A study of TV- and video consumption among Digital Natives and Digital Immigrants

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English title

A study of TV- and video consumption among Digital Natives and Digital Immigrants

Swedish title

En studie av TV- och video konsumtion bland Digital Natives och Digital Immigrants

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ABSTRACT

The accelerating development of digital technology along with the Internet has opened up for new types of media use. It is crucial for marketers and companies to understand the wants and needs of the growing consumer sector and especially the younger audience who consume media through new types of technology. This thesis presents a study of the differences in television and video consumption and interaction behavior between the two groups called Digital Natives and Digital Immigrants. Based on the research findings, the goal of this study was to discuss how the television landscape of the future could look and how to design a TV-application that takes the future adult generation, the Digital Natives, specific needs into consideration. This was done by reading up on existing research and trend reports, conducting interviews and usability tests with an existing TV-application, and lastly distributing a survey. The results from both interviews and the survey showed that the two groups’ behavior and preferences regarding TV and video consumption and interaction differed in many aspects. The reasons for watching video differed substantially between the groups, leading to the belief that the future TV landscape should look different from what it does today. Based on the findings, three user based personas and scenarios were created and two design workshops were held to brainstorm concepts of how to design for these personas. Lastly, three design concepts that could work in a future TV application were created and presented.

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Keywords
Video consumption; Interaction; Digital Natives; Digital Immigrants; Behavior;

1. INTRODUCTION

Today digital technology is developing faster and faster and new media platforms are constantly being presented on the market. The variety of devices and services that are available today has changed how people, especially the younger audience, engage with the TV industry [7] [15]. The ability to predict future trends and understanding market segments is important for companies to keep up with competitors and the growing consumer sector. Marketing researchers are often interested in studying the media habits of specific consumer groups, but accurately measuring media consumption is a difficult challenge. There are a variety of methods to study how much media people consume as well as what content they choose to watch and why [10].

Terms like Baby Boomers, Millennials and Digital Natives are commonly used by marketers to describe and define typical behaviors, preferences and characteristics within different age groups, also called generational cohorts. [23] coined the terms Digital Natives and Digital Immigrants. He argues that today’s youths have been using digital technology during their childhood and adolescence, and that growing up in this ubiquitous environment has made them think and process information completely differently from their ancestors. [23] has defined this young Internet generation as Digital Natives. The rest of us, who did not grow up using technology, can be compared to the Digital Natives as Digital Immigrants.

Research companies such as Arqiva and Nielsen have conducted extensive reports investigating media consumption and viewing behavior among children and youths in UK and US [6][21][22]. One of the most interesting trends that has been seen in these reports is that kids watch linear TV to a much smaller extent than adults. A reason for this could be the huge uptake of alternative video formats and new devices [6] along with the fact that the connectivity is getting better and better. Another outcome from this research is that the youth group has a growing variety of devices and services through which they engage with the media industry [22]. Content once consumed only by sitting in front of a TV set at a specific hour is now available whenever and wherever they want, on laptops, smartphones and tablets through the Internet. This behavior reflects the changing landscape of platforms available for media consumption. It is reasonable to assume that the consumption and interaction with different media platforms differs between different generational cohorts, as well as that their behaviors change from one platform to another. It is clear that a shift in how people watch television is taking place, and it is of great interest to know how it is changing and why.

This work explores how viewing behavior, expectations and interaction with television and video content differ between the two generational cohorts called Digital Natives and Digital Immigrants (see section 2.2.1 & 2.2.2), across different viewing platforms. A discussion of how the findings could affect the future of TV and video consumption is held and three design concepts that could fit in a future TV application is explored and presented. By conducting interviews, usability tests and distributing a survey, this study answers the following research questions:

- What differences in Digital Natives’ and Digital Immigrants’ television and video consumption behavior and interaction (with the Accedo TV-application ViaGo) can be found by using HCI methods?
- How can learnings from this research be used as a basis for discussion about how the television landscape of the future could look like and how to design for it?

2. BACKGROUND

The television has undergone a substantial change in the last decades, for example Cable TV, satellite, broadcast television and most recently innovations such as smart, 3D and online television has evolved. Internet has provided new opportunities for service providers and viewing online TV is increasing fast among young people. YouTube and video-on-demand services like Netflix are luring viewers from traditional broadcast and cable TV networks [9]. The development has lead to television viewing being fragmented to multiple platforms, and the Internet opening up new types of TV and audience behaviors.
2.1 Current TV-media landscape
The consumption of television remains high overall. Globally there are two major trends that can be seen in broadcasting TV among young adults: the increase of online video consumption, and viewing video content on multiple platforms. Especially online video consumption is rising fast among 15+ [13], which is in sharp contrast to the 30+ who still mainly rely on television [21]. Linear television still plays a significant role in the viewing mix for young adults, but over half of the viewing amongst teenagers are non-linear Video-on-Demand (VoD) and Over-The-Top (OTT) content [6]. Among young adults, the primary platforms for consuming video content are through smartphone, computer, tablet or gaming devices [13].

MMS (Mediamätning i Skandinavien) have measured and analyzed broadcasting TV consumption among Swedish households since 1993. Since 2010 there has been an ongoing annual decrease with 3-4% in traditional TV viewing [19]. The MMS annual report from 2015 shows that television consumption increased during that year, especially online video consumption, which increased with 60%.

