

The Future of Podcasts

A Case Study based on Usability Heuristics of a Podcast Service User Interface of an iOS Application

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Abstract

This study investigates the Usability of the podcast service User Interface (UI) of the iOS app Aftonbladet. The method used originates from a heuristic evaluation technique where semi-structured interviews were conducted with users of the podcast service to explore the usability and to find usability problems. The conducted interviews determined that there existed usability problems with the UI and thus, usability heuristics have been violated in the UI.

Nielsen's Ten Usability Heuristics for User Interface Design and Nielsen's Severity Ratings for Usability Problems are applied to the interview answers for evaluating the usability of the podcast service UI.

The heuristics that are interpreted as being of critical importance are:

- Heuristic 3. User Control and Freedom
- Heuristic 4. Consistency and Standards
- Heuristic 5. Error Prevention
- Heuristic 6. Recognition rather than Recall
- Heuristic 7. Flexibility and Efficiency of Use
- Heuristic 8. Aesthetic and Minimalist Design
- Heuristic 10. Help and Documentation

Three out of the ten heuristics were not of critical importance:

- Heuristic 1. Visibility of System Status
- Heuristic 2. Match Between System and Real World
- Heuristic 9. Help Users Recognize, Recover and Diagnose from Errors

Keywords

Usability, User Interface, Usability Heuristics, Nielsen's Ten Usability Heuristics, Nielsen's Severity Ratings, Usability Problem

Preface

This study is a degree project at the bachelor's level that corresponds to 15 higher education credits. It results in a bachelor's degree in Information Systems from Uppsala University.

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1. Introduction

The following chapter deals with the project analysis of the study which includes background, problem description, purpose and goal, research question, and project scope and limitations.

1.1 Background

Podcasts as a term was first used in 2004 and in the following year it became the word of the year by the New Oxford American Dictionary. Podcast is an abbreviation of “**P**ersonal **O**n **D**emand” and “**n**arrow**c**ast” (Bowie, 2012, p 16). It consists of media files, both audio and video files, that can be distributed and downloaded via the internet through Really Simple Syndication (RSS) feed technology and the content can be played on computers and handheld devices. (Jham et al., 2008, p 278; Hürst & Welte, p 120, 2009; Bowie, 2012, p 16)

Usability and **User Interface** are vital aspects of podcasts (Bowie, 2012, p 2). **Usability** is defined by the International Organization for Standardization, ISO, as “the extent to which a system, product or service can be used by specified users to achieve specific goals with effectiveness, efficiency and satisfaction in a specified context of use” (Iso.org, 2019). According to Jakob Nielsen, it is important to be aware that usability has many components, and it is not a “one-dimensional property of a user interface” (Nielsen, 1994d, p 26). Usability consists of the following attributes: learnability (system should be easy to learn), efficiency (system should be efficient to use), memorability (system should be easy to remember), errors (system should have a low error rate), and satisfaction (system should be pleasant to use) (ibid.).

User Interface (UI) is defined by ISO as “all components of an interactive system (software or hardware) that provide information and controls for the user to accomplish specific tasks with the interactive system” (Iso.org, 2019). In other words, UI design is the process where designers build interfaces focusing on looks or style. UI design focuses on the surface and the overall feel of a design. The aim of UI designers is to create easy to use and pleasurable interfaces. There are three formats of UI: Graphical User Interfaces (GUIs), e.g., a computer's desktop, Voice Controlled Interfaces (VUIs), e.g., Siri on iPhone, and Gesture Based Interfaces, e.g., Virtual Reality (VR) games. (Iso.org, 2020)

For the past years, podcasts have become a trending topic due to growing interest and high levels of usage. Downloading podcasts via the internet can be done both manually or via a web subscription (Hürst & Welte, 2009, p 1). They can be listened to from e.g., websites, podcatcher software or mobile devices. A podcast listener can subscribe to podcasts through feedreaders and they may use a site to listen frequently or may only listen to a single episode. (Bowie, 2012, p 16) The history of podcasts began with radio and has evolved to being a platform used in smartphones (Berry, 2015, p 170). Currently, there are thousands of podcasts available with many more subscribers. Podcasts cover a lot of topics and categories ranging from entertainment to music, history and science (Shantikumar, 2009, p 535).

Podcasts can be seen as a similar technology as radio, but differences exist between them. When it comes to linear broadcasting radio, a user turns it on and listens to whatever content the current radio station is presenting. When a radio user switches channels, they are again presented with what that particular channel is currently broadcasting. In contrast, a podcast user starts by discovering all choices and perhaps reads a brief introduction to an episode before he or she starts to listen to it. (Berry, 2016, p 12) According to Richard Berry (2016), this makes podcasts a ‘pull’ medium where the user is far more active in the selection process than a radio user is (ibid, p 12). A podcast user is more engaged in the process since he or she needs to choose what podcast to listen to and when and where to listen to it (ibid.). This is one of the core points regarding podcasts, the users can listen to what they want, when, where, and how they want (Jham et al., 2008, pp 278-279).

In addition to comparing podcasts to radio, the former can be compared to other online audio streaming media such as Spotify and Pandora which have their main focus on streaming music but now, they have also started to introduce podcasts as a service. Podcasts and music streaming have a lot of similarities, but one major difference is the amount of time a user spends using the audio streaming service. This results in an influence and behavioral change in the way a user originally consumed music. (Li et al., 2020) The study conducted by Ang Li et al. (2020) showed that there is a bit of competition between podcasts and music but that they do not replace each other since users listen to podcasts at different times than they listen to music (ibid.).

A third comparison is to TV, in which case users need to pay a lot more attention since they both have to listen and watch the program. In comparison to listening to radio or watching TV, podcasts do not need their listeners to be present at a specific time since most podcast episodes can be saved offline (not depending on internet connectivity) and as such, a podcast user can listen to the episode later (Wolfram, 2011, p 6). The user can also listen to a podcast multiple times and he or she is in control over navigation such as pace, rewinding and forwarding. With podcasts, you can listen to the program and be engaged in other activities simultaneously, such as driving, running and taking a bath (ibid., pp 5-6).

In Berry’s study (2016), Tiziano Bonini says that we are at a point today where we have a ‘Second Age’ of podcasting. By this he means that podcasts are a new mass medium instead of being an extension to radio. (Berry, 2016, p 17) Podcasts have become a well established form of audio and now, they are moving into the mainstream and provide us with popular content (ibid.). In similarity with YouTube, podcasts can be a platform for commercial works and a source for alternative participatory practice. They are both a platform and a collection of practices. The collection of practices can be multiple things, e.g., radio, music or other audio content. (ibid., p 18)

Berry states that a podcast listener, opposed to a radio listener, is not bound by the fixed structure that is provided by radio (Berry, 2016, p 12). A podcast user can choose when to listen to a podcast, straight away when it is published, the morning after or a month later. They can also choose to listen to a specific podcast at a time when they are not easily distracted (if they want to pay close attention to it) and a different podcast during a daily commute. (ibid.). In other words, a podcast listener is not bound to a specific time or a specific location, e.g., near a radio (Bowie, 2012, p 16).

Since podcasts represent an expanding genre of broadcasting, organizations and companies invest in creating podcasts for the multiple reasons mentioned above. Companies can use podcasts for both external and internal use. It can be a very effective form of communication since it can deliver a message to a broad audience at the audience's own choice, meaning the audience can choose when they want to listen to the audio content. (Wolfram, 2011, p 9, p 19)

1.2 Problem Description

Usability is a vital part of the Systems Development Lifecycle, where the user needs to be considered and integrated early in the process. When designing a UI, designers need to keep a lot of things in mind, the most important aspects being the interaction between the users and the technologies required in order to create effective experiences (Rogers, Sharp & Preece, 2011). Designers also need to have a broad understanding of people's actions, reactions, emotions, and how they communicate and interact with others (ibid.).

It is important that the designers have a clear understanding of why and how they are going to design a product in order to save time, effort and money later in the process. Early on in the process, incompatible and unusable designs can be adjusted before it gets too expensive or time consuming to refine (Rogers, Sharp & Preece, 2011).

Even though widespread use of popular handheld devices, such as iPods and iPads, have increased the importance of usability, many designers still assume that other people will find a product attractive as long as the designer him- or herself finds it attractive. According to Rogers, Sharp and Preece, the problem with this is that designers “may [only] design for themselves” (Rogers, Sharp & Preece, 2011). To meet the usability requirements and to make sure a design is satisfactory even for others than the designers, an evaluation needs to take place (ibid.).

Podcasts are being used as a way of information distribution by a variety of organizations and associations (Jham et al., p 281). Without podcasts being user friendly, e.g., bad design features, listeners might lose interest and stop listening (Wolfram, 2011, p 1). In this study, the investigated UI is the podcast service of an iOS application, app. The app, Aftonbladet (Version 5.37), is owned by the media enterprise Schibsted. Lately, Schibsted have increased their interest in podcasts which has led the UX team to further explore this new area of streaming.

Considering the fact that the podcast service is being used on a mobile iOS device, awareness regarding the limitations and difficulties with mobile devices needs to be raised (Inal, 2019, p 82). The limitations and difficulties are related to screen size, limited capacity, bandwidth, connection, interface and context of use. Because of these limitations and difficulties, usability testing of mobile apps is of extreme importance (ibid.).

There are a lot of researchers applying heuristic evaluation on other products than podcasts. Little literature was found regarding podcast UI and usability and the use of a heuristic evaluation of podcasts is narrow. As Inal (2019) states, there are a few studies that have examined the usability of mobile apps. The research found on podcast UI and Nielsen's ten usability heuristics, as well as the use of the heuristics on other products, is presented in 2.3 Previous Studies.

1.3 Purpose and Goal

The purpose of this exploratory study is to investigate which heuristics (*see 2.2 Nielsen's Ten Usability Heuristics*) are of critical importance of a certain UI. Based on semi-structured interviews with users, the usability of a UI will be investigated. The goal is to investigate if any heuristics have been violated in the design of an already finished product (Rogers, Sharp & Preece, 2011). The researchers will interview users of the podcast service and interpret the users' answers based on the study's theoretical framework, thus evaluating which heuristics are of critical importance.

The UI investigated in this study is the UI of the podcast service of an iOS app. The app, Aftonbladet (Version 5.37), is owned by the media enterprise Schibsted.

1.3.1 Research Question

The purpose and goal lead to the following research question:

- *Which usability heuristics are of critical importance for an iOS podcast service user interface?*

Critical in this context refers to the heuristics that have been violated in the UI design, which are explained in the theoretical framework chapter (*see 2. Theoretical Framework*).

1.4 Project Scope and Limitations

Podcasts can be in a lot of different formats, but when referring to podcasts in this study, we will refer to audio files only since it is the most commonly accessed form of podcasts (Bowie, 2012, p 16). This study does not focus on the content of the podcast, i.e., its audio quality.

In this context, when referring to the user interface (UI), it is the graphical user interface (GUI) of a podcast service on an iOS device, i.e., an iPhone, iPad or iPod that is referenced. This excludes other UI's and operating systems. Our chosen study object is the UI of Aftonbladet's podcast service that is offered in the app Aftonbladet.

Some deviations from the theoretical framework have been made:

- Instead of letting expert evaluators investigate the podcast service UI, actual users of the podcast service have been interviewed by two expert evaluators. In this context, the expert evaluators are Researcher 1 and Researcher 2.
- The fourth factor that is part of determining a severity rating, market impact, will not be assessed. Market impact is not relevant in the scope of this study since it processes supply and demand.
- The highest severity rating, a rating of 4, will not be assessed to any heuristic. The rating 4 concerns problems that need to be fixed before launching a product and the product in this study is already launched.

2. Theoretical Framework

The following chapter deals with the theoretical framework of the study which includes the framework that the study will be based on.

2.1 Heuristic Evaluation

When trying to evaluate the usability of a system, a heuristic evaluation is often where to start. There are multiple reasons for this, some of them are that heuristic evaluations are inexpensive and a quick process. (Wolfram, 2011, p 26)

Heuristic evaluation is a technique used in the discount usability engineering method developed by Jakob Nielsen (Nielsen, 1994d, pp 17-19). The discount usability engineering method is based on ten usability heuristics that guide the evaluation and by the finding that usability problems can be discovered by a small number of evaluators. Heuristics are characteristics that “apply to any type of user interface” e.g., the UI of an IT artefact (Nielsen, 1994d, p 115). A heuristic is also defined as “a general principle or rule used to forward a decision in the process of designing an interactive system, support the critical analysis of a design decision already performed, or confirm problems identified in usability testing” (Choma, Zaina & Beraldo, 2015).

