell others you are streaming during this event ' . $current_user->user_login . "? \n \n"); ?>

<form method="post">
<input type="submit" name="marker" value="Sign me up!" />
<input type="hidden" name="aid" value="<?php echo($post->ID) ?>" />
<input type="hidden" name="person" value="<?php echo($current_user->user_login) ?>" />
</form>

<?php endif; //Bio and stream
else: echo nl2br ("You need to sign up to commentate. <br/>"); //If users aren not logged in
endif; ?> <br> <br>

<?php if ( isset( $_POST['marker'] )):
$current = get_field( "members" ); $user = $_POST['person']; //Finds the

//See that the user is already marked themselves as commenting
if (strpos($current, $user) == false):

$website = network_home_url();
$bio = $current_user->user_description;

//If the user is not already listed, a link to the profive is made to the Advanced Custom Fields box
$link = '<h3><a href="' . $website . '/user/' . $user . '">' . $user . '</a></h3>';
$updated = $current . $link . $bio . " <br/>" ;
update_field('members', $updated); //Updates the field of commentators on post
?>

<?php endif; endif; ?>
```

Appendix 3. Instructions given for the user test audio providers

INSTRUCTIONS (links to videos down below)

1. I require one hour of unedited and uncut commentary track starting from the beginning of the taped Eurovision show. Format of the sound file is ideally mp3 but other common sound formats are also accepted.

2. The quality sound doesn't need to be great but the speaking voices must be clearly understandable. Sound of the broadcast should be heard as little as possible.

3. Speak as if the show is live and as if you would watch it live when it took place. One or two "future reference drops" are fine but try to avoid them if possible. The style of your commentary is in your own hands. The language must be Finnish or English.

4. Pick yourself a nickname (real name is fine) behind from you are commenting and write a short description of your style. I can also write it for you if you choose not to. You can also send a profile picture for you commenting profile. I will use a generic picture otherwise.

5. By recording this you grant me a permission to use the audio track for me thesis. I will not publish it on any external sources and will not publish your name if you so choose.

6. I will need the recording the latest on 29th of January 2017. You can deliver it to me via Dropbox, Google Drive, WeTransfer or some equivalent.

VIDEO

Eurovision Song Contest 2016 - Semi-Final 1
https://www.youtube.com/watch?v=nRR3ppOqBzw&t=6s

Appendix 4. Sofacommentator user test responses

Results of the answers for the survey sent to the participants of the Sofacommentator user tests, both digital and on location. In total, there were 18 responses.

How old are you?
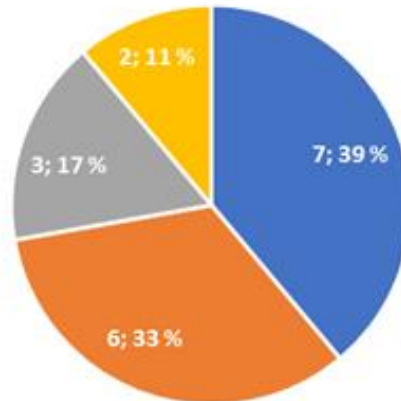
- 20-25 - 26-30 - 30-40 - 40-50

How often do you actively watch television?
(actively = following what is happening on screen even if doing something else too, not just background noise)
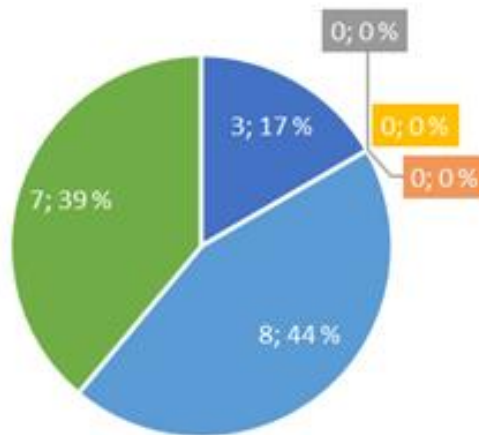
- A few times a year - Once a month - A few times a month
- Once a week - A few days a week - Daily

How often do you watch live programming?