2.1.1 Measuring TV use and interaction
Why audiences choose to watch television and what content they chose to watch are enduring questions for media researchers and marketers. Two of the primary, although conflicting, theoretical traditions that frame research about audience exposure to television and how viewers use the medium are the uses and gratifications theory and the structural approach [10].

The uses and gratification theory offers an understanding of how individual determinants, such as audience motivations, individual characteristics and preferences, link to media behavior by seeking to interpret the motives for media program choices in terms of the audience’s psychological and sociological needs [12]. The structural approach highlights structural factors, such as audience availability and access to the medium, as aspects that control the size and composition of audiences [10]. [10] argues that each framework is important in explaining audience behavior, but that each approach alone typically ignores key aspects that would provide more complete insights about choice of television and content. Audience activity should be seen as a variable concept, rather than an absolute one. The level of activity might differ according to many possible orientations in the communication process, and the level of activity should not be seen as either active or passive. [10] adds to this that audience availability and viewing motivations, access to media platforms, use of other media as well as audience characteristics should all have impact on exposure to television. In today’s society with new digital media forms coming continuously, an approach that integrates measures to examine individual and structural determinants of television exposure seem necessary.

2.2 Generational cohort theory
The generational cohort theory is based on two assumptions, the socialization hypothesis and the scarcity hypothesis. The socialization hypothesis suggests that an adult’s basic values reflect the socioeconomic conditions of childhood and adolescence and the scarcity hypothesis suggests that cohorts tend to place a great subjective value on the socioeconomic resources that were in short supply during their formative years [12]. Each group’s shared experiences are what distinguish one cohort from another. Generational cohorts focus on cataclysmic events that produce a change in the value structure of society, rather than using birth time to differentiate generations [11].

Terms such as Baby Boomers, Millennials and Digital Natives etc. are commonly used to describe and define typical behaviors, preferences and characteristics within different age groups. A wide range of dates is compounded and a major problem lies within the ability to clearly demarcate age categories for each group, currently there are no such agreements. In this study the two cohorts called Digital Natives and Digital Immigrants are compared. These terms were coined by Marc Prensky and do not refer to two different generations but are rather a catch-all category for the population born before and after the spread of technology and Internet [23].

2.2.1 Digital Natives
[23] argues that due to the arrival and rapid dissemination of digital technology in the last decades of the twentieth century, a really big discontinuity has taken place. Today’s youths have been surrounded by and used digital technology such as computers, cell phones and television during their childhood and adolescent. It is clear that growing up in this ubiquitous environment has made them think and process information completely differently from their ancestors. [23] coined the term Digital Natives to describe these young people, because they are “native speakers” of the digital language of computers, video games and the Internet. In this study, the Digital Natives are defined as all people born within 1995 – 2006.

2.2.2 Digital Immigrants
According to [23], the rest of us, who were born before the widespread adoption of digital technology, are compared with the Digital Natives as Digital Immigrants. Digital Immigrants learn to adapt to the new digital environment but they will always retain their ‘accent’, their foot in the past. Research has shown that a language learnt later in life goes into a different part of the brain [23]. Digital Immigrants are believed to pick up new technology less quickly than Digital Natives. In this study, the Digital Immigrants are defined as all people born within 1965 – 1980.

2.2.3 Generational cohorts and media consumption
There is some previous research regarding technology and media consumption among different generational cohorts. When it comes to technology use and behavior, the interest has especially been in the younger generation that has grown up in the beginning of this century. Millennials, Generation Y and the net-generation are some of the names used to describe this population often born within the years 1980-1994. The media habits of this group have changed radically as technology has become more and more integrated in their everyday life. It is important to take into consideration that the behavior might differ not only between cohorts, but also between different countries. A country’s economic, technological and cultural environment has a major impact of how people use media and technology. [12] applies the generational cohort theory and the uses and gratifications theory to investigate generational and regional differences in media consumption patterns of Chinese generation X consumers. [2] explored how computer-mediated communication has evolved and changed within the Gen Y group due to new technology. [2] claim that for this generation, which is the first to grow up with the new technology, expressing themselves through technological tools is the norm and that their attitudes towards information technology is radically different from previous generations. [8] studied how Generation Y uses social media, and discussed how this behavior might affect different aspects of our society. They highlight the
In this study the Via TV and Via Go is a video application developed by the company Accedo. How Digital Natives interact with and consume television and video content on multiple platforms is explored by conducting usability tests with Accedo’s usability testing. Interviews and sending out a survey with and consume television and video content on multiple platforms.

A variety of both qualitative and quantitative methods were used to explore how Digital Natives and Digital Immigrants interact with and consume television and video content on multiple platforms. What, when and why the two groups watch video content on multiple platforms were studied by conducting interviews and sending out a survey. Focus was also on studying how users interact with TV and video content, which was done by conducting usability tests with Accedo’s TV application Via Go. Via Go is a video application developed by the company Accedo TV. It is currently available for web, iOS and Android platforms. In this study the Via Go versions for web and iOS were used in the usability tests. The Via Go application enables video content providers to launch dynamic video services and experiences across multiple screens. For the end-users, Via Go is an online video service where the user has access to video content, such as movies and TV series, stored in different sections and categories, a concept similar to Netflix [20].

Based on the findings, three design concepts of what a TV application could look like in the future were created and each concept was presented as a user story.