In addition to ten usability heuristics, Nielsen has also developed severity ratings for usability problems. These can be used to analyze and prioritize findings from the usability evaluations based on the problem’s frequency, impact and persistence.

According to Nielsen, the number of evaluators should be a minimum of three for a reasonable and useful result (Nielsen, 1994c, d, p 156). In this study, the number of evaluators is limited to Researcher 1 and Researcher 2. Also, instead of letting the researchers investigate and evaluate the UI, they have formulated interview questions to ask real end users of the podcast service. In this way, they can get input of the usability from actual users of the podcast service and map their answers, i.e., the user’s usability concerns, with the ten usability heuristics and apply the usability problems with a severity rating.

2.2 Nielsen’s Ten Usability Heuristics

Ten usability heuristics are published in Nielsen’s book Usability Engineering (1994d, pp 115-148). Nielsen’s ten usability heuristics for user interface design are shown below and explained in 2.2.1-2.2.10 (Nielsen, 1994c).

- Heuristic 1. Visibility of System Status
- Heuristic 2. Match Between System and Real World
- Heuristic 3. User Control and Freedom
- Heuristic 4. Consistency and Standards
- Heuristic 5. Error Prevention
- Heuristic 6. Recognition rather than Recall
- Heuristic 7. Flexibility and Efficiency of Use
- Heuristic 8. Aesthetic and Minimalist Design
- Heuristic 9. Help Users Recognize, Diagnose, and Recover from Errors
- Heuristic 10. Help and Documentation

2.2.1 Visibility of System Status

The current status of the system should always be visible to the user through the design. Feedback should be given to the user in order to keep them informed on the status e.g., the color of the button changing when pressing a button in an app or indications that an item is “low in stock” when shopping for an item online. Thus, the users can determine future steps which creates trust for the product and brand that they are interacting with. (Nielsen, 1994c)

2.2.2 Match Between System and Real World

The system should not use system-oriented terms and instead use the same language as the users. For instance, speaking the “user’s language” (Nielsen, 1994c) using familiar words, phrases, and concepts so that the users can understand and associate with the system which allows them to be able to use the system correctly. For example, the design of a pair of headphones is such that the button that increases the volume is placed in the topmost position. This represents a natural mapping where more is associated with up, i.e., increase, and less with down, i.e., decrease. (ibid.)

2.2.3 User Control and Freedom

If the user makes a mistake through a certain action, there should be an explicit exit option so that unwanted actions can be solved easily. Thus, support should be implemented for undoing, redoing, deleting and exiting functions. Relating with the physical space, Emergency Exits should be quick to find and easy to access if a person is in need of exiting an area in an emergency or if they regret entering an area. (Nielsen, 1994c)

2.2.4 Consistency and Standards

Platforms and industry standards should be used so that confusion does not arise for the users. For instance, using the same patterns everywhere inside the system makes it learnable and predictable. (Nielsen, 1994c) “Key to creating applications that make sense for users” (Nielsen, 1994c). The UI design should thus have the same patterns both inside and outside the system and follow web-, platform-, and domain specific conventions. For example, a check-in counter at a hotel is often located at the front of the hotel which makes sense since this consistency meets customers’ expectations. (ibid.)

2.2.5 Error Prevention

Errors by users are often made unconsciously. Suggestions, constraints and flexibility should be offered and utilized in order to prevent these. For example, when your electric toothbrush is running low on battery you are informed by a blinking light and this indicates that you should charge it. (Nielsen, 1994c)

2.2.6 Recognition rather than Recall

There are two types of memory retrieval according to psychologists: recognition versus recall. In UI design, users should be met by things they can recognize instead of having to recall details from scratch in their memory. (Nielsen, 1994c) “Interfaces that promote recognition give users extra help in remembering information, either about tasks and items that they had seen before or about interface functionality” (Nielsen, 1994c).

To put it in context, imagine seeing a person that you know at the store, but you cannot remember from where or the name of that person. It is rather easy to know if you have seen the person before, i.e., recognition, but harder to remember the person’s name, i.e., recall. (Nielsen, 1994c)

2.2.7 Flexibility and Efficiency of Use

Users should be allowed to approach tasks in different ways since users of a system are different. For instance, guidance for new users and accelerated features for experienced users such as keyboard shortcuts, personalization, customization and other wanted or needed functions should be implemented. (Nielsen, 1994c) “Our systems should be flexible enough to allow users to complete a given task using a variety of methods” (Nielsen, 1994c).

For example, in various navigation apps the regular route is often listed, but locals who have larger knowledge of the area can take shortcuts. (Nielsen, 1994c)

2.2.8 Aesthetic and Minimalist Design

The UI should only display information that is relevant and needed at all times. Extra units of information can diminish the relevant unit's visibility. Hence, “...don't let unnecessary elements distract users from the information they really need” (Nielsen, 1994c) since features should serve to enhance usability. An excessive decorative ornate teapot can be aesthetic but despite this it can have an uncomfortable handle or a nozzle that is hard to wash. This indicates that the aesthetics interfere with the usability of the teapot. (ibid.)

2.2.9 Help Users Recognize, Diagnose, and Recover from Errors

When a user receives an error message it should not be an error code, meaning technical jargon. Instead, plain language should be presented in a bold, red text where a problem is indicated, and a solution is suggested. For example, drivers on the road are reminded with wrong way signs when they are heading on a non-accessible road. (Nielsen, 1994c)

2.2.10 Help and Documentation

Users should be provided with relevant, easy, and brief information both proactively and reactively that supports them in reaching their goal. For instance, the help documentation should be searchable, and its information should be presented when “... the user requires it” (Nielsen, 1994c). For example, in airports, information kiosks are easily located and recognizable in order to solve immediate and in context problems (ibid.).

2.3 Severity Ratings

Nielsen (1994d, p 102) proposes to use severity ratings in order to prioritize and allocate resources, depending on the rating. A severity rating scale from 0-4 can be used to rate the severity of usability problems as shown in Table 1. They can also be used as an estimate of the need for additional usability efforts. (Nielsen, 1994b) Priorities should be based on the effect the problems have on user performance such as number of users experiencing the problem, although sometimes one needs to rely on intuitions (Nielsen, 1994d, p 102).

Depending on the severity rating, one might decide either to release or not to release the system, for example if the rating indicates multiple disastrous usability problems. On the other hand, if the usability problems found are merely cosmetic, one might decide to release it anyways. (Nielsen, 1994b) In Table 1 below, the different usability problems and their severity rating are presented. They are color coded to clearly show its divisions.

0. Not A Usability Problem At All
1. Cosmetic Problem Only: need not be fixed unless extra time is available on project
2. Minor Usability Problem: fixing this should be given low priority
3. Major Usability Problem: important to fix, so should be given high priority
4. Usability Catastrophe: imperative to fix this before product can be released*

Table 1. Nielsen's Severity Ratings for Usability Problems

** This severity rating will not be considered in this study since it corresponds with market impact that is outside the scope of this study.*

The severity of a usability problem is a combination of the following four factors (Nielsen, 1994b):

- **Frequency:** the frequency with which the problem occurs.
 - *Is it common or rare?*
- **Impact:** the impact of the problem if it occurs.
 - *Will it be easy or difficult for the users to overcome?*
- **Persistence:** the persistence of the problem.
 - *Is it a one-time problem that users can overcome once they know about it or will users repeatedly be bothered by the problem?*
- **Market impact:** the importance to evaluate the market impact
 - *Can the usability problem have a damaging effect on the popularity of a product?*

By combining all factors into a severity rating, the rating can help prioritizing and decision-making (Nielsen, 1994b). In this study, we will not be considering the fourth factor, market impact, since it is an economical aspect of a usability problem and is not within the scope of this study.

Furthermore, since we are investigating an already launched product, the severity scale will only range from 0-3, instead of 0-4. The fourth step on the severity scale is “Usability catastrophe: imperative to fix this before product can be released” and is not relevant in this study because the product is already released and available on the market. In other words, our severity scale ranging from 0-3 is not a problem since our investigated product is already in use.

2.4 Previous Studies

Few previous studies regarding podcasts and Nielsen’s ten usability heuristics have been made. However, Nielsen's ten usability heuristics as a framework has been used in the studies by Zhang et al. (2003) and Choma, Zaina and Beraldo (2015), where other products that podcasts are studied.

One of the researchers that have used Nielsen's ten usability heuristics as a framework regarding podcasts is Jennifer Bowie in her article “*Sound usability?: usability heuristics and guidelines for user-centered podcasts*” (2012). The purpose of Bowie's study is to explore usability for podcasts. In her study, she developed seven podcast usability heuristics based on eight key usability concepts and associated guidelines. Bowie developed over 125 usability guidelines that can be used as a checklist when measuring usability. These guidelines can be used to evaluate the usability depending on a severity scale, rating from 0 to 4.

In Bowie’s study, the range of the severity for each guideline is based on the importance of the guideline to the overall use and usability of a podcast (Bowie, 2012, p 18). The guidelines can be used to create and improve a podcast, and also by usability researchers and analysts when determining the overall usability of a podcast (ibid., pp 18-19). Both the heuristics and the severity ratings are based on Nielsen’s ten usability heuristics for UI design and its associated severity ratings (ibid., p 16).

According to Bowie (2012, p 16), the usability of a podcast is impacted by a user’s ability to navigate the software technology and therefore it is important to have a great understanding for usability, and to be able to take all different access methods and use scenarios into consideration. Most of the time, podcast creators assume that the listeners are on the go, e.g., working out or driving, while listening to a podcast and therefore the user’s context of use may play an important role regarding the usability of the podcast and also have a large impact on the creation and design process (ibid.).

A study using Nielsen's framework on another product is Zhang et al. study “*Using usability heuristics to evaluate patient safety of medical devices*” (2003) which further developed Nielsen’s usability heuristics and expanded them from ten to 14 heuristics. These 14 heuristics are called the Nielsen–Schneiderman Heuristics since they are based on both Nielsen’s ten usability heuristics and Schneiderman’s eight golden rules. They developed the 14 heuristics in order to apply them to medical devices and to be able to evaluate the patient safety of the devices. (Zhang et al., 2003)

Choma, Zaina and Beraldo use Nielsen's ten usability heuristics in their paper "*Communication of Design Decisions and Usability Issues: A Protocol Based on Personas and Nielsen's Heuristics*" (2015). The study presents a protocol consisting of decisions and recommendations of interface design based on Nielsen's ten heuristics and personas (a typical user). They have chosen to base the protocol on Nielsen's ten heuristics since "these concepts can aid the developers and the UX designers to level out their interpretation on the usability fundamentals" (Choma, Zaina & Beraldo, 2015, p 164). The protocol can also increase the understanding of design decisions (ibid.).

Furthermore, Nielsen's ten usability heuristics are guidelines that are mostly used in the design process of interactive interfaces (Choma, Zaina & Beraldo, 2015, p 165). Choma, Zaina and Beraldo (2015) have proposed Nielsen's ten usability heuristics to Enterprise Resource Planning, i.e., ERP, systems by perspectives of presentation and task support. They motivated this by saying that the heuristics are general rules rather than specific guidelines (ibid.).

Previous studies show that Nielsen's ten usability heuristics are a reliable framework to be used for this study's purpose. Nielsen's ten usability heuristics are proven to be very useful in previous studies on other products. As seen in Bowie's study, the framework is reliable to be applied to podcasts.

3. Method

The following chapter deals with the design of the study which includes the research strategy, data collection methodology, data analysis methodology and methodological reflections.

3.1 Research Strategy

According to Oates (2005, p 142) and Goldkuhl (2011, p 28) a focus on depth is a characterization of a case study, where a few cases are investigated in a deep way. To complete the purpose of this study, an exploratory case study was chosen as the research strategy. This study aimed to investigate the case of the user opinion of the UI based on Nielsen's ten usability heuristics and are presented in Table 3-12. An exploratory case study was of advantage since it "investigates a real life instance" (Oates, 2005, p 142) where detailed knowledge can be gained from it (ibid., p 143).

The research strategy was beneficial since it is well suited for research into the development and ongoing use of Information Systems (IS) that produces data close to people's experiences (Oates, 2005, pp 150-151). Generalizations could also be drawn that are applicable to other cases and situations where it is difficult to study a single factor in isolation can be dealt with (ibid.).