(either from television, online streams or other digital media)

- A few times a year
- Once a month
- A few times a month
- Once a week
- A few days a week
- Daily

Segment	Value
A few times a year	6; 33 %
Once a month	2; 11 %
A few times a month	5; 28 %
Once a week	1; 5,6 %
A few days a week	3; 17 %
Daily	1; 5,6 %
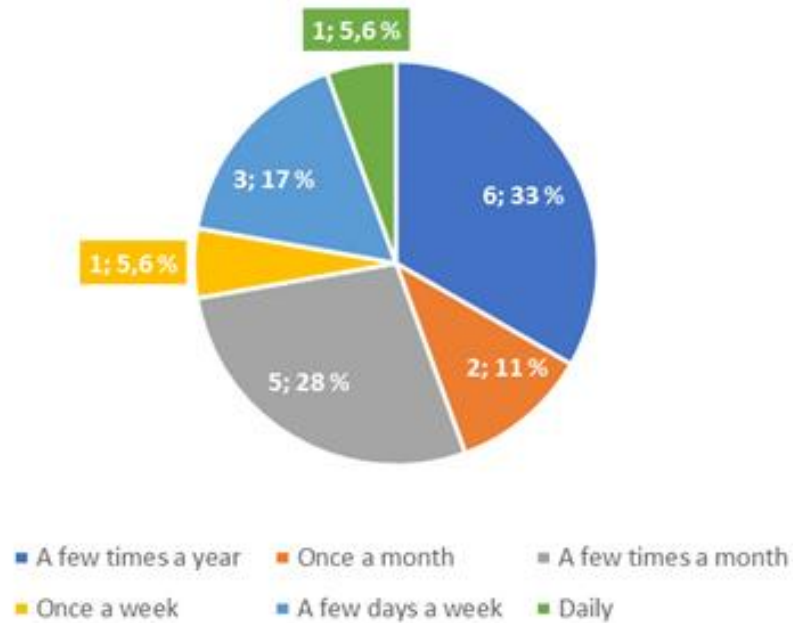
What kind of programming you prefer to watch live?

Category	Value
Live specials of fictional shows	2
Morning television	1
E-sports	2
Reality TV	1
Live Comedies	3
Concerts	5
Political debates / Debate shows / Current affair panels	9
Sports / Sporting events	5
"Events" (Speeches by the head of state, breaking...	8
Award ceremonies	5
Other	1
I don't watch live programming	2
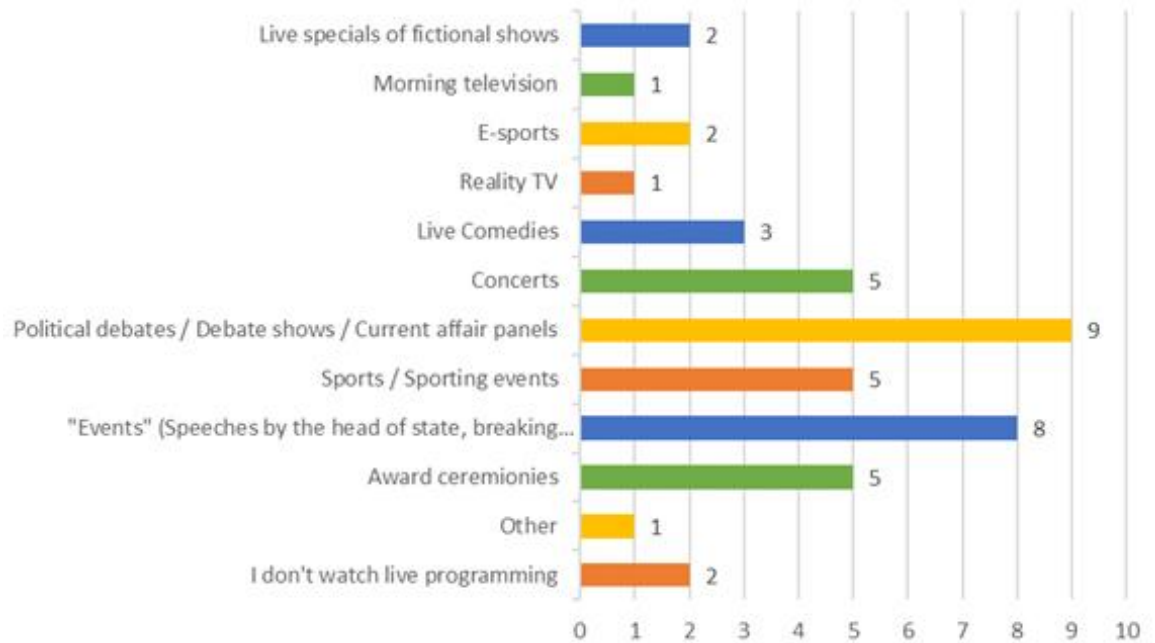
Other:
- Animal videos

Did you use the Sofacommentator service during the test session?