## 3.1 Interviews and Usability Testing

The research process started with gathering qualitative data about user behavior and interaction with video content by conducting interviews combined with usability tests. Before the sessions started, a pilot test was conducted to make sure that the interview questions and usability test instructions worked as planned. Six people from each user group, the Digital Natives and Digital Immigrants, were recruited and participated in the tests that lasted about an hour. The test session started with initial interview questions regarding the participant’s video consumption in general. For example, the questions were regarding what platforms the participants used and what content they preferred to watch, among other things. This was followed by a usability test of the TV application Via Go, where the participants were asked to think-aloud while using the application and performing given tasks. Lastly, final interview questions were asked regarding how the participants’ experienced using the application Via Go. Except for some modifications in the interview questions asked to the youngest kids, identical questions and tasks were given to all participants.

## 3.2 Survey

To gain an understanding of whether the behavior found in the interviews and usability testing could be generalized to a broader audience, a survey was later sent out to gather quantitative data. The survey was created using the online service SurveyMonkey and was distributed on Facebook and with email. The questions were partly regarding viewing behavior and habits in general. Some questions were inspired by the result from the interview and usability testing.

## 3.3 Design

Based on the result and analysis of the gathered data, three design concepts of how a TV application could look in the future were explored and developed. A main goal with the design concepts was to make the application as easy to use as possible.
was to explore and present a possible future design of what a video application could look like and what features that could be in it. The concepts were presented together with a persona (see Image 1) and scenario and by using the Accedo product Via Go as a template. Two design workshops were facilitated to brainstorm possible design concepts for a future TV application. Personas and scenarios that had been created based on the gathered data from the research methods, were used as an inspiration and base for the participants in the workshop. Both workshops consisted of three design blocks where each block focused on a specific theme that was based on important findings in the research: Social aspect, Explore content and Present content. These themes were also the focus when sketching the three design concepts.

4. RESULTS
In this section the most interesting and relevant results from the interviews, testing, survey and design are presented.

4.1 Initial interview questions
In this section the findings from the initial interview questions will be presented as different themes.

4.1.1 Preferred platform
A distinct difference between the two user groups was what platform they used most often and preferred for watching video content. All participants from the Digital Immigrant group most often used and preferred their television for watching TV and video content. This was regardless of whether they were watching video content alone or together with others. The Immigrants thought that the overall viewing experience was the best when using the TV. This was because of the large screen size, the good sound quality as well as it was comfortable being able to lie on the sofa watching. One of the participants mentioned that she believed that growing up with the television was one reason for her always choosing that platform.

The Digital Natives used the TV very seldom for watching video content, and when doing so it was only for watching together with others. Among this user group, the participants preferred to use a computer or tablet, most often owned by the user. Using their own device gave them the freedom to choose the content and location themselves. Also, the Natives felt more comfortable interacting with their own device than the television remote. An interesting finding was that some of the Natives said that the bigger the screen the better, but when they were asked if they preferred the TV they said no. Still, they preferred a computer or laptop rather than the TV. Common for both groups was that they least preferred to use their smartphone for watching video content; the smartphone was only used when no other platform was available.

4.1.2 When and where are they watching
All participants in the Immigrant group had a TV placed in their living room which they used the majority of the time when watching video content. The most common behavior was to watch one or two episodes of a TV series in the evening together with a partner, before going to bed. Another common behavior was to use the smart phone or tablet watching YouTube lying in bed before falling asleep. Among this group it was not common to watch video content outside of the home. One exception was if they went on a trip or went to their country house.

The Natives were also watching video content most often during the evenings on weekdays. However, they preferred being alone in their own room watching on their own devices. One participant said that she did not like to be disturbed by others while watching, and that she disliked when others commented on the content she chose. YouTube and TV-series were the most common content to watch. It happened sometimes that they would use their smartphone for watching, even though they preferred the bigger screen. Two participants said that a reason for them to watch YouTube was because it does not require almost any focus to watch, they liked that they could “zoom out” and do other things while watching. For example, one of the Natives often used to bring the computer with her playing YouTube clips while cooking food in the kitchen or into the bathroom while taking a shower.

4.1.3 Content
A trend that could be seen in both of the two groups was that they seldom watched movies, compared to other content. This was partly because the range of movies was considered weak in the VoD-services they used, compared to the range of TV-series. A second reason was that watching a movie required time and effort from the user, which they increasingly seldom felt they had. Movies were sometimes watched during weekend nights, together with other family members or friends.

Reasons for why the Immigrants were watching video content was to be able to relax, let go of stress and to be entertained. The majority of the Immigrants most often viewed TV-series using a VoD-service such as Netflix, HBO or SVT Play. One of the things the liked by watching a TV-series was to discuss the content with others. Giving or receiving recommendations from friends was how they often chose what TV-series to watch. Watching video content on a VoD-service was more common and preferred over watching linear television, even though all Immigrants watched linear TV every now and then. The reason was that with a VoD-service the participants could choose when to watch, and pause whenever, which all participants were extremely positive towards.

“We do not have to adjust our lives according to the TV schedule anymore, the TV schedule is now adapting to our lives instead.”

- Interviewee #12, Digital Immigrant

Among the participants from the Digital Native group, the most common content to watch was YouTube, followed by TV-series. The Natives watched movies very seldom and almost never linear television. One of the participants did not know how to turn on the linear TV channels, she knew only how to use the Apple TV. On YouTube all Natives watched different YouTube channels to which they were subscribing. Reasons for why the Natives enjoyed watching YouTube were the short length of each clip and the fact that the range of content was huge and very diverse. Sometimes they recommended YouTube channels within their group of friends. However, it was not common to recommend TV-series or other video content to friends.