3.2 Data Collection Methodology

The study used a qualitative method based on interviews. Since the study aimed to conduct a deep analysis, a qualitative method was preferred over a quantitative method since the aim was to investigate one case extensively. Qualitative data is characterized as non-numeric, including words from for example interviews. The data and analysis therefore become rich and detailed instead of numerical, which is an advantage of qualitative data analysis that is useful to IS and computing researchers (Oates, 2005, p 277). The process of analyzing the collected qualitative data involved finding themes and patterns that were important to this study's research topic.

Instead of letting experts evaluate the system, interviews were held with users of a specific domain, i.e., the podcast service UI, to collect information on usability problems and to then categorize these problems according to the ten usability heuristics. Thus, Researcher 1 and 2 were the experts who collected information from real users and categorized the users' answers and their experienced usability problems into usability heuristics in order to establish a severity rating for the users' usability concerns and usability problems.

In this exploratory case study, interviews were to our advantage since the interviewer could adjust the interview in accordance with the situation. According to Malterud (2009) the qualitative method is beneficial when performing an exploratory case study, i.e., when the researchers know little of the question being asked beforehand. Other benefits of using interviews as a data collection method were that they are suitable when wanting to research a topic in depth and detail, little equipment was needed, and they allowed for flexibility. They were flexible in such a way that the interviewer could rephrase and/or explain the question in other words to ensure the comprehension of the participant. (Malterud, 2009)

3.2.1 Semi-structured Interviews

Interviews were chosen because they are an appropriate data generation method when the researchers want to obtain detailed information and investigate sensitive and privileged information (Oates, 2005, p 187).

There are different types of interviews, structured, semi-structured and unstructured interviews. Semi-structured interviews were chosen for the study's Data Collection Methodology since they allowed themes and questions to be prepared and asked at the same time while also giving the freedom of e.g., changing the order of questions (depending on the conversation) and/or adding questions during the interview. (Oates, 2005, p 188) Semi-structured interviews also gave the participants the freedom to speak freely and in more detail on various topics. The participants could also raise things they found interesting. Semi-structured interviews were also in favor of the study's purpose, to investigate which heuristics are of critical importance of a certain UI, i.e., to gain knowledge about the UI, since they are a good way of discovering the usability of the UI. (ibid.)

The semi-structured interviews consisted of a set of questions that were asked by the interviewer and the participant's answers were recorded. According to Nielsen, one of the main ways to study usability is by simply asking the users by using methods such as interviews. This methodology is preferred when researchers want to explore issues relating to a user's subjective satisfaction and it is useful for studies concerning what system features a user likes or dislikes. (Nielsen, 1994d, p 209)

3.2.2 Selection of Participants

Qualitative studies usually consist of few participants that are investigated in a deep way, hence "less is more" (McCracken, 1988, p 17). Therefore, semi-structured interviews were conducted with a handful of participants in order to collect enough data for a reasonable result.

The recruitment process of participants was achieved by a post on the social media platform LinkedIn. Researcher 1 published the post and in order to get an appropriate reach, she encouraged her network to share, like and comment on the post. The post included details of the study and a link to a Google Forms, the administration software, where the participants could register their interest in participating.

To answer the question at issue for the study, it was required that the participants were experienced users, i.e., used the podcast service on a weekly basis. Semi-structured interviews were held with five participants, shown in Table 2 below, in order to gain insights of the podcast service's usability and UI. Henceforth the participants are referred to as users. The interviews were held on Google Meet, a video-communication service, due to COVID-19.

User 1 (U1)
User 2 (U2)
User 3 (U3)
User 4 (U4)
User 5 (U5)

Table 2. User Interview Participants

Note: Several meetings, held on Google Meet, were used for background purposes with employees from the UX and Research Team at Schibsted. These were held in order to gain a better understanding of Aftonbladet's podcast service and its UI and were thus not part of the study's Data Collection Methodology.

3.2.3 The Interview Process

The first major step of the interview process was to prepare and create an interview guide, the second step was to perform the pilot interviews, and a third final step was to conduct the interviews with the selected participants.

In order to collect data, an interview guide was created (*see Appendix Intervjuguide*). Note: the interview guide was created in Swedish and the questions were asked in Swedish, since the participants were all Swedish which resulted in more natural answers. For a translation of the interview guide please see the subsequently attached translated version.

Before the researchers conducted the interviews with the users, two pilot interviews were conducted. The questions were based on the interview guide to make sure the questions were asked in the right way, to ensure that the questions would give us usable answers and that the participants could speak freely (Oates, 2005, p 189). The pilot interviews were also recorded in order to determine the estimated length of an interview and that the response provided sufficient data. After the pilot interviews, the interview guide was reviewed, and minor adjustments were made to the formulation of the questions before the interviews were conducted. The interview guide enclosed in Appendix Intervjuguide, is the final version of the interview guide.

During the interviews, it was of importance to stay unbiased. For example, agreeing or disagreeing with a participant's response or providing explanations to a system's behavior if the participant complained about it was avoided. The interviews began with soft introductory questions where the users were asked about themselves, their experience of mobile apps, and podcasts in general. Afterwards, detailed open-ended questions associated with the usability of the podcast service were asked.

Open-ended questions were asked in order to enable the participants to explain their experience in depth. For example, the questions were phrased in the style of “What and how do you think of X?” rather than “Did you like this X?” (Nielsen, 1994d, p 211). Since the questions were open-ended, it was important to use supplementary questions if further explanations were needed to obtain a comprehensive answer that could serve as evidence for the study. For example, “What do you mean when you say X?” or “Could you give an example of X?”. It was also important to use simple language, so the participant could relate to the question, and to only ask one question at a time and wait for the response (Lindh & Lisper, 1990; Rautalinko, 2007). When formulating the interview questions, the researchers needed to keep Nielsen’s ten usability heuristics in mind in order to make sure the questions would cover topics that related to all of them during the interviews.

The responsibilities between Researcher 1 and 2 were decided. During all interviews, Researcher 1 was the interviewer and Researcher 2 was secretary. In this way, we ensured a consistent interview process format. In addition, one interview was conducted per day between 2021-04-29 and 2021-05-04. This ensured that enough time was given afterwards to first transcribe the recording to text in one file and proofread. Then, to make a duplicate of the original transcription and translate it to English.

The study originates from a heuristic evaluation technique where Researcher 1 and 2 conducted interviews to gather information. The results of the interviews were recorded and documented by each evaluator (Researcher 1 and 2). Then in the Data Analysis (*see 3.3 Data Analysis Methodology*), the researchers could interpret the user’s answers in order to infer how they were related to usability problems in the design of the interface (Nielsen, 1994a) and to categorize each answer into one or more of the ten usability heuristics. This process made it possible to conduct the user testing even though the user did not know anything about user interface design. (ibid.) The interview process arrangement is shown below in Figure 1.

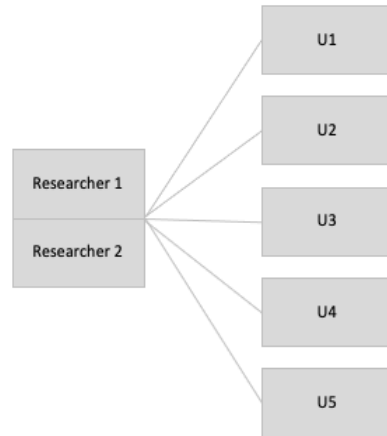


Figure 1. Interview Process Arrangement

3.3 Data Analysis Methodology

The first step of qualitative data analysis is data preparation, which is performed to manage the collected data efficiently and systematically (Oates, 2005, pp 267- 273). This technique was used to compile the collected data in the same format, with clarity between raw data and the written notes from the interviews. Moreover, Google Drive, an online system, was used to store the data efficiently. Before adding notes or additional information to any original data, a duplicate of the file was made, and the changes were made in the duplicate file. This prevented the risk of accidentally changing the original data (ibid., p 268).

The second step of qualitative data analysis is the analysis itself. The data was analyzed by identifying key themes such as which segments that were or were not relevant and segments that provided a general meaning of the study's research question (Oates, 2005, p 268). The former, segments that were relevant, were then categorized into themes based on the collected data and matched with the appropriate heuristic (*see 4. Results*). Thereafter, the severity rating of each usability problem was interpreted, decided and presented in Table 3-12. This was done in order to discover which heuristics were of critical importance.

To make an accurate and reliable analysis of the experienced usability problems rating in each heuristic, presented in Table 3-12, the collected interview material was separately reviewed by the researchers. Thereafter, the written notes from the researchers were discussed and a consensus was reached regarding the severity rating. (Nielsen, 1994b) By combining the three aspects of severity, i.e., frequency, impact and persistence (*see 2.3 Severity Ratings*) of the users' usability problems, a severity rating was established. In other words, the researchers reviewed problems based on how many users experienced it, the impact it had, if users were able to overcome it, or if it would appear frequently. For example, a persistent problem that occurred frequently, with a major impact on the users ease of use was rated high on the severity scale.

Furthermore, Oates (2005, p 271) mentions the importance of documenting the analytical process so the reader can understand the data, process and conclusions. This was attained by keeping notes of the stages the researchers experienced, the ideas that arose and conclusions that were made. This also leads to one of the advantages of qualitative data analysis which is that different but equally valid conclusions can be drawn from us researchers conducting this study. (Oates, 2005, p 277)

To single out and select the most critical heuristics, we chose to look at the heuristics that users experienced as a major usability problem, i.e., a severity rating of three, and presented these in 5. Conclusion and Discussion with their associated usability problems. We postulate that these heuristics are critical since they have the highest severity rating.

3.4 Methodological Reflections

A quantitative research approach with e.g., questionnaires could have been used since the research question of the study intends to investigate which heuristics are of critical importance by asking users of a UI about the usability of the podcast service UI. The possible approach would then have been to send out the questionnaire to a large number of experienced users of the iOS app where there would be predefined questions and multiple-choice answers. However, a quantitative approach would have limited the possibility for the users to explain their usability concerns.

A disadvantage with qualitative data collection methodology, semi-structured interviews in this case, is that they are time-consuming for the researcher (Lazar, Feng & Hochheiser, 2017, p 188). Other disadvantages are that they can be artificial (since the participant knows they are being recorded and that they are not an appropriate method if you want to make generalizations about a whole population (since you would need very many participants). (Oates, 2005, pp 198-199, Nielsen, 1994d, p 210)

Furthermore, as a result of a qualitative method, a certain degree of subjectivity is always present when conducting interviews. According to Lazar, Feng and Hochheiser (2017, p 299) the risk of subjectivity is reduced in quantitative studies since interpretation is not allowed. The subjectivity present is both from the participants of the interview and the researchers conducting the interview. The former assumingly have their own interpretation of reality where their answers are based on their personal experiences and as well as the latter. The researchers are thus an important tool in the study since the design of the questions, the collection of data and interpretation of the data can pose a risk for misinterpretation of ambiguous comments (Lazar, Feng & Hochheiser, 2017, p 299). In order to counteract this, the researchers have to maintain objectivity throughout the study when analyzing the collected data from the interviews.

However, qualitative methods do not aim to eliminate subjectivity - subjectivity to a certain degree is accepted since “it is inherent to the process of interpreting qualitative data, and they strive to show that interpretations are developed methodically to be consistent with all available data, and representative of multiple perspectives” (Lazar, Feng & Hochheiser, 2017, p 299).

Ethics were kept in mind while performing the interviews. The participants were informed that the study was for educational purposes as part of a bachelor’s thesis and in cooperation with Schibsted. Before each interview session the users were also informed that they could decide not to answer a question, that they were free to withdraw from the study at any time and that they could proofread the transcribed interviews to confirm their answers. A consent was also taken to record the interview. All of the users and their information were anonymous, and the users were informed about this. It was of utmost importance that they were anonymous and that their personal result would be treated confidentially. To preserve their anonymity, no information on their background is given in this thesis (Oates, pp 51-59).

The researchers are aware how the study deviates from its theoretical framework. However, they firmly implied that interviewing actual users of a system should be of great interest since they are the ones actually using the system (Rogers, Sharp & Preece, 2011). The users interviewed in this study were experienced users, hence, they used the podcast service on a weekly basis. Furthermore, since only the researchers consisted of two people it was not possible to be at least three, which Nielsen implies would give a reliable evaluation result (Nielsen, 1994c, d, p 156). However, the results were recurrently discussed with the researchers’ supervisor at the Uppsala University during the study’s process.

4. Results and Analysis

This chapter presents the podcast service UI, the results and the analysis of the study. Then the chapter is divided into Nielsen's ten usability heuristics where the users' answers are presented and allocated to the appropriate heuristic. The analysis of the interpreted result is shown in Tables 3-12. The interview material was translated from Swedish to English.