- 0; 0 %
- 2; 11 %
- 3; 17 %
- 13; 72 %

■ Yes, the whole / most of the session ■ Yes, part of the session

■ Yes, but only briefly ≡ No / not really / barely
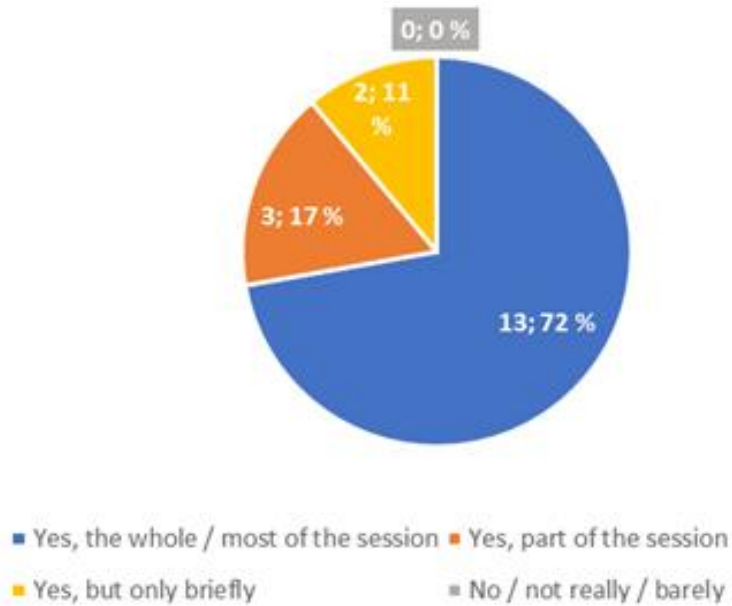
What were, in your opinion, the BEST features of Sofacommentator during your session?

Feature	Value
New things found from the show	1
Usability of the site	4
Personalities speaking	9
Different styles of the speakers	10
Entertainment value commentaries on itself	12
It made the program more interesting	9
Other	3
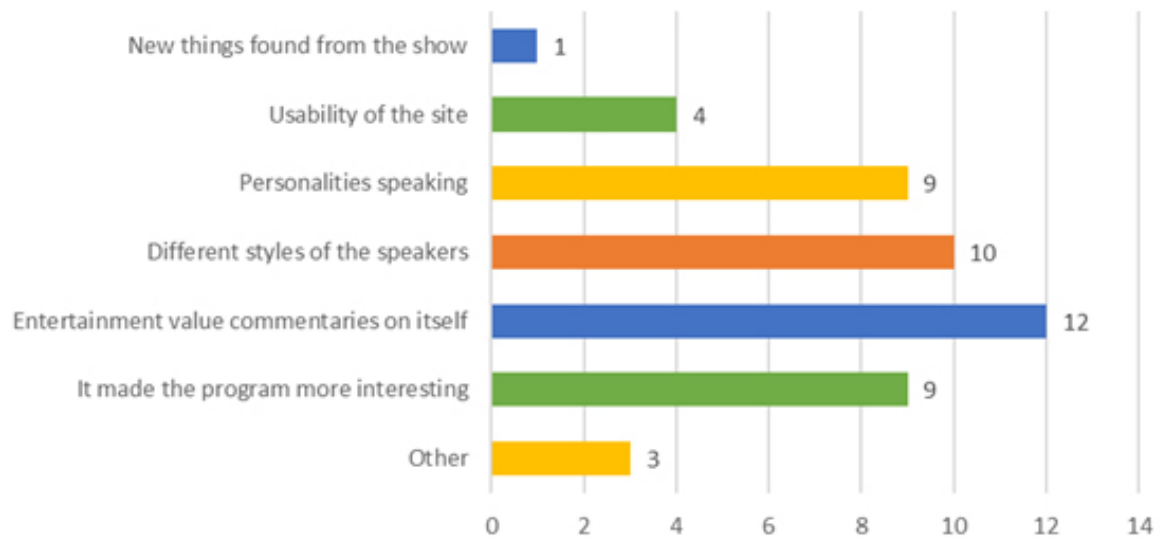
Other:

- Feeling like watching with other people.