4.1.4 How do they decide what to watch?
A difference between the two groups was that the Immigrants preferred to read a text description about the video content and to read reviews from other viewers, while the Natives wanted to see a trailer, or even fast forward (the younger ones) through the content to explore if it seemed interesting. One of the Native participants had once refrained from watching a TV show because the text description was not considered appealing. Months later the participant saw a trailer of the same TV show and decided to watch, and he really enjoyed it. He stated in the interview that he did not trust the text description when he decided what to watch. The older Natives and the Immigrants shared the desire to see what other people thought about the content, for example via web sites like IMDB or a built in ranking system like Netflix’s. The younger Natives did not at all care what others thought about the content when choosing content.
4.2 Usability testing
Apart from finding some usability flaws in the Via Go interface, some interesting themes were discovered during the usability testing of the Accedo product Via Go. These findings will be presented in the following section.

4.2.1 Choosing content
It was discovered that depending on how often the participant was used to watching certain content, or used certain services, they had different strategies for choosing the content they were given in the tasks. For example, a participant watching TV-series a lot in a VoD-service was very straight forward when choosing a TV-series in the Via Go application. The person would know exactly what genre she/he preferred and went straight into the content in that genre. A participant more used to watch YouTube than TV-series or movies would rather scroll through the suggested content on the main page and choose something from there, they did not even seem to notice the genres. The same behavior was spotted if a participant was an experienced TV-series viewer, but did not watch movies often. She/he would know exactly what TV-series she/he would want to see, but when deciding a movie they would go on forever searching among the recommended movies, but almost not being able to choose any. This behavior was the same among both the Immigrants as well as the Natives.

All participants, regardless of cohort, were also affected by the image representing a video item. When exploring content that the participant was not familiar with from before, the image representing the video played a very important part in whether the user would choose certain content or not. The participants were more likely to choose a video which had an image that was appealing to them. A majority of the participants expressed that they would probably not even consider clicking on a video if they did not like the image, except if they had heard about the video from others. The Natives were fond of images, and they enjoyed playing with the large banner in the top of the Via Go web page.

The overall opinion among the participants was that they wanted to feel inspired while using an online video service and to be able to discover new content in a fun and easy way that did not require too much effort. An example of a feature that was appreciated by many of the participants was the visual container presenting an Iron man marathon. One of the participants said:

“I don’t even like Iron Man, but I still feel like having a marathon”
- Interviewe # 10, Digital Native

4.2.2 Trust
Another finding was the fact that seeing content that they knew from before really made them feel positive towards the service. This seemed to be extra clear among the Digital Native group. Several of the participants commented when they saw a movie or TV-series that they already had seen or heard of and said that it was good that it was there. A majority of the participants also requested a regular variety in the content, especially in the front page, for them to find the online service appealing. Other important factors for the participants to feel trust towards an online video service were a large and varied content with many different categories. Especially the youngest Natives were interested in a big selection of content, which was the main reason for them mostly watching video content on YouTube.

4.2.3 Navigation
It was discovered that the Natives were familiar with gestures and screen interactions on the mobile device that the Immigrants were not aware of. During the iOS tests with the Immigrants they were all annoyed by the fact that when navigating between different categories in the mobile main menu, they had to tap the back button many times when they wanted to get back to the main page (they automatically ended up in the page they last visited instead of the main page when tapping a menu choice). Two out of three Natives, which performed the test on the iOS knew that they just needed to double-tap the menu button to get back to the outer page directly, instead of repetitively tap the back button. They did this intuitively, and were not annoyed by the fact that they did not automatically end up in the outer page. The Natives also commented during the session that they enjoyed swiping and using other finger gestures while interacting with the mobile screen.

4.3 Survey
The survey questions were partly regarding TV and video consumption in general and partly designed based on some themes that were discovered during the interviews and usability testing. The purpose was to see if the qualitative data gathered could be generalized to a broader audience. A total of 48 people responded to the survey, 15 respondents from the Digital Immigrant group, and 33 respondents from the Digital Native group.

4.3.1 Preferred platform
Among the Immigrants, 93% answered that they preferred to use their television when watching video content. The reason was that the image and sound quality were best experienced on the television, as well as they found it most comfortable being able to sit in the sofa and watch.

The Natives preferred to use their computer or tablet, depending on their age. 90% of the younger respondents aged 10-15, preferred their tablet. 70% of the older respondents, aged 16-21, preferred their computer. A majority of the respondents were the owners of the devices they preferred to use. Several reasons for why they chose their tablet or computer were mentioned; they could choose when and where to watch and they did not want to compromise with their family about what content to watch. Also, most Natives agreed on that the computer and tablet were easier to interact with than the TV.

4.3.2 Content
Among the Immigrants, linear television and TV series in an online video service was the most common content to watch. 67% of the Immigrants watched linear television most often, and 27% preferred TV series. Reasons why they preferred linear television were because it was easy to access, that they were interested in watching relevant and up-to-date programs and the fact that they did not have to make a big decision of what to watch. 67% of the Immigrants watch YouTube most seldom.

However, YouTube was the most popular content to watch among the Natives where 65% of the respondents watched YouTube most often. Watching TV series was also popular among this group. 18% answered that they sometimes watch linear television. Reasons for why YouTube was popular were the huge variety of content available in the service, that it is easy to access and the short length of the clips.

“I don’t want to watch the same content for too long”.
- Survey #14, Digital Native
4.3.3 Important information

On the question what the respondents wanted to know about video content to make a decision whether to watch it or not, 87% of the Immigrants answered that they wanted to read a text description. Other important factors were getting facts about the director, starring actors and reviews from other viewers. A common opinion was that trailers are spoilers.