4.1 Podcast Service UI

The chosen study object is the UI of Schibsted's podcast service that is a part of the app Aftonbladet (Version 5.37). In order to access the podcast service, the app needs to be downloaded from the App Store. The app is free of charge to download and it can be accessed without having to enter any personal details. It is however possible to become a Plus user, i.e., plus kund, and pay a monthly subscription. Figures 2-12 entail details of the podcast service UI that were mentioned by the users during the interviews.

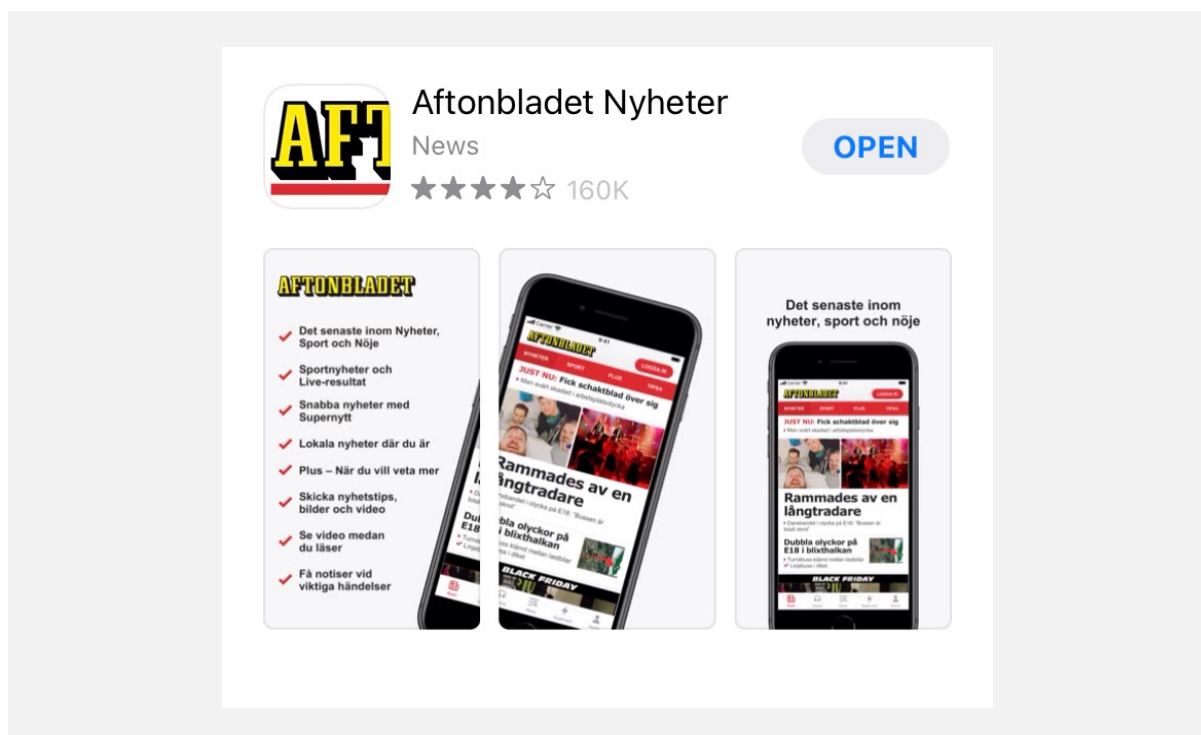


Figure 2. Aftonbladet iOS App (Version 5.37) in App Store on an iPhone

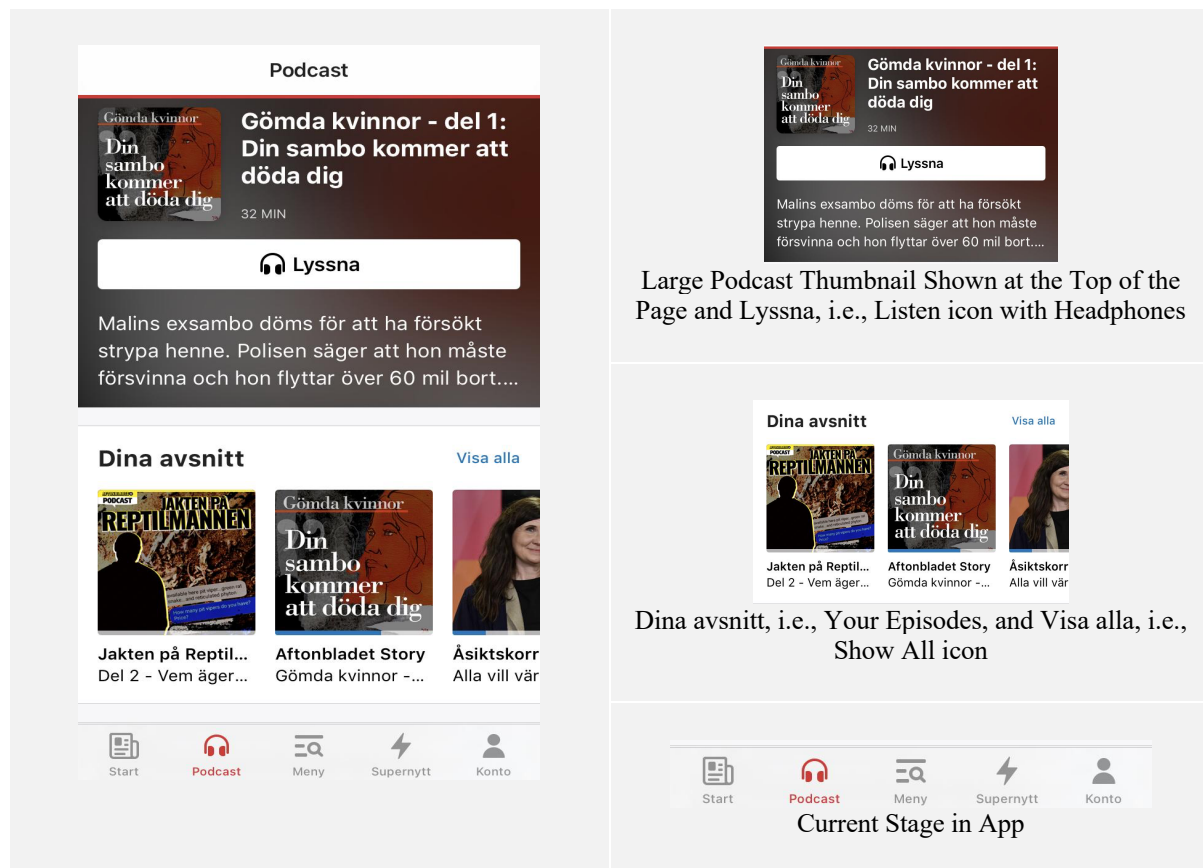


Figure 3. UI of the First Page of the Podcast Service in the Aftonbladet App (left) and Details (right)

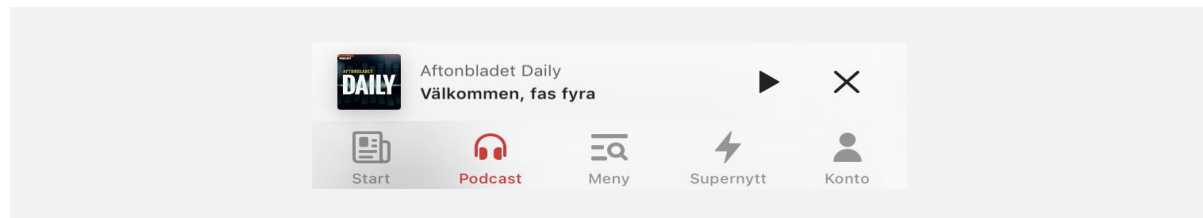


Figure 4. Minimized Podcast Episode and Global Aftonbladet Menu

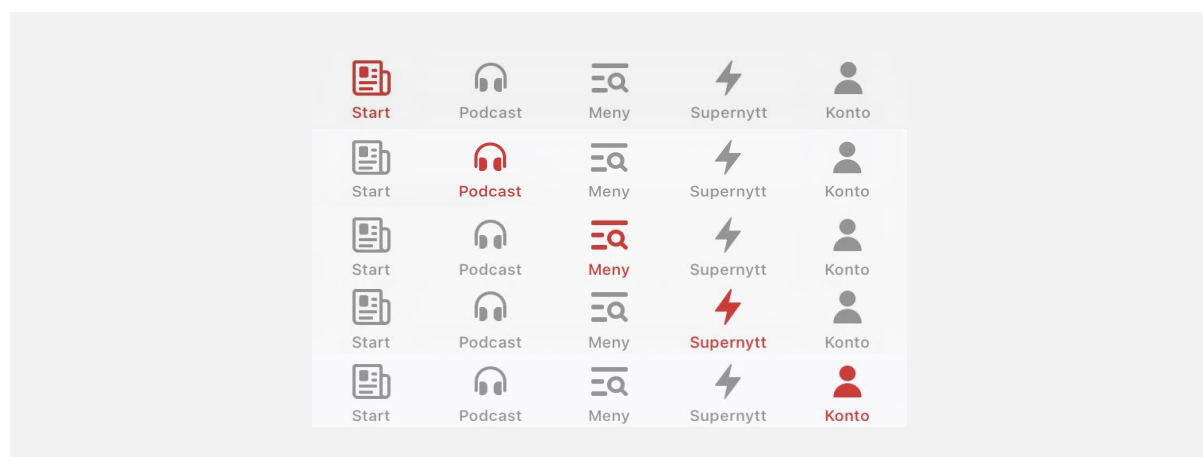


Figure 5. Global Menu Options in Aftonbladet App and Current Stage in App

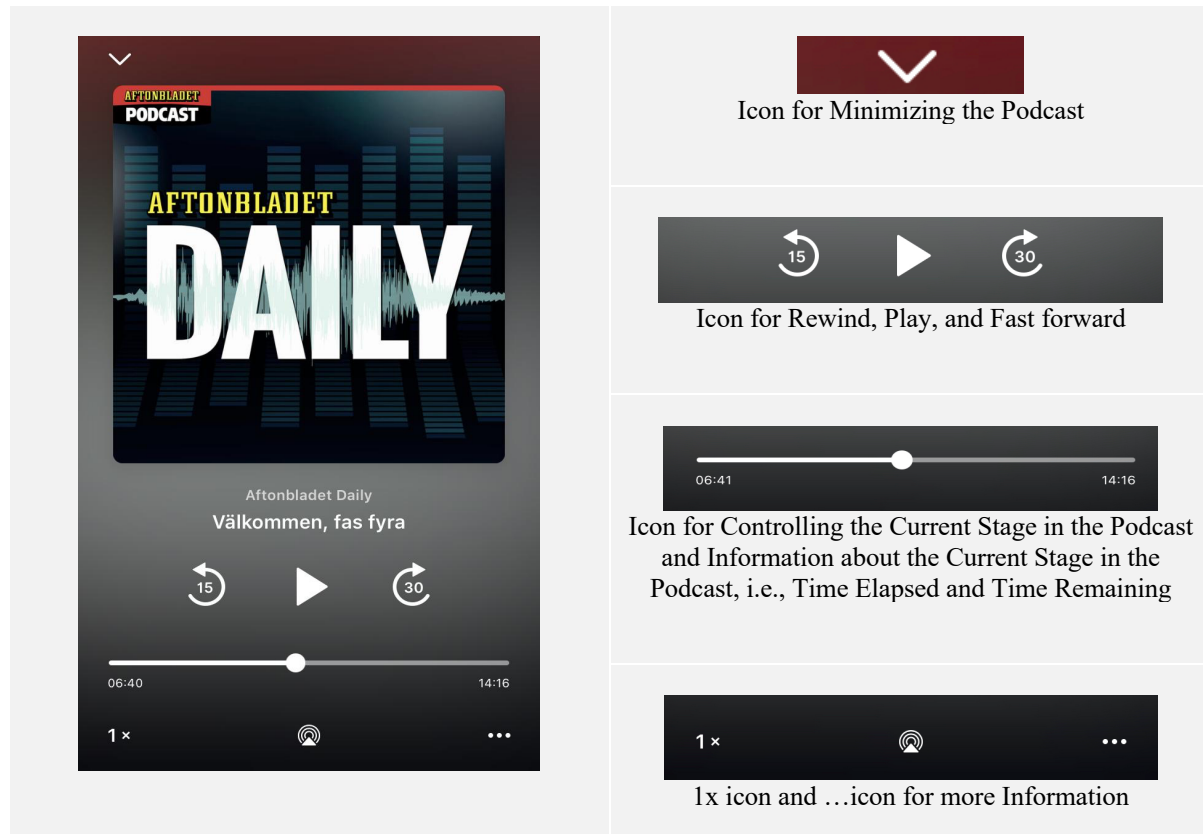


Figure 6. Maximized Podcast Episode (left) and Details (right)