- It made me feel like I'm watching it with someone.
- Feels like you are not alone

What were, in your opinion, the WORST features of Sofacommentator during your session?
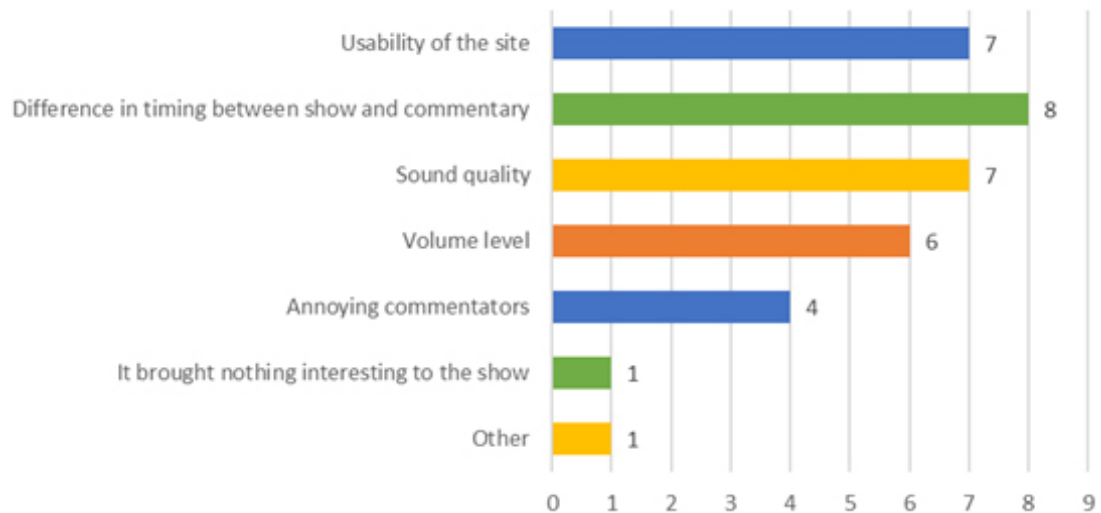
Other:

- Flash problems

Your free comments about the service. How did you find using it, suggestions for other uses for it, improvements, etc.?

- This is an interesting service, I can see it adding experience not only to the more entertaining shows, but for documentaries and discussion panels as well.
- It was really interesting, mainly maybe for when watching alone and could use some company. Even recorded felt like real. Improvement in the site would be good, for example having a fast choice of voices in one page and description of each group of people talking in their own page. More variety for the speakers would be nicer also to choose from. Also, prefer to not to have to click on play on each page.
- I would have wanted shortcuts to switch between commentators, for quicker switches. i would also have liked the ability to go back eg two minutes on the feed, to hear what others had said about the same thing, or be able to hear several commentators at the same time.
- Using it was quite simple, some of the stream UI's didn't work though: TheEmms was stuck at the mute and CoolJ's startup ad and volume control were irritating-ish. Also, some streams repeated themselves and from then on lagged the video.