Totally unlike the Immigrants, 69% of the Immigrants answered that watching a trailer was the way they preferred to get information about a video. However, a text description and reviews from other were also appreciated. The Natives thought a trailer provided them with quick insight into the content. Among the younger Natives it was also common to watch one or two episodes to test a TV series, and it was not common that they read the text description.

4.3.4 Multitasking

Among the Immigrants, 73% focused on the content and did not do other things at the same time while watching a video. The reason was not only that they were interested in the content, but also that they saw it as a chance to relax, a kind of recreation. However, 27% answered that they sometimes use another digital platform, most often a Smartphone, at the same time to text a friend or play a game.

67% of the Natives usually interacted with another digital device while watching video content, most often a Smartphone. Among the older Natives it was equally common that they did something else while watching, e.g. cooking or cleaning.

5. Design of future Via Go application

This section presents the design process and three design concepts of a future TV application that was created. Table 1 displays five suggestions of what to think of when designing a TV application for the Natives, which are based on the research findings. These suggestions worked as a base and inspiration during the design process.

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<tr>
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<th>Suggestions of how to apply the results for future design</th>
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<tr>
<td>1</td>
<td>Design for the users to socialize within the video service instead of being social in front of it</td>
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<tr>
<td>2</td>
<td>Use screen gestures as an interaction method with touch screen devices</td>
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<tr>
<td>3</td>
<td>Explore the possibility to use e.g. the Smartphone as a second screen, since it is common to multitask while watching video</td>
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<tr>
<td>4</td>
<td>If it is popular to watch TV series, use that space for presenting content to the users</td>
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<tr>
<td>5</td>
<td>The users want to be fed with easily accessed content, and be inspired while exploring a video service</td>
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Based on the analysis of the gathered data three personas, in the ages 11, 18 and 54 years old, were created (see Image 2). Each persona was inspired by some key findings that had been discovered in the analysis of the gathered data. Some examples of the characteristics were which platforms they preferred to use, how they decided and chose what content to watch, how they searched for content etc. A user journey map for each persona was also created, describing their experience and journey while choosing video content. The personas and scenarios were used during two design workshops that were facilitated, and participants were asked to have them in mind while brainstorming and sketching ideas and concepts for a future online video service. Three themes were chosen and worked as a base for the brainstorming and design workshops. The themes were Social Aspect, Exploring Content and Presenting Content, which are presented in the following sections.

5.1 Social aspect

The results showed that the Natives watched video alone using their personal devices, while the Immigrants often watched with someone else. This inspired one design block to focus on how to design opportunities for the future adult generation to be more social in their video viewing and to share their experience with others.

5.2 Exploring content

The second design block was inspired by several factors that were seen in the result. Being able to explore content in an intuitive and inspirational way was mentioned as important during the usability tests. Also the participants used different ways for searching for content depending on whether they were experienced viewers or not. Lastly, the Natives wanted to explore by watching a trailer or fast-forwarding through content while the Immigrants thought trailers were spoilers and rather read a text description.

5.3 Presenting content

The third design block focused more on the visual presentation of video content rather than features. It was found that the images were important for all participants and especially the Natives were fond of interacting with images.

5.4 Design

The two workshops generated many different ideas and concepts of features and visual design that could work in a future online video service. Three ideas were chosen and developed further using the Via Go application as a template for the visual design, and then presented with a persona and scenario.

An important finding was that the Natives were navigating more intuitively in the mobile interface because they were aware of existing screen gestures that the Immigrants did not know of. Because of this, a focus in all concepts was to explore how screen gestures [14] could be used to enable user interaction with touch screen devices. Common screen gestures are Swipe and Tap, which means that the user navigates through items or pages in an application by using swipe gestures on the screen or tapping with the finger instead of clicking with a mouse. Apple newly released a set of extended screen gestures, called 3D touch [3]. The Peek gesture enables the user to preview content, without actually having to open it, only by using a light press on the screen. If the user wants to open or select content he / she just has to press a bit harder, to Pop into the content [3]. These gestures have been used as main interactions in the following design concepts.

5.4.1 Nostalgic Movie container

This design concept is inspired by the Apple Time Machine interface, which presents computer backup files as a stack. Behind the current active window are stacked windows representing a snapshot of how the window looked in the past. When the user toggles through the previous windows, they extend backwards. This way the user gives the impression of flying through a “time tunnel” [4].
The majority of the participants in the usability testing pointed out the importance of being able to explore the existing video content and to feel inspired while doing so. If assuming that the amount of videos that will be available in an online video service will expand in the future, there needs to be new inspiring ways for the users to explore video content. This concept (see Image 2) presents a new way to navigate through a huge variety of content, based on time rather than genre or other categories. The videos are presented to the user as a stack, in the same way as the Apple Time Machine content. Each container window represents movies from a specific time, for example a year. The concept was generated during the design workshop block with the theme Explore Content, and is presented as a scenario with the 54-year-old persona Karen, who represented an older Native:

Karen sometimes watches a movie on weekend nights together with her husband, and she often feels that it is hard to decide which movie to watch. They always watch video on the TV in their living room, and they access the online video service on their computer, which is connected to the TV screen. Karen watches movies quite seldom and when she does she prefers classics. She often browses the videos present on the start page, that way she gets access to a diverse selection of content. She likes to explore movies in the Nostalgic Movie container since it allows her to sort the videos based on time. Karen just need to choose the decade she is interested in, and then by moving the slider on the right, she can slide through each year in the chosen decade, and see popular movies that specific year. It is easy for Karen to find old movies she liked when she was younger, a nostalgic trip.