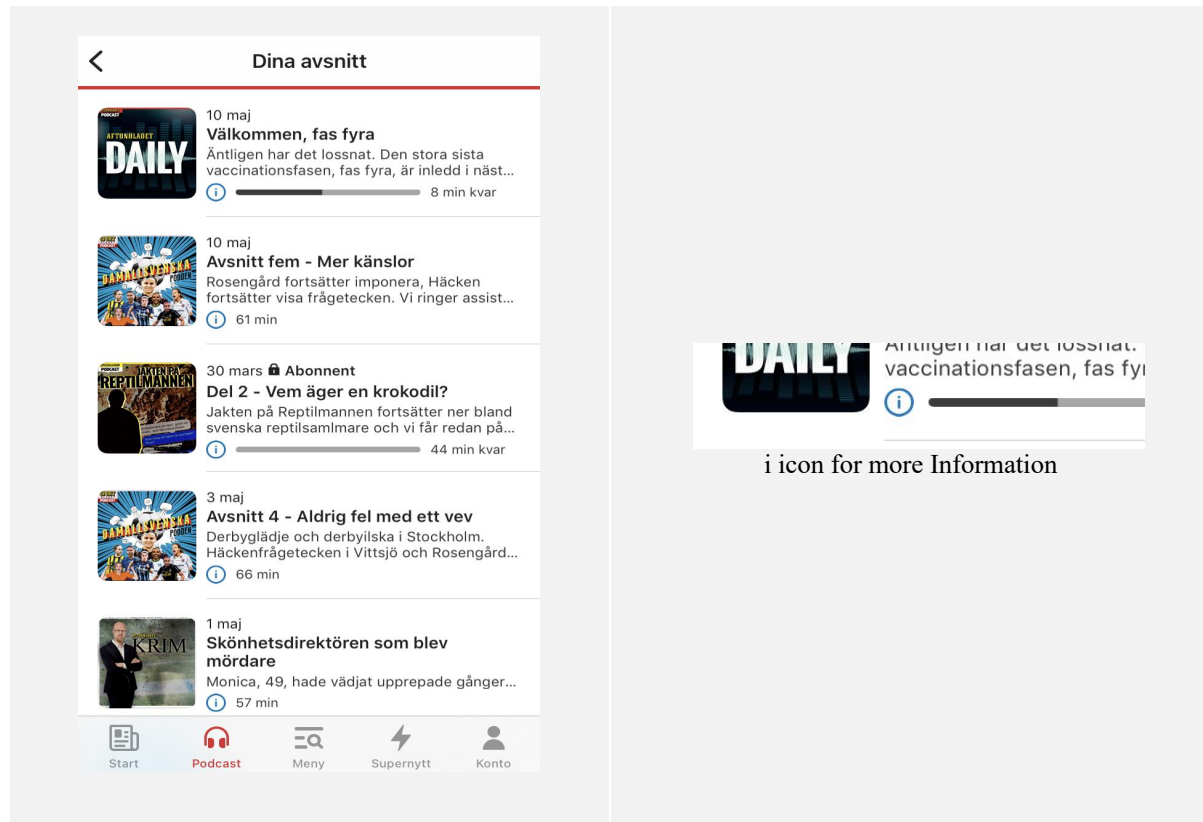


Figure 7. Your Episodes (left) and Details (right)

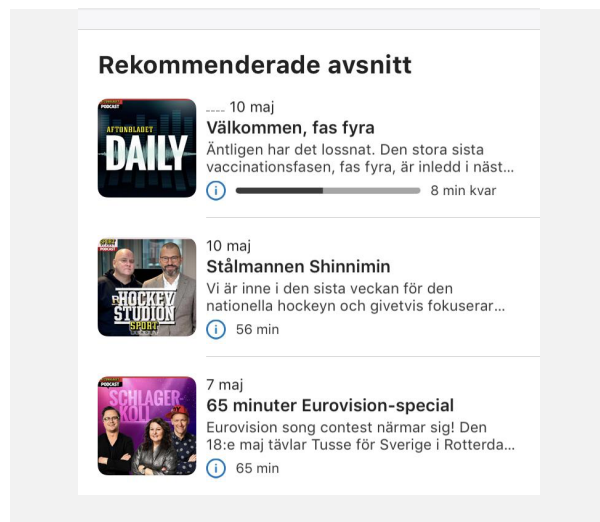


Figure 9. Recommended Episodes

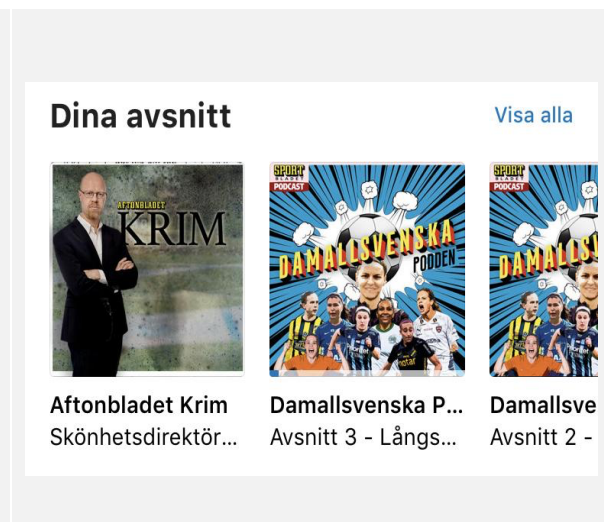


Figure 10. Podcasts Displayed as Carousels

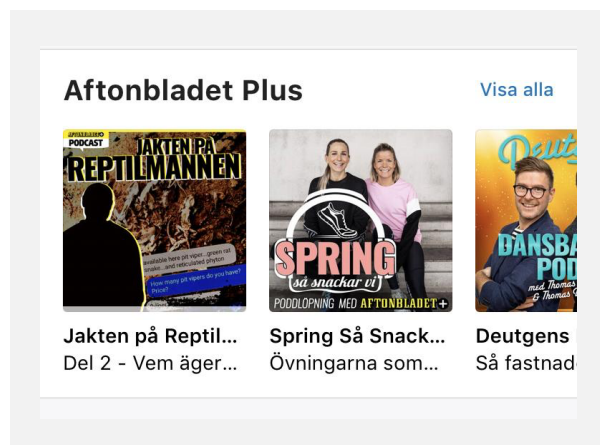


Figure 11. Aftonbladet Plus, i.e., Plus user Subscription Podcasts

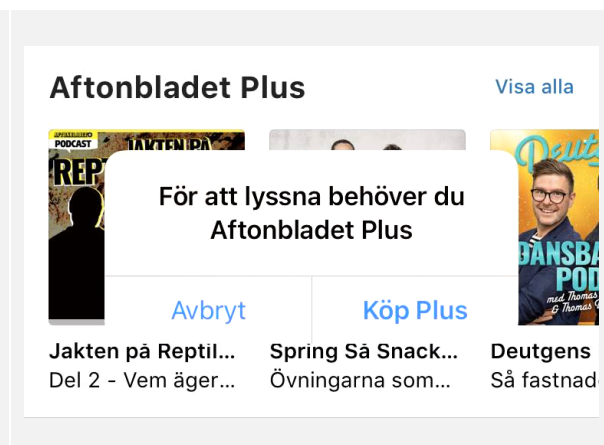


Figure 12. Error Message
För att lyssna behöver du Aftonbladet Plus
Avbryt | Köp Plus
(i.e., To Listen You Need Aftonbladet Plus
Cancel | Buy Plus)

4.2 Processed Interview Material

Five users (U1, U2, U3, U4 and U5) were interviewed according to the interview guide (see 3.2 Data Collection Methodology and Appendix Intervjuguide). As previously mentioned, all users were experienced users that were using the podcast service of the app weekly, but none of them were Plus users. None of the users were in need of any additional aid tools during their interaction with the podcast service. They used it as a substitute for reading or radio, for pleasure, during transportation or activities, and to learn new things.

The result consists of the answers from the semi-structured interviews. The answers are categorized according to the corresponding heuristic in 4.2.1-4.2.10. Then, the analysis consists of an interpretation of the answers shown in tables 3-12. Each answer has been interpreted and assigned a severity rating based on the three factors presented in 2.2 Severity Ratings.

The severity rating tables (*see Table 3-12*) are color coded based on the severity rating the heuristic achieved from each user. Green if it was not a usability problem at all, blue if it was a cosmetic usability problem, yellow if it was a minor usability problem and orange if it was a major usability problem (*see Table 1. Nielsen's Severity Ratings of Usability Problems*).

A usability concern could be categorized into more than one of the heuristics, depending on the explanation that the user gave. This is represented with bullet points in each of the ten usability heuristics below.

4.2.1 Visibility of System Status

U1, U3, and U5 thought it was easy to understand when a podcast was playing in the podcast service. U1 described that “once I have pressed play on a podcast, I understand that I am listening to a podcast since it appears at the bottom of the screen as a list, which enables me to continue exploring the podcast service of the app while listening to a podcast”. U3 said that “I like being able to maximize [an episode] and see how much time is remaining and being able to minimize it again by swiping down”. U5 described “I like when it says there is 21 minutes left of the podcast episode, it feels good to know the remaining time” (*see Figure 4 and Figure 6*).

- Being able to switch between minimizing and maximizing is also categorized in 4.2.3 User Control and Freedom since performing an undo/redo action was possible **and** in 4.2.7 Flexibility and Efficiency of Use since the feature promotes ease of use.
- The ability to see the remaining time of a podcast episode is also categorized in 4.2.7 Flexibility and Efficiency of Use since the feature promotes ease of use.

However, U5 thought that the list at the bottom of the screen could easily be mixed together with the global Aftonbladet app menu since “it makes it harder to understand which episode is playing” (*see Figure 4*).

- The minimized current episode playing feature is also categorized in 4.2.8 Aesthetic and Minimalist Design since the design interferes with the UI's usability.

U2 expressed that “I can see information of a podcast when it is playing since the name of the podcast is shown on the screen as a list, but I cannot see information of the current episode and therefore my understanding of the current playing podcast is neutral”. U2 added that they liked the visibility of the current stage when using the podcast service of the app Aftonbladet, even though the color red was not a representative color. U4 described that it was easy to understand which episode was playing currently, but that “it would be even easier for the user to understand if the episode did not appear at the bottom of the screen as a list but would instead occupy the full screen directly” (*see Figure 4 and Figure 6*).

- The current stage feature in the app is also categorized in 4.2.4 Consistency and Standards since the coloring of the current stage is consistently used **and** in 4.2.8 Aesthetic and Minimalist Design since the design interferes with the UI's usability.

Analysis

U1 and U3 did not have any usability problems associated with this heuristic and therefore the severity rating is 0. U2, U3, U4 and U5 encountered one time problems that they easily could overcome but that still had an impact on their experience and therefore the severity rating is 1. For example, U2 had a neutral attitude towards their experienced usability problem, U4 mentioned a feature which could make their experience better and U5 had problems that made a task hard for them.

U1	0. Not A Usability Problem At All
U2	1. Cosmetic Problem Only
U3	0. Not A Usability Problem At All
U4	1. Cosmetic Problem Only
U5	1. Cosmetic Problem Only

Table 3. Severity Rating of Heuristic 1. Visibility of System Status

4.2.2 Match Between System and Real World

U1 described that the icons were distinguishable and that “I did not get confused by any icon on the podcast service of the app”. U3 thought that the “icons are good, and they are easily illustrated”. U5 thought that the “icons are representative but some of the icons are boring and unnecessary”.

U2 described that “the icons for pause, play, and fast forward are obvious but the 1x icon does not resemble what I initially thought it was, it was not intuitive for me”. U2 explained that “I thought the 1x icon was going to make the screen larger, but what actually happened was that the podcast played faster”. U2 however added that “the 1x icon was a great function because sometimes I might want to make a podcast go faster if there is a slow talker talking in the podcast” (*see Figure 6*).

U4 expressed that “play, fast forward and rewind, and 1x are obvious” (see Figure 6). However, U4 added that “I assume that the Listen button means that you need to be a Plus user”. U4 believes some icons are ambiguous and describes that “I assume that the Listen button means that you need to be a Plus user, but this makes me irritated since I cannot understand why this [podcast] is the first I see when I enter the podcast service of the app” (see Figure 3). U4 felt irritated about the confusion that arises when some podcasts require you to be a Plus user and explained that “this makes me very irritated and it feels like a clickbait”.