- It should be more straightforward, and some syncing option would be nice too.
- Service was easy and simple to use. Person speaking need to have a good microphone so it more pleasant to listen. And I prefer only one person speaking.
- It wasn't clear how to access the comments. Everywhere I could see no comments

- The website was unclear

- Currently I'm used to watching playthroughs on YouTube or twitch. And Sofacommentator gave me feeling of the similar experience. Youtube gamers are very often playing the same games, therefore to enjoy watching them the most, as a consumer I am looking for either a unique style, or interesting observations or charisma. And it all started with going from one Youtuber to another. Similar to them, with this test I was switching between commenters to find the most pleasing one. What comes to the improvements, the only thing that was bothering me, is that i had some lag between the video and the podcast. But somewhere in the middle of the test, my Internet went down, and when it got back, video and the podcasts were more or less synced, and it felt awesome to be on the same page with the commenters.

- Would work best as a mobile app

- Good service overall, it gives a lot of space for creativity for commentators. I would like to see smoother navigation between different commentators. Also, the rating of commentators can be added, Reddit style + - or similar.

- Normally I don't have commentator while watching something, but it really brings more interest to the show. It was really easy to use.

Would you use Sofacommentator service if it was available when watching live programming?

- Yes
- Yes, if...
- Maybe
- No
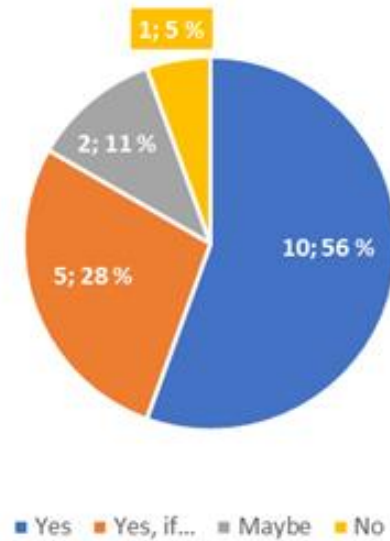
More elaborated answers:

- I wouldn't mind to tune in from time to time. Especially if there would be someone that I definitely enjoy listening.
- If I knew the commentators or there was some personality that I enjoyed, yeah.
- If I'm watching by myself and there are interesting commentators.
- If the commentators were entertaining, then yes.
- Yes, if there is a person I know speaking
- Yes, but also not necessarily just live shows.
- Yes, especially when watching something I generally wouldn't watch. This would definitely add to that experience.
- Yes, if there is a lot of commentators
- Yes. Mainly if I watch alone.

Would you comment live programming via Sofacommentator service yourself?

■ Yes   ■ Yes, if   ■ Maybe   ■ No
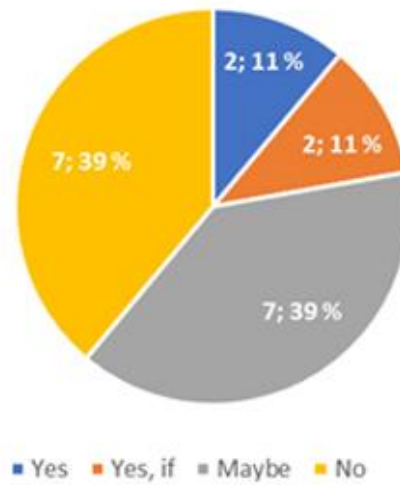
More elaborated answers:

- Maybe but likely no

- No, because I don't like to hear my own voice

- I don't know if I'd be funny or interesting enough by myself, but I might with a group of friends.

- Would be interesting. Though I may not like my voice and would want to remove it unless people say it's useful

- Maybe, depending on the programming.

- Probably not since I'm not that much of a commentator.

- Maybe with a friend, depending on the event.

- On political debates and speeches, yeah maybe.

- Only by writing, no voice

- I see myself more like a consumer than a creator, and I would feel rather conscious to project my ideas into void.