![Image 2. Nostalgic Movie content layout.](image)

This design concept would work well on two types of containers holding video items. Firstly, the type of container often showed on the start page of an online video service, such as New Movies or Recommended, which are updated regularly. This would open up for the possibility to explore what these containers looked like in the past. Each container window, in the stack, would show the video items stored in that container during a specific time in the past, and the user can navigate through them by using the slider to the right. Secondly, the design would also work well in a movie library where the movies could be sorted based on different time factors. For example, if the user wanted to sort all Thriller movies based on the year they were produced etc. In the design and scenario presented, Karen can search for the 5 most popular movies each year a decade of choice. This design is proposed to work in the Via Go web and tablet interface. The user navigates by moving the slider that is placed to the right of the containers, with the time shown next to the button accordingly. Buttons underneath the container shows different decades for the user to choose from. In the tablet interface the user will also be able to interact directly with the containers by using the gestures Tap, Swipe up or down.

### 5.4.2 Tinder exploration

The concept used in the dating application Tinder and the French newspaper La Matinale du Monde mobile application has worked as an inspiration for using this concept in a video application. It was also discovered that the Natives liked to interact using screen gestures and that participants from both user groups liked to interact with the banner in the Via Go interface, which they did by swiping on the screen. The concept of swiping left or right to disapprove or approve content was well known among the younger participants.

This idea (see Image 3 & 4) allows the user to easily explore and save videos to a Watch list by using the Swipe gestures. It was developed during the design block with the theme Present Content and had the 18-year-old persona Hannah in mind, who represented a teenage Native. The concept was presented with following scenario: Hannah watches a lot of video content, most often on her computer alone in her room. She is often very tired after finishing her homework, and watches videos to relax. Hannah often does other things while watching videos, like playing games or chatting with friends on her Smartphone. Hannah likes to use the Tinder exploration function to browse for videos. It is perfect for her while she watches YouTube videos or rides on the bus to school. She no longer has to focus on searching for videos just before she wants to watch, she can choose one directly from her watch list.

![Image 3 &4. The Tinder function.](image)

Images 4 and 5 illustrates when a user swipes right on their phone screen and the movie is saved to the Watch list. The Tinder exploration concept opens up for exploring content on a second screen while the user is watching video content on another device as well as explore content on the go. The user is allowed to...
explore video content and save the videos they like in a Watch List for later. This idea is proposed to work on a Smartphone or tablet with a touch screen. Video items, movies or episodes from TV series are presented randomly to the user on the mobile screen one by one, in a linear list. Each video is shown with an image, title, short information of what the video is about and the length of the video. It requires simple interaction from the user, which makes it really simple to browse through the videos and the users get to personalize the video content available in the service.

There are a number of possible screen interactions. If the user uses the gesture Peek on the image, the movie trailer will start to play. When the user releases, the trailer will stop playing and the image returns to its original state. Based on the given information, the user decides whether the video should be added to the Watch List by using the gesture Swipe Right, or if the video should be added to “hide content” by using the gesture Swipe Left. After swiping, a new video appears on the screen and the user repeats the interaction. This is instead of the user, for example, marking content with a star. After swiping right or left, the user will get instant feedback whether the video was saved or not, by seeing the heart or cross being highlighted and the image of the video go or “slide” towards the right or left corner of the screen. If the user would like to start and play the video right away, he / she can use the gesture Pop and the video will start playing immediately.

5.4.3 Binge Watching

The concept binge watching refers to when a viewer watches several episodes of a TV series consecutively [17]. It is common in VoD-services, such as Netflix, to countdown and then automatically start playing the next episode of a series, if the user does not manually cancel the playing.

The result of the interviews and survey showed that it is more common that people chose to watch TV series instead of movies. The result also showed that the Digital Natives easily get bored and likes to change content often. These findings worked as a base for this design concept, which suggests to present and to promote additional content to the user, as well as give the user an opportunity to explore and browse through additional content, while waiting for the upcoming episode to start to play. This concept will allow the users an easy way to change content and will feed them with new choices accordingly.

The idea is presented as a scenario with the 11-year-old persona William, who represented a younger Native. William always uses his own tablet for watching videos, especially TV series, and he loves to use different gestures to interact with the screen. William watches many different TV series in parallel, and as soon as a new episode is released he watches the video right away. Because of this, he often runs out of series and needs to find new things to watch. The Binge Watching concept allows William to choose which content to be presented in the secondary containers. Since his goal is to explore new TV series to watch, he might choose to be presented with a list of videos that gives him suggestions of content he has not yet watched. When exploring new content, William likes to watch a trailer or simply fast-forward through a video. While waiting for the next episode to start, or when he has finished a series, he can simply use the interaction gesture Peek to explore the secondary content. The chosen video item will expand slightly on the screen and will give William the overview he needs to be able to decide whether he is interested in the video or not.