- The Listen icon is also categorized in 4.2.8 Aesthetic and Minimalist Design since the design interferes with the UI’s usability.

Analysis

U1 and U3 did not encounter any usability problems associated with this heuristic and therefore the severity rating is 0. U2 and U5 experienced one time problems that they easily could overcome but that still had an impact on their experience and therefore the severity rating is 1. For example, U2 said it was not intuitive at first and U5 thought some icons were boring and unnecessary. U4 had usability problems that were somewhat violated according to frequency, impact and persistence and therefore the severity rating is 2. For example, U4 did not think the Listen icon was legit which impacted their experience every time when using the podcast service.

U1	0. Not A Usability Problem At All
U2	1. Cosmetic Problem Only
U3	0. Not A Usability Problem At All
U4	2. Minor Usability Problem
U5	1. Cosmetic Problem Only

Table 4. Severity Rating of Heuristic 2. Match Between System and Real World

4.2.3 User Control and Freedom

All users (U1, U2, U3, U4 and U5) were able to recognize and cancel the error message that appeared when they used the podcast service (see Figure 12).

- Being able to recognize and cancel the error message that appeared is also categorized in 4.2.9 Help Users Recognize, Diagnose, and Recover from Errors since error handling was possible. Note: The quotations from the users are found in that section.

U1 and U2 mention the lack of a delete button, i.e., delete icon with associated function, since they want to be able to delete episodes from Your Episodes. U1 described that “I think Your Episodes is good [...] but I still want to be able to delete an episode from it”. U2 said “Currently, I have three episodes under Your Episodes, and I am missing a delete button to remove an episode from the list”.

- The absence of a delete button is also categorized in 4.2.6 Error Prevention since an unconscious error was made.

U5 mentioned that they were missing a function for Go Back since “I am used to being able to swipe from left to right in order to go back but it is not possible here”. U5 suggested implementing an icon for Go Back at the top right or top left corner of the podcast service in the app.

- The absence of a Go Back function is also categorized in 4.2.6 Recognition rather than Recall since the absence of this feature was unfamiliar.

U3 and U5 enjoyed having the possibility to switch between minimizing and maximizing the podcast episode i.e., undoing and redoing the size of the podcast episode playing (*see Figure 4 and Figure 6*).

- Being able to switch between minimizing and maximizing the podcast episode is also categorized in 4.2.1 Visibility of System Status since feedback is given from the system **and** 4.2.7 Flexibility and Efficiency of Use since the feature promotes ease of use.

Analysis

U3 and U4 did not have any usability problems associated with this heuristic and therefore the severity rating is 0. U5 experienced usability problems that were somewhat violated according to frequency, impact and persistence and therefore the severity rating is 2. For example, U5 had problems due to the absence of a Go back function but despite that they enjoyed other functions. U1 and U2 experienced usability problems that were violated according to frequency, impact and persistence and therefore the severity rating is 3. For example, repeatedly having problems due to the absence of a delete button.

U1	3. Major Usability Problem
U2	3. Major Usability Problem
U3	0. Not A Usability Problem At All
U4	0. Not A Usability Problem At All
U5	2. Minor Usability Problem

Table 5. Severity Rating of Heuristic 3. User Control and Freedom

4.2.4 Consistency and Standards

U1, U2, and U4 were missing a menu in the podcast service of the app and explained that it was something that affected the consistency of the interface. U1 explained that “I want a menu which shows genres and categories such as My Profile, My Episodes, My Favorites, My Subscriptions, and a subheading in the menu where I find different genres such as Economic, Sport, News and so on”. U1 expresses a desire for a menu with category and genre functions in the podcast service of the app. U2 described that “I am missing a menu in the podcast service of the app. When I click on the podcast icon in the global menu, I can see the podcast service, but if I then click on the start icon I am back in the news service of the app and I realized it was not a podcast menu shown” (*see Figure 5*). U2 added “I think this is very vague since I don’t know how to move on and further explore the podcast service of the app”. U4 said “I would like to add a menu with a search function to make it easy to navigate the selection of podcasts and in the podcast service overall”.

- The absence of a menu button is also categorized in 4.2.5 Error Prevention since an unconscious error was made.

U2 and U4 had in common that the design was inconsistent. U2 expressed that it was “irritating that the same podcast was categorized under several headings” and “that the different sizing of podcast thumbnails was weird and inconsistent” (*see Figure 8*). Furthermore, U2 described that “I thought the use of red color indicated danger and not the current stage but since it was used consistently it was OK” (*see Figure 5*). U4 mentioned that they noticed that the podcast service of the app was of “a similar design to other Schibsted products”. According to U4 “the design is still inconsistent with a messy start page” (*see Figure 3*).

- Different sizing of podcast thumbnails is also categorized in 4.2.8 Aesthetic and Minimalist Design since the design interferes with the UIs usability.
- The current stage feature in the app is also categorized in 4.2.1 Visibility of System Status since feedback is given from the system **and** in 4.2.8 Aesthetic and Minimalist Design since the design is appealing and does not interfere with the UI’s usability.

U5 said that “the design was similar to other apps” which contributed to their opinion of a fairly consistent UI. U5 however mentioned that “sometimes the word Plus user was replaced by Subscriber, i.e., Abonnent, and that was confusing, and not consistent since both Plus user and abonnent were used.”.

U3 thought the design was consistent since it “was a classical layout of an app (*see Figure 3*)”.

Analysis

U3 did not encounter any usability problems associated with this heuristic and therefore the severity rating is 0. All of the other users, U1, U2, U4 and U5 had usability problems that were violated according to frequency, impact and persistence and therefore the severity rating is 3. For example, U1, U2 and U4 repeatedly experienced bothersome usability problems associated with the absence of a menu icon that were difficult to overcome. U2, U4 and U5 shared usability problems associated with the inconsistency of the UI that were hard to overcome.

U1	3. Major Usability Problem
U2	3. Major Usability Problem
U3	0. Not A Usability Problem At All
U4	3. Major Usability Problem
U5	3. Major Usability Problem

Table 6. Severity Rating of Heuristic 4. Consistency and Standards

4.2.5 Error Prevention

U1 and U2 both miss a delete button. U1 primarily wants a delete button when one clicks on a podcast episode by mistake and it shows up under Your Episodes. U1 says “it often happens that I click on the wrong podcasts and when it shows under Your Episodes, I want to delete it which I cannot do”. U2 feels like the list of podcast episodes shown in Your Episodes grows too long because it adds every episode one clicks on. U2 says that “the list of podcast episodes saved in Your Episodes gets so long and I want to be able to delete episodes from the list” (*see Figure 7*).

- The absence of a delete button is also categorized in 4.2.3 User Control and Freedom since performing an undo/redo action was not possible.

U1, U2 and U4 are missing a menu icon in the podcast service of the app. U1 said “It is hard to navigate [in the podcast service] without a menu”. U2 described that “when I open the Aftonbladet app and click on the podcast icon in the menu, I get to the podcast service, but when I click on another icon in the menu, I am no longer in the podcast service of the app” (*see Figure 5*). U2 continues by saying “this makes me very confused since I believed it was the menu for the podcast service” and “when I realized the podcast service does not have a menu, it is really something I am missing”. U4 says that “I would like to add a menu with a search function to make it easier to navigate the selection of podcasts”. U4 means that a menu would enable one to discover a broader variety of podcasts and a “depth in the podcast service of the app”.

- The absence of a menu button was also categorized in 4.2.4 Consistency and Standards navigating without a menu affected the consistency of the UI.

U1 finds it hard to find which podcasts they follow since U1 “would want a evident structure in the podcast service of the app in order to minimize unnecessary information and to be able to quickly locate what I am looking for”. U1 and U5 described that they often happen to click on something else instead of clicking the i icon or Show All icon as shown in Figure 3 and Figure 7. U1 described “It often happens that I click on the wrong icon when I want to click on the i icon in Your Episodes since the [i]icon is too small” (*see Figure 7*). U5 said that “When I click on the Show All icon in Your Episodes, all my listened episodes show and there, it is an extremely small i icon”. U5 continues by saying that “I have to stop as not to accidentally press elsewhere because it is easy accidentally to click on a podcast and it starts playing”. U5 was irritated when a podcast started playing immediately when they clicked on the podcast thumbnail.

- That podcasts start playing immediately is also categorized in 4.2.7 Flexibility and Efficiency of use since the feature does not promote ease of use.
- The small i icon is also categorized in 4.2.8 Aesthetic and Minimalist Design since the design interferes with the UIs usability.

U3 said “I haven't experienced any problems that caused an error when using the podcast service”.

Analysis

U3 did not have any usability problems associated with this heuristic and therefore the severity rating is 0. All of the other users, U1, U2, U4 and U5 encountered usability problems that were violated according to frequency, impact and persistence and therefore the severity rating is 3. For example, U1 and U2 both shared frequently occurring and bothersome usability problems associated with the absence of a delete button that were difficult to overcome. U1, U2 and U4 shared repeatedly occurring usability problems associated with the absence of a menu icon that were difficult to overcome. U1 and U5 shared usability problems associated with the size of the i icon that were hard to overcome.

U1	3. Major Usability Problem
U2	3. Major Usability Problem
U3	0. Not A Usability Problem At All
U4	3. Major Usability Problem
U5	3. Major Usability Problem

Table 7. Severity Rating of Heuristic 5. Error Prevention

4.2.6 Recognition rather than Recall

U2 and U3 had in common that they thought the UI was easy to understand. U2 describes the podcast service of the app as being “simple to learn because it has few features which are easy to understand how to use.” According to U2 “The structure is also simple, and the headings are representative” (see *Figure 8*). According to U3, “the UI is logical since it is easy to remember how to use it”.

U2 described that “the fact that the Show All icon is blue is very intuitive since I know I can click on it” (see *Figure 3*). U2 continues by adding “I know I can press the button because of recognition from using other apps”. U5 also enjoys the blue colored Show All icon since “it feels reasonable and nice that it [the Show All icon] is blue because it is obvious that I can click it”.

- The Show All icon is also categorized in 4.2.8 Aesthetic and Minimalist Design since the design is appealing and does not interfere with the UI’s usability.

U1 described that “I believe it [the UI] is somewhat logical because when I follow a podcast I don’t understand how to find them later” (see *Figure 8*). U2 said “in comparison with other apps such as Play or Netflix, I recognize the headings and structure from other apps” (see *Figure 8*). U3 stated that “It is kind of logical but there are a lot of irrelevant suggestions showing up which I find confusing”. U4 said “I do not find the user interface logical since the logic structure is missing”. U4 explains that “I want to see categories, genres and lists. The first view in the podcast service feels messy and it makes me not want to listen to podcasts in this [Aftonbladets] app”. U5 said “it is both logical and illogical” and continues with “I am used to being able to swipe from left to right in order to go back but it is not possible here”. U5 continued with “I do not think it is logical that I cannot click on the headings to see all podcasts in that genre” (see *Figure 8*) and “I would prefer lists over carousels since I find it more logical”. A carousel is used by swiping horizontally instead of vertically like in a list.

- The absence of a Go Back function was also categorized in 4.2.3 User Control and Freedom since performing an undo/redo action was not possible.
- The use of carousels instead of lists is also categorized in 4.2.8 Aesthetic and Minimalist Design since the design interferes with the UI’s usability.

Analysis

U2 and U3 did not have any usability problems associated with this heuristic and therefore the severity rating is 0. U1 experienced usability problems that were somewhat violated according to frequency, impact and persistence and therefore the severity rating is 2. For example, despite having repeated usability problems with not understanding where to find podcasts they follow they declare that the UI is somewhat logical. U4 and U5 had usability problems that were violated according to frequency, impact and persistence and therefore the severity rating is 3. For example, repeatedly experiencing confusion and irritation regarding icons and different features that are illogical and difficult to understand and overcome.

U1	2. Minor Usability Problem
U2	0. Not A Usability Problem At All
U3	0. Not A Usability Problem At All
U4	3. Major Usability Problem
U5	3. Major Usability Problem

Table 8. Severity Rating of Heuristic 6. Recognition rather than Recall

4.2.7 Flexibility and Efficiency of Use

All users (U1, U2, U3, U4, and U5) are missing a search button, i.e., search icon with associated function. U1 said that “I cannot search for podcasts I am interested in which I would want to be able to do” and “I have limited access to content [podcasts] since I cannot explore everything that is available”. U2 thought that “if it cannot be found, it does not exist since there is no way to search for it” and “I must scroll and scroll on my small screen because I cannot search but I guess that’s OK since there is not much content”. U3 described “because there is no search function, I cannot search for anything specific” and added “It would probably help with some kind of search function in case I run into a problem”. U4 questioned why there was no search function by saying “I feel very limited when using the app because there is no search function, why is there no search function?” and U5 said “if I want to listen to the Aftonbladet Daily Corona catastrophe in India because my friend recommended it, I cannot search for it”.