- Probably not. But if I would comment live programming, then yes.

During what kind of programming would you be interested to use Sofacommentator service?

Category	Value
E-sports	5
Morning television	3
Concerts	7
Political debates / Debate shows / Current...	10
Sports / Sporting events	9
Events (Speeches by the head of state,...	8
Award ceremionies	15
Not interested	0
Other	2
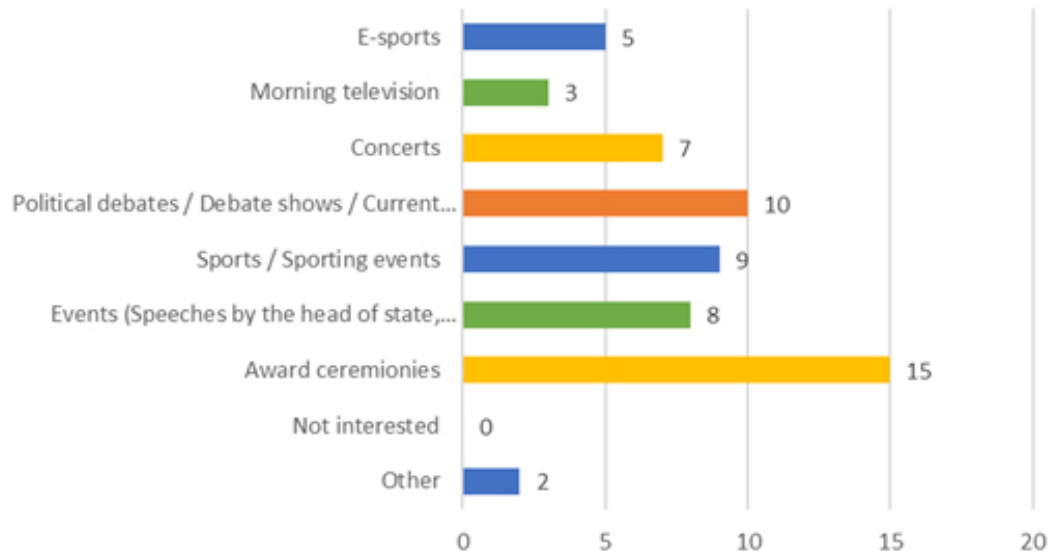
Other:

- Some documentaries or basically any program that has too much silence or just music.
- Any media that doesn't require constant concentration on the original content.

What kind of styles of commentary would you be interested to listen during these programs?

Category	Value
Beginners introduction to a sport / contest /...	7
Teaching / Educational	5
Makers / Particpants / Insiders view	14
Professional opinion	12
Reactions	10
Comedy	12
Analytical	10
Political	7
Not interested	0
Other	0
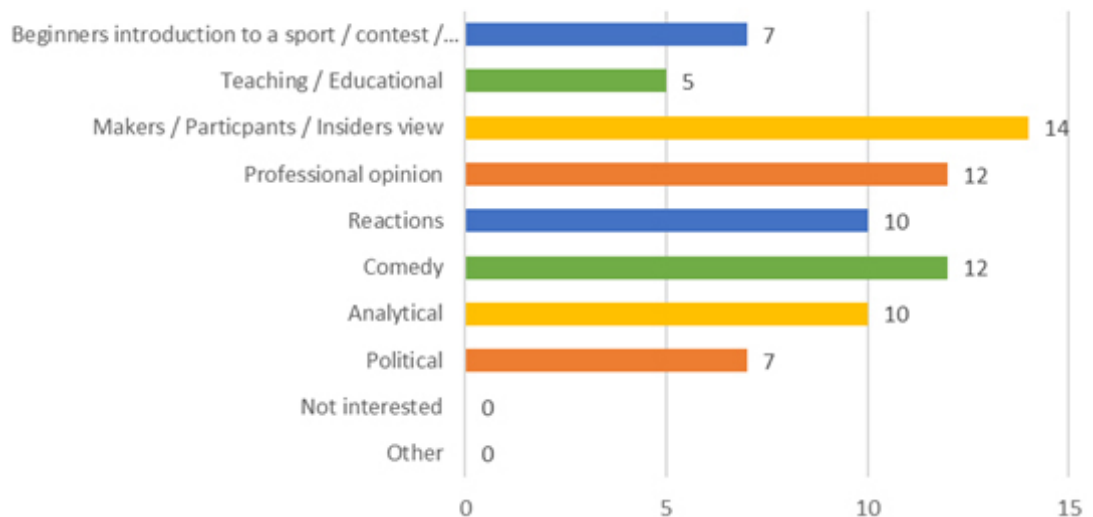
Free word about the test session:

- Fun addition to the show
- I definitely see this as an addictive service, I couldn't stop from changing from channel to channel and could have watched the whole show!