The design concept Binge Watching (see Image 5) works on a device with touch screen, since it allows the user to interact with the content by using screen gestures. As can be seen in Image 6, the user has access to several mini screens, or containers, of content during the time he / she is waiting for the upcoming episode to start to play. The two screens on the top of the page is the primary video content, which is the current and upcoming episode of the TV series the user is watching. The four smaller containers are the secondary video content. Each container is a linear list and works as a container, it holds all the video items that belong to that specific list. The user, as well as the content provider, can choose which lists to be shown in this area. In this sketch, the user has chosen the following containers: New Girl, which is a TV series the user is watching in parallel, the user’s personal Watch List and the shared Friend List. The last list is Related Content which is a list managed by the content provider. The secondary content will not only be shown between episodes, but also when the user has finished watching the last remaining episode of a TV series.

The user interacts with the secondary content in various ways by using different screen gestures. By using the gesture Swipe, the user can swipe (navigate) through all the items in each container list. The user can fast forward through a TV series, or watch a movie trailer, by using the gesture Peek, the screen of the chosen content will then expand slightly on the screen. If the user decides to play another video he / she can use the Pop gesture, and the new video will start playing instead. (On a web platform the user would interact with the mouse / arrows instead).

6. DISCUSSION

After conducting interviews and usability tests with 12 participants, the survey was sent out to find out if the results from the testing could be generalized on a broader audience. A distinctive difference between the two groups was that the Digital Natives and Digital Immigrants preferred to use different platforms for watching video content. This was first discovered in the interviews, and later also confirmed in the survey results. Other findings during the interviews were that watching video was a more social activity for the Immigrants, while the Natives mostly watched alone in their room. The interviews also revealed a similarity between the two groups, at least among the older Natives and the Immigrants, which was that they often watched video or TV as a way to relax and to let go of stress.
The results from the usability tests showed that the Natives were interacting more intuitively with the mobile interface; they used and knew about screen gestures that the Immigrants were unaware of. Results also showed that they appreciated to interact using these gestures. This finding worked as a basis for the three design concepts, which focused a lot of using different screen gestures as an interaction method with the video content.

6.1 Multiple platforms
Why do the two groups prefer to watch video content on different platforms? The results clearly showed that the youngest Natives preferred their tablet, the older Natives their computer and the Immigrants their television. A reason for this could be the age of the Natives that participated in this study. They were all between 10 – 21 years old, which makes it reasonable to assume that many of them still live at home with their parents. This fact can influence the availability of the different devices available at home. [10] argue that structural and contextual factors such as availability should be taken in consideration when explaining audience behavior and how audience motivations link to media behavior. When the parents choose to use the TV, the kids are “forced” to use other devices to be able to choose their own content. Among the Natives that participated in the interviews, it was found that they all owned the device they preferred to use themselves, and that they often used the same device in school and for homework. This led to that they felt safe with interacting with that specific device, which also could be a reason for why they did not prefer to use the TV. In fact, one of the younger Natives mentioned in the interview that she did not like to interact with the TV remote.

Another interesting finding was the fact that when the TV viewing has fragmented to multiple platforms, it seems to have resulted in that watching TV is not as social anymore as it used to be. In their work regarding mobile presence and social actions [5] adds on to the debate whether mobile phones widens the division between people. They argue that it is not the case and that mobile telephony is a ubiquitous form of communication that allows people to maintain and strengthen bonds across physical distances, rather than driving them further apart. Calling or texting are ways for two or more people to communicate by using mobile phones, while watching video together or discussing the content with others are ways to socialize around TV viewing. The fact that the Natives chose to watch video alone on a personal device, and that they were not discussing the video content with others led to the question how watching video across physical distances can become a social activity for the Natives. In the design workshop focus was partly on how to design for letting users be more social while watching videos in the future. The discussion was about how to be social inside a video application rather than in front of a screen. Suggestions such as having shared playlists on the online video service and being able to add other users as friends to be able to discuss experiences online were some of the ideas that were discussed. This would open up for being social even though there is a physical distance between the viewers.

Previous research regarding video consumption in the US found that using a Smartphone for viewing video was very common among the younger audience [22]. This was not the case among the participants in this study. The majority of the two groups chose their Smartphone as a last choice for watching video. A reason for this could be a homogenous distribution of the participants in this study. A majority of the participants had access to several devices, and therefore had a great range of devices to choose from.

6.2 Content
Previous research regarding TV consumption in the US stated that the consumption of online video and YouTube are rising [6], which also could be seen among the Natives in this study. However, among the Immigrants, watching linear television was very common and also the most preferred content to watch by some. One reason for this was because they wanted to see programs when they were broadcasted and up to date. Another reason was that they wanted to be distracted and did not want to spend time on making a decision of what to watch. The Natives watched linear television very seldom. During the interviews, one of the younger Natives shared that she did not even know how to turn the linear TV on; she could only use the Apple TV. Structural factors such as availability can explain why the Natives do not watch linear TV. They do not have access to linear TV content from their devices, but they have easy access to YouTube and other online video that they watch to a large extent.

An interesting question is whether the viewers are passive or active in their choice of content. The Immigrants tend to be more active and goal-oriented when choosing content. They often watch up-to-date programs, news and sport content on the linear channels, and also choose content that they have been recommended by friends. However, when the Immigrants were passive in their decisions they also preferred linear TV since that was demanding least effort from them in terms of focus and interaction with the TV. The Natives appears more passive overall in their program choices. It was more common that they played video content without actually focusing on it, to pass the time. Sometimes they also changed content in the middle of a video.

The results showed differences regarding how the cohorts searched for video content. For instance, among the Immigrants it was most common to search for content by reading in the program schedule, which could be seen as an active way of searching for content. Among the Natives the majority browsed around in an online video service and searched for content, which may result in more spontaneous decisions. The fact that it was quite common that the participants wanted to watch video without having to actively choose the content, as well as the Natives often choosing content by browsing around an online video service, lead to the conclusion that having a linear TV feature in an online video service would be a good idea.