- The absence of a search button is also categorized in 4.2.10 Help and Documentation since searching for support was not possible.

U1, U3, U4 and U5 are all missing extensive information about each podcast episode. U1 said “Other apps have an icon with the name of the podcast and when you click on it you can see all episodes and more info, and this is not the case in this [Aftonbladets] podcast service”. U3 do not like that the podcast episodes are shown as carousels since U3 “cannot see the whole information text without clicking on the episode” (*see Figure 10*). U4 explained that “It is hard to get to the page where all podcast information is shown” and continued by saying “I want to be able to read more information about an episode without having to click so many steps”. Additionally, U4 wished “I could click on the picture of the podcast once it was playing and directly get information about it”. U5 described “It is a very small font when there is info on one or two lines. When I click on it [the podcast thumbnail] to read more info, the podcast starts playing but I want to read more info about the podcast before listening to it” (*see Figure 7 and Figure 9*).

Additionally, the large podcast thumbnail shown at the top of the page is confusing to U2 and U4 since it is “difficult to discover other podcasts” according to the former (U2) and because “it is not personalized” according to the latter (U4). On the other hand, U5 enjoys the enlarged podcast thumbnail since “it catches my attention” (*see Figure 3*).

U3 and U5 like the function of minimizing and maximizing the current podcast playing to be able to keep track of the remaining time of an episode. U3 said that “I like being able to click up [an episode] and see how much time is remaining and being able to minimize it again by swiping down”. U5 described “It is good when it says there is 21 minutes left on the podcast episode, it feels good to know the remaining time” (*see Figure 4 and Figure 6*).

- Being able to see the remaining time of a podcast episode is also categorized in 4.2.1 Visibility of System Status since feedback was given from the system.
- Being able to switch between minimizing and maximizing the podcast episode was also categorized in 4.2.1 Visibility of System Status since feedback was given from the system **and** in 4.2.3 User Control and Freedom since performing an undo/redo action was possible.

Regarding Your Episodes (*see Figure 7*), U1 appreciates that it is placed on the first part of the podcast service since U1 “wants to see what episode I have started listening to”. U2 explained that “It took a while for me to understand that Your Episodes are those episodes that I have listened to, but now I understand”. U3 did not mention anything about it. U4 explained that “I enjoy being able to see Your Episodes, Recommended Episodes and so on but I want to be able to browse and see the whole offer”. U5 said “I can see Your Episodes right away when opening it [the podcast service of the app] and can continue to listen, which is very important regarding podcast players”.

According to U5, Recommended Episodes, i.e., Rekommenderade avsnitt, is something that “catches my attention and gets me inspired”. U1 did not find the Recommended Episodes appealing since they are not personalized (*see Figure 9*). U1 stated that “the Recommended Episodes are not appealing to listen to since they are not personalized”. U3 said “I think Recommended Episodes are a good function since I can then listen to what other people like to listen to because I assume this is based on what many people listen to”.

U3 expressed “there are a lot of irrelevant suggestions showing, such as the large podcast showing on the first page which has nothing to do with my interests” (*see Figure 3*). U3 and U4 are missing more categories to make the use of the podcast service more efficient. U3 is missing headings like Most Listened To and said, “The ideal situation would be if there were something called Most Listened To, Latest Podcast You Listened To, and Recommended for You, this would enhance my experience of this podcast player”. U5 is missing functions such as Top 10 Podcasts and described that “I get really inspired by what others are listening to, what is popular right now and recommendations” and continued “I am missing these functions right now; something similar to Top 10 Podcasts, New Episodes and so on”. In addition to this, U5 also misses a Save for Later icon that allows saving a podcast one wants to listen to at a later time. U5 described it as “it would have been nice to be able to Like a podcast that I want to listen to later [...] and to save it in a Save for Later list”.

U1 is missing an All Episodes heading and a Your Followed Podcasts Collection heading since U1 “wants to collect these podcasts in a collection in the podcast service of the app”. U2 would like to be able to download a podcast episode offline since “I want to be able to download an episode offline since I usually listen to podcasts when I don’t have access to Wi-Fi or 4G such as when travelling”.

U4 experiences the design as messy, not very structured and lacking in features because U4 “wants to be able to see all categories in all genres”. U4 summarized their experience that it would be better if the podcast service of the app was its own app, so more functionality and depth in the podcast service of the app could be implemented. U4 wanted to “go to another podcast service of the app, but it is not possible since there is only one page, which is irritating”.

U5 felt irritated since the podcast started playing immediately without pressing the play icon, i.e., when pressing the podcast thumbnail. U5 wished that before the podcast started, there was a step with information about the episode, so that U5 could decide to listen (hence, press play one more time) or to continue exploring the podcast service of the app.

- That podcasts start playing immediately is also categorized in 4.2.5 Error Prevention since an unconscious error was made.

Analysis

All of the users had usability problems that were violated according to frequency, impact and persistence and therefore the severity rating is 3. They all shared reoccurring and bothersome usability problems associated with the absence of features and icons in the UI. For example, the absence of a search button, extensive information about each podcast episode, categories and concerns about the non-personalized recommendations.

U1	3. Major Usability Problem
U2	3. Major Usability Problem
U3	3. Major Usability Problem
U4	3. Major Usability Problem
U5	3. Major Usability Problem

Table 9. Severity Rating of Heuristic 7. Flexibility and Efficiency of Use

4.2.8 Aesthetic and Minimalist Design

U1, U2 and U4 find that the colors are fairly appealing in the design of the podcast service’s UI. U1 says that “the colors are appealing, the text size is OK, and the font is readable, although more text could be in bold in order to ease scanning the podcast service” and that there “is too much text, it would have been enough with the title of the podcast and the podcast thumbnail”. U2 says that “there are too many different colors which makes the

design messy, but the contrast of the text is good because of black text on white background and white text on black background is a good choice”. U4 says that the colors are “neither pretty or ugly” and that “the colors are ugly, but I guess that is OK”. In contrast, U3 does not find the colors appealing since the user thinks “the colors are ugly” but “the text size is OK and the font is readable”.

U1, U3, U4, and U5 preferred to orientate among lists instead of carousels. U1 said “it is way too hard to orientate amongst all these different carousels” and added “I would rather have all podcasts shown in a list”. U3 said “I do not like carousels because I cannot see the whole information text without clicking on the episode”. U4 described that “Since I want to be able to browse and see the whole offer of podcasts, I want lists”. U4 thinks that the “first page should be optimized so it gives a better overview with different categories, genres and so on”. U5 said “I would prefer lists over carousels since I find it more logical”.

- The use of carousels instead of lists is also categorized in 4.2.6 Recognition rather than Recall since this feature was unfamiliar.

Although the font is easily readable, U5 does not find the design appealing since the font is too small at times, it is “boring with a white background color”. U1 and U5 are of the opinion that the i icon is too small (one can easily happen to click on something else) as shown in Figure 3 and Figure 7. U1 said “I often click on the wrong icon when I want to click on the i icon in “Your Episodes” since the [i]icon is too small”. U5 said “I have to stop as not to accidentally press elsewhere because it is easy to accidentally click on a podcast and it starts playing”.

- The small i icon is also categorized in 4.2.5 Error Prevention since an unconscious error was made.

U2 and U5 feel that the Show All icon is intuitive and that it enables them to find more information about a podcast episode. U2 explained that “the fact that the Show All icon is blue is very intuitive since one knows one can click on it” (*see Figure 3*). U5 said “it feels reasonable and nice that it [the Show All icon] is blue because it is obvious that one can click it”.

- The blue Show All icon is also categorized in 4.2.5 Recognition rather than Recall since this feature was familiar.

U2 and U5 also find it difficult to distinguish between the podcast currently playing (when it is minimized) and the global Aftonbladet app menu (*see Figure 4*). U2 explained “I find it weird that there is no delimiting line between the current episode playing and the global menu” and added “A line between the two [the current podcast playing and the Aftonbladet app menu] would have been necessary” (*see Figure 4*). U5 thought that the list at the bottom of the screen could easily be mixed together with the global Aftonbladet app menu “since it makes it harder to understand which episode is playing”.

- The minimized current episode playing feature is also categorized in 4.2.1 Visibility of System Status since feedback was given from the system.

The large podcast thumbnail shown at the top of the page is confusing to U2 since it is “difficult to discover other podcasts”. U4 is irritated with the large podcast thumbnail since it is required to be a Plus user. When U4 clicked on the Listen icon on the large podcast, the podcast would not play since U4 was not a Plus user and U4 said that “this makes me a little irritated and it feels like a clickbait”.

- The Listen icon is also categorized in 4.2.2 Match Between System and Real World since the icon was not representative.

U2 finds it confusing why different podcasts have different sizes on their thumbnails and said, “I get very confused as to why some podcasts thumbnails are rectangular and some are squared” (see *Figure 8*). Furthermore, U2 initially associated the red color of the Aftonbladet menu with danger but since it was used at all times, they “understood that the red color indicated my current stage” (see *Figure 5*).

- The current stage feature in the app is also categorized in 4.2.1 Visibility of System Status since feedback is given from the system **and** in 4.2.4 Consistency and Standards since the color is consistently used.
- Different sizing of podcast thumbnails is also categorized in 4.2.4 Consistency and Standards since the sizing was inconsistent.

U3 says that “since not everyone is a Plus user, it is good that it clearly shows what podcasts require a subscription since the heading states so” (see *Figure 11*). U3 described that the headings are understandable and that “I can understand what podcasts require being a “Plus user” and I enjoy that”.

Analysis

All of the users experienced usability problems that were violated according to frequency, impact and persistence and therefore the severity rating is 3. They all shared reoccurring and bothersome usability problems associated with the aesthetics of the design. Despite mentioning some positive usability concerns, there are more negative usability problems with the design that interfered with the usability. For example, redundant text, non appealing colors, difficulty of distinguishing between the podcast playing and the global Aftonbladet app menu, confusion regarding different sizing of podcast thumbnails, and difficulties orientating due to the UI design.

U1	3. Major Usability Problem
U2	3. Major Usability Problem
U3	3. Major Usability Problem
U4	3. Major Usability Problem
U5	3. Major Usability Problem

Table 10. Severity Rating of Heuristic 8. Aesthetic and Minimalist Design

4.2.9 Help Users Recognize, Diagnose, and Recover from Errors

All users (U1, U2, U3, U4 and U5) mentioned that the error message that appeared in the podcast service of the app was understandable and easy to correct. They all had experienced the same error message (see *Figure 12*).

U1 stated that they “received a message about becoming a Plus user when I happened to click on an Aftonbladet Plus podcast and it was understandable. I read the text and understood how to become a Plus user or not” and U2 said that “prominent messages pop up when a Plus user subscription is required”.

U3 and U5 both clarified that they could easily find a way out from the error message in order to be able to continue to use the podcast service of the app. U3 said, “It is easy to cancel instead of buying [a subscription], and in some cases you get forwarded to the subscription page directly but in this case I like that an alternative appears so that you can change your mind”. U3 continues “it is easy to become a Plus user if you want to”. U5 said “It is easy to move forward, I got two alternatives and when I click on Cancel, I return to where I was [in the podcast service] which is very good and when I click on Buy Plus, I get to the page where I can easily purchase the subscription and become a Plus user”.

- Being able to recognize and cancel the error message that appeared is also categorized in 4.2.3 User Control and Freedom since performing an undo/redo action was possible.

Despite specifying that the error messages were understandable, easy to correct and recover from, U4 experienced that they showed up “too many times and that this was unjustified”. U4 described it as “I feel deceived to become a Plus user at Aftonbladet”.

Analysis

U1, U2, U3 and U5 did not have any usability problems associated with this heuristic and therefore the severity rating is 0. U4 experienced usability problems that were somewhat violated according to frequency, impact and persistence and therefore the severity rating is 2. For example, despite having repeated usability problems with occurring error messages, they declared that the error messages were understandable and easy to correct.