- Interesting experience.
- There would be a need for this, adding commentary in more languages, different style, etc, in programming that is commented (such as sports).
- The YouTube adds mess up the timing as even if you skip them they still take some seconds.
- I found the commenting more interesting if there were two people discussing with each other, rather than one or many people. 50 minutes went by flying!
- It could be fun to use, as it would be free (no need to send text messages to the TV shows)
- I liked the idea of the service. I consider it to be in the beginners stage. But otherwise I would definitely use it when I would need to wind down.
- This service is really good. I would rather watch A2 evening, but Eurovision was also ok. There was a small pity, that the commentator came a little bit late. Also, I would like to have this questionnaire in Finnish, but it was also easy in English.

Other comments made during the post-test conversations

- I would definitely listen to this kind of thing if it would be available. I often do this kind of this with my friends on Whatsapp when watching Eurovision. There were some funny ones [commentators] like the three guys, they were hilarious. Some of them were just boring. But I would like this thing if it was for real.
- In my mind this (live commenting, I mean) is a good idea in theory but I listened to this with my flatmate and we did not warm up to any of these comments. It is a shame also that only one of the commentator options seemed to work. But like said, the concept itself is worth developing.
- I did not know where to go to look for the streams.
- I would never watch the Eurovision Song Contest but now I could. This was way too funny.
- I liked it, although the voices were not quite in sync with what happened on screen. About the interface, it was a little annoying that I had to go to each profile to find the streams. I would have also liked to hear other commentator's comments about some situation, so it is sad that that you cannot rewind the tapes. Also, the different looks of the players and play buttons were annoying, if they worked with the same system and would not require clicking a play button to start, this would work better.

  There were also times that a commentator said nothing for a while so it would have been good to know if they were speaking or not, perhaps with a red dot and a green dot next to the media players, so that you would not click to the commentator only to hear nothing. The media players should also be on the post where the commentators were listed.

- It was some much more comfortable to watch the ESC when you had some chatter on the background. I thought there was a problem of some sort when the test ended so early but the 50 minutes were actually quite short.

- I had to do a lot of volume adjusting in order to get it so I could hear both TV and the comments. And even then, there were two streams I could not listen to because the microphone was not picking up the background person or the speaker was not speaking loud enough.
  But I used to watch Twitch a lot, and currently watch a lot of Youtube, and 9 times out of 10 the commentary is the entertainment part, not the subject matter. So this service is reminiscent of those experiences, and that's great.

- I didn't like much the layout of the website, but I think it would be very cool to use this [service] for political shows, for example.

- One difficulty with the players, but nothing I couldn't figure out in less than a minute. I think this would be cool for non-live shows as well (like reality TV comes to mind because it usually doesn't require 100% attention and that's always fun to comment on). I still have the ESC playing. Now wishing I could hear some of the comments on these outfits/songs. So pretty addictive service, if nothing else.

- Everything worked well with me and I found the instructions clear to read. My only trouble was that at some points the comments were lagging the video. I think that some emotional show like A2 talks would be absolutely great with a comedy commentary.

- Perhaps some 'always online' chat would be a fine addition. Something like Snapchat as real-time with voices. I was somewhat sceptic how this [Sofacommentator] could work, the first commentery I heard was so awful mumbling. Then I found another one with some nice chatting.