[23] mentioned in his research regarding Digital Natives that the younger generation preferred graphics before text content. This statement was well recognized among the participants in this study. When the youngest Natives got the task to choose video content they did not know anything about, they always based their choice on the image representing the video. The Immigrants mostly based their choice on whether they had heard of the video before, or if they recognized any of the actors that starred in the video. In the survey it was also clear that the Immigrants liked to explore content by reading text information and the Natives liked to watch trailers, and the youngest even to fast forward through a video. These findings could be applied to design by for example creating a program schedule based on images instead of text, and by enhancing images and trailers in a video application.

6.3 Purpose of watching TV
As previously stated, watching TV seems to be a less social today. One of the main purposes for people to watch TV and videos seems to be to escape from stress in everyday life. This resulted in that the participants preferred to watch shorter content, such as TV series and YouTube rather than watching a movie that demanded too much focus from the viewer. Among the older
Natives, a main purpose was to be accompanied by and be distracted by something, rather than having an interest in the content. It was common among the Natives to multitask, such as playing with the phone or changing between different videos while watching. One of the older Natives that participated often carried her computer around with her in the apartment, playing YouTube clips at the same time. In the interview, same person shared that she felt almost obsessed with her computer. It seems like instead of watching TV together as a social activity the youth of today are seeing their device as company instead.

The fact that the Natives often multitasked led to the Tinder Exploration design concept. The idea was that the viewers could use their phone as a “second screen” while watching content on their computer or tablet. This would let the user navigate and explore content on their Smartphone in an easy way at the same time as they watched video.

### 6.4 Familiarity with devices

Overall the Natives spent more time with their technology than the Immigrants. Watching YouTube, TV series or playing games was a big part of their life outside of school. They also used their devices in school and for schoolwork, which leads to that they learn how to interact with and use the technology at a young age. This was also mentioned by some of the youngest Natives as a reason for choosing their own device for watching video content, since they felt very comfortable interacting with it.

It was seen during the usability tests on the mobile device that the Natives where interacting more intuitively with the Via Go application than the Immigrants. They were aware of screen gestures and used the gestures very naturally. That was an interesting finding since this let them interact with the application more seamlessly than the Immigrants who were annoyed about the fact that they had to press the back button several times when navigating back to the outer page of the interface. It is reasonable to assume that the kids learn these gestures more easily and that the patterns of the gestures are more natural to the Natives, since they start using them at such a young age. This finding was the main inspiration for using different screen interactions in the design concepts. By using the interaction methods Swipe, Peek and Pop the users are allowed to explore content, watch trailers and play videos.

### 6.5 Critical discussion of method

There is a range of other methods that could have been used to study people’s media consumption behavior. Conducting diary studies and video recording media and video activity are methods that are commonly used in other studies regarding viewing behavior [22] [21] [6]. These methods allow studying users for a longer period of time, which could have resulted in more accurate measures of the participant’s media use.

The methods used in this study are well established in the field of Human-Computer Interaction. They were chosen with the aim to investigate and understand what people are doing, why they are doing so and how the participants are using technology in their lives [1].

An important aspect that could affect the result in this study is that the people participating were a homogenous group that had access to multiple devices, as well as several video services. The result would possibly had looked very different if a more diverse group, when it comes to both cultural and economic aspects, had participated in the study. Another aspect that might affect the result are that the number of Natives that responded to the survey was twice as big as the number of Immigrants that responded.

Because of this, the result from the Immigrants could be less dependent. Also, it must be taken into consideration that since the survey was distributed online, the respondents probably represent a group that is more familiar with technology than the average person, which also could affect the result.

Lastly, it must be taken into consideration whether the findings depend on the age of the participants in the two groups, or because the Natives grew up with technology. Since there were some discovered differences both in behavior and preferences within the Native group as well, it would be interesting to narrow down the age span and study the differences within the Digital Natives group as well.

### 7. CONCLUSION

By using qualitative and quantitative research methods, this study explored what differences that could be found in television and video consumption and interaction behavior between Digital Natives and Digital Immigrants. By conducting interviews and usability tests with a TV application and then comparing the two groups results, several differences were found. In order to find out if the results could be applied on a broader audience, a survey was later distributed. The findings were also applied as a base for discussing and suggesting design concepts (see Table 1) aiming to suit the Natives, the future adult generation.

The Natives and the Immigrants preferred to use different platforms when watching video. Particularly interesting was the finding that video watching is being fragmented to multiple platforms by the Natives, and therefore appears not to be a social activity for them. The results also showed that a main reason for the majority of the participants to watch TV or video was to let go of stress. The Immigrants thought it was more important to focus on the content, while the Natives saw the videos more as a company. Their lack of focus on the content became evident as they explained that they often did several other things while they watched.

In the design process, the research findings worked as a base for creating personas and scenarios to design for. Many ideas regarding how to design in order to fulfill the Natives wants and needs were discussed during two design workshops. It was discovered that the Natives where familiar with and used so called screen gestures while interacting with the mobile app, which the Immigrants did not know of. This led to the decision to focus on using screen gestures as the main interaction method in the design concepts. Finally, three design concepts were further developed and presented, each with a persona and a scenario. The design concepts explored in this study are ideas of possible design for the future adult generation. There is a real opportunity to continue working with this result.

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9. REFERENCES