U1	0. Not A Usability Problem At All
U2	0. Not A Usability Problem At All
U3	0. Not A Usability Problem At All
U4	2. Minor Usability Problem
U5	0. Not A Usability Problem At All

Table 11. Severity Rating of Heuristic 9. Help Users Recognize, Diagnose, and Recover from Errors

4.2.10 Help and Documentation

U1 stated that finding support was a “hard and indistinct task to perform” since “there is no search button available in the podcast service of the app” that can be used in need of help. U2 thought that “if it cannot be found, it does not exist since there is no way to search for it”. U3 described “because there is no search function, I cannot search for anything specific”. U4 stated “I switch to another podcast app” if U4 needs help or gets stuck. U5 also said that “there is no search function, and this would be good to have and it is an important function that I am really missing”.

- The absence of a search button is also categorized in 4.2.7 Flexibility and Efficiency of Use since the absence of the feature does not promote ease of use.

Analysis

All of the users had usability problems that were violated according to frequency, impact and persistence and therefore the severity rating is 3. They all shared reoccurring and bothersome usability problems associated with the absence of a search function that were difficult to overcome.

U1	3. Major Usability Problem
U2	3. Major Usability Problem
U3	3. Major Usability Problem
U4	3. Major Usability Problem
U5	3. Major Usability Problem

Table 12. Severity Rating of Heuristic 10. Help and Documentation

5. Conclusion and Discussion

This chapter consists of the study's conclusion, discussion, and suggestions for future research.

5.1 Conclusion

The research question dealt with in this study was, *Which usability heuristics are of critical importance for an iOS podcast service user interface?*

Based on the identified major usability problems, the conclusion is that seven of Nielsen's ten usability heuristics are of critical importance:

- Heuristic 3. User Control and Freedom
- Heuristic 4. Consistency and Standards
- Heuristic 5. Error Prevention
- Heuristic 6. Recognition rather than Recall
- Heuristic 7. Flexibility and Efficiency of Use
- Heuristic 8. Aesthetic and Minimalist Design
- Heuristic 10. Help and Documentation

A synopsis of the major usability problems experienced in the critical heuristics:

- Does not provide necessary icons and associated functions
- Does not provide enough information regarding podcasts
- Does not provide personalization and customization
- Does not provide easy ways to navigate
- Less effective and efficient regarding icons
- Lack of consistency in the design
- Ambiguous design details

Three out of the ten heuristics were not of critical importance:

- Heuristic 1. Visibility of System Status
- Heuristic 2. Match Between System and Real World
- Heuristic 9. Help Users Recognize, Recover and Diagnose from Errors

5.2 Discussion

This study determined and evaluated the usability of the iOS podcast service UI and identified which heuristics that were of critical importance. In each of the critical heuristics, usability problems had been identified and experienced by the users. In these cases, the UI design had been violated since the usability problems were interpreted by the researchers as major usability problems with severity rating 3 according to the frequency, impact and persistence of the problem.

After systematically investigating Nielsen's ten usability heuristics and their critical importance for an iOS podcast service UI, both usability problems and other usability concerns have been identified from the user interviews (*see 4 Results and Analysis*). This study shows that Nielsen's ten usability heuristics are relevant and significant when evaluating the UI of podcasts.

There are notable differences in how the five users perceived usability problems in the podcast service of the app. One of the users seemed less prone than others to report problems with the UI. Since we promised all users anonymity and confidentiality, and since this is such a small sample, we cannot draw any conclusions regarding characteristics that may correlate with how users perceive interface issues.

The findings can be used to improve the usability of the podcast service UI. These guidelines and recommendations are based on the results of the heuristic evaluation performed in this study, which has focused primarily on interpreting the users' answers and mapping them with the associated heuristics and establishing a severity rating of the experienced usability problems.

This study has its roots in a heuristic evaluation technique, despite deviating from it in a few ways. The researchers have used their expertise to categorize the users' usability concerns into the appropriate usability heuristic and evaluate the concerns with a severity rating. In this way, major usability problems have been identified and also an understanding of the heuristics that have been violated in the design of the podcast service UI.

In comparison with previous studies, this study has provided in depth information and has helped to evaluate the podcast service UI with a qualitative method. Furthermore, since there is little literature about usability and the UI of a podcast, this study has contributed to research within usability heuristics and podcasts.

The UI is one of the aspects in the overall UX design process (Iso.org, 2020). UX is defined by ISO as a "person's perceptions and responses resulting from the use and/or anticipated use of a product, system or service" (Iso.org, 2019). UX design is the entire process including aspects of design, usability and function (The Interaction Design Foundation, 2019). Thus, the researchers believe that if the findings from this study are used, they can improve the UX of the podcast service UI.

5.3 Future Research

This study was limited to iOS devices only and the UI of a podcast service. This is unrelated to the content of the podcast, which was omitted from the study and the fact that studies already exist regarding that subject. With that being said, there is a great amount of research left to do and a quantitative approach could be used as a complement to this qualitative study. If the study were to be extended, a combination of a qualitative and quantitative approach would be interesting.

It would have been interesting to research the Android version, as well as the desktop version of the podcast service, possibly through a comparative study between them, as well as investigating the severity rating based on the market impact, that was excluded in this study. Furthermore, it would be interesting to see if the interpretations of the user interview material (i.e., categorizing of usability concerns into usability heuristics and severity rating) differed if there was another researcher included in this study.

The researchers hope that this study can serve as a basis for future research on the topic, both qualitative and quantitative. The severity rating of each usability problem that is connected to each heuristic can hopefully provide a rough estimate of the need for additional usability efforts. In this case, the podcast service is already a released product on the market, but the results in this study can give guidance on improvements. Schibsted can hopefully use these insights to both improve the usability of their podcast service UI and to retain the features that were not interpreted as major usability problems.

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Appendix

Intervjuguide (Swedish)

Tack för att du deltar i denna studie. Jag heter Linda Ackerstierna och jag är här med Mikka Söder som ska anteckna under intervjun. Vi är studenter från Uppsala universitet och vi skriver vår kandidatuppsats hos Schibsted som äger Aftonbladet. Vi undersöker användbarheten av podcast delen av Aftonbladets app och dess user interface (UI). Under intervjun kommer jag att fråga dig frågor kring användbarheten.

- Du är anonym,
- du kan besluta att inte svara på en viss fråga utan att ge någon förklaring,
- du kan avsluta intervjun när som helst,
- du kan tala fritt eftersom det är en semistrukturerad intervju,
- du får slutavhandlingen för godkännande innan de publiceras i Diva,
- syftet med intervjun är att få insikter om kunskapsområdet och att genomföra intervjun för att svara på våra frågor
- samtycker du till att intervjun spelas in och transkriberas?

Detta är inte test eller prov eller liknande och vare sig du eller din kunskap kommer att bedömas. Det enda vi är intresserade av är dina åsikter och erfarenheter av podcast delen. Det finns inga fel svar. Intervjun beräknas ta ca 45 minuter och består av tre frågeområden. Jag kommer informera när halva tiden har gått. Har du några frågor?

Nu sätter vi igång. [Starta inspelning]

Introduktionsfrågor <i>Syftet är att få fram användarens vana med podcasts eftersom det kan påverka eventuella användbarhetsproblem samt att få en allmän kommentar om den befintliga användbarheten.</i>	Kompletterande frågor
1. Vad jobbar du som/pluggar du med?	- Hur menar du när du säger X?
2. Brukar du behöva några hjälpmedel när du använder en mobil-app? Om ja, varför? Om nej, varför?	- Kan du ge exempel på vad du menar när du säger X?
3. När, varför och hur ofta lyssnar du på podcasts?	- Kan du beskriva vilken känsla du fick när du upplevde X?
4. Vad tycker du saknas i podcast delen av appen?	
5. Vad skulle du vilja lägga till eller ändra på i podcast delen av appen?	
Detaljerade frågor <i>Syftet är att få fram utförlig information om användbarheten av podcast</i>	

<i>delen på Aftonbladets app.</i>	<p>- Kan du berätta mer om de färger, typsnitt, former, placering av ikoner, informationsrutor m.m. som används?</p> <p>- Varför, varför inte?</p>
1. Kan du berätta om hur du använder podcast delen av appen när du lyssnar på ett avsnitt?	
2. Kan du berätta vad du tycker om ikonerna/symbolerna - representerar de i podcast delen av appen det du tror att dem ska göra när du klickar på dem?	
3. Kan du berätta om du kan göra det du vill göra när du ska använda podcast delen av appen?	
4. Kan du berätta vad du tycker om hur podcast delen av appen ser ut?	
5. Kan du berätta hur du går tillväga när du använder podcast delen av appen när du stöter på ett problem?	
6. Om du inte har använt podcast delen av appen på ett tag, kan du berätta om hur du går tillväga för utföra det du vill göra i podcast delen av appen?	
7. Kan du berätta om vad du tycker om podcast delens logiska uppbyggnad?	
8. Kan du berätta om du enkelt hittar den information som du letar efter i podcast delen av appen?	
9. Kan du berätta om de funktioner, “features”, som finns?	
10. Kan du berätta vad du tycker om podcast delen av appens design?	
11. Kan du berätta vad du tycker om felmeddelandena i podcast delen av appen?	
12. Kan du berätta om hur du går tillväga när du gör fel i podcast delen av appen?	
13. Kan du berätta vad du gör när du inte direkt hittar det du letar efter i podcast delen av appen?	
Avslutningsfrågor <i>Syftet är att få fram om användaren har något ytterligare att tillägga utöver behandlade frågor.</i>	
1. Har du något som du vill lägga till eller några frågor?	
2. Vill du läsa igenom dina svar?	

Tack. [Avsluta inspelning]

Interview Guide (English)

Thank you for participating in this study. My name is Linda Ackerstierna and I am here with Mikka Söder who will take notes during the interview. We are students from Uppsala University, and we are writing our bachelor's thesis at Schibsted, which owns Aftonbladet. We are investigating the usability of the podcast service of Aftonbladet's app and its user interface (UI). During the interview, I will ask you questions about what you think about the UI and how you experience it.

- You are anonymous,
- you can decide not to answer a specific question without giving an explanation,
- you can end the interview at any time,
- you can speak freely because it is a semi-structured interview,
- you get the final dissertation for approval before it's published in Diva,
- The purpose of the interview is to gain insights into the area of knowledge and to conduct the interview to answer our questions
- Do you agree to the interview being recorded and transcribed?

This is not a test and your knowledge will not be judged. The only thing we are interested in is your opinions and experiences of the podcast service. There are no wrong answers. The interview is estimated to take about 45 minutes and consists of three question areas. I will inform you when half the time has passed. Do you have any questions? Let's do this. [Start recording]

Introduction questions <i>The purpose is to bring out the user's habit of podcasts as it can affect any usability issues as well as to get a general comment about the existing usability.</i>	Supplementary questions
1. What do you work as / study with? 2. Do you usually need any aid tools when using a mobile app? If so, why not? If not, why not? 3. When, why and how often do you listen to podcasts? 4. What do you think is missing in the podcast part of the app? 5. What would you like to add or change in the podcast part of the app?	- What do you mean when you say X? - Can you give examples of what you mean when you say X? - Can you describe how you felt when you experienced X?
Detailed questions <i>The purpose is to obtain detailed information about the usability of the podcast service on Aftonbladet's app.</i>	- Can you tell us more about the colors, fonts, shapes, placement of icons,
1. Can you tell us how to use the podcast part of the app while listening to an episode?	

2. Can you tell us what you think of the icons / symbols in the podcast part of the app - do they represent what you think they should do when you click on them?	<p>information boxes, etc. that are used?</p> <p>- Why, why not?</p>
3. Can you tell us if you can do what you want to do when using the podcast part of the app?	
4. Can you tell us what you think about what the podcast part of the app looks like?	
5. Can you tell me how to proceed when using the podcast part of the app when you encounter a problem?	
6. If you have not used the podcast part of the app for a while, can you tell us how to do what you want to do in the podcast part of the app?	
7. Can you tell us what you think about the logical structure of the podcast part of the app?	
8. Can you tell us if you can easily find the information you are looking for in the podcast service of the app?	
9. Can you tell us about the features that are available?	
10. Can you tell us what you think about the podcast part of the app's design?	
11. Can you tell us what you think about the error messages in the podcast part of the app?	
12. Can you tell us how to proceed when you make a mistake in the podcast part of the app?	
13. Can you tell us what you do when you do not immediately find what you are looking for in the podcast service of the app?	
Closing questions <i>The purpose is to find out if the user has anything further to add in addition to the treated questions.</i>	
Do you have something you want to add or any questions?	
2. Do you want to read through your answers?	

Thank you. [Stop recording]