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LET'S LISTEN TO A VIDEO: HOW TEENS USE YOUTUBE AS A MUSIC SERVICE

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Title:
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How Teens Use YouTube as a Music Service

Abstract:
The rapid growth in cloud music services lets people consume unprecedented amounts of music anywhere on most contemporary technologies. With the emergence of these new services and little research on peoples music practices this article therefore presents a study on teenagers use of YouTube. The article highlights their practices with digital music listening in their everyday lives, and what instrumental and non-instrumental needs they have. Four factors in the use of YouTube are identified; the adaption of a video service to a music service, the significance of a free music service in socialization, the convenience of having a continuous stream of music and the importance of always having access to music. By revealing some of the users needs and experiences, we work towards a better understanding of cloud services in digital music listening and identify design implications for future music services.

Project Period:
April, 2012 – July, 2012.

Projectgroup:
i102f12 – 10. semester Informatics

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Indhold

KAPITEL 1

Introduktion

Musik bruges til mange formål. Vi anvender musik til alt fra underholdning til at skabe stemninger, både rundt om os og inde i os selv. Der er derfor også meget stor forskel på hvordan vi interagere med musikken i forskellige situationer. De seneste års udbredelse af cloud streaming tjenester, har medført yderligere ændringer i den måde vi lytter til og håndterer musik i vores dagligdag. De fysiske medier er så godt som forsvundet, og det er ikke længere nødvendigt at købe musik for at lytte til den. I stedet kan man købe adgang til musikken, og løbende betale for abonnements-basserede services, der gør det muligt at vælge og vrage imellem, så godt som, alt musik der nogensinde er udgivet. Vi er dermed også et skrid nærmere "ubiquitous music" hvor musik ikke længere er et produkt men i stedet går hen og bliver et redskab vi aktivt kan bruge i vores hverdag [1]. Dertil kommer at musik er blevet platform uafhængigt, og vi har i dag mulighed for at tilgå nøjagtigt det samme indhold fra vores telefoner og vores computere. I fremtiden vil vi i større grad, se en integration af disse services på et niveau vi ikke tidligere har kunnet forestille os. Mark Weiser[2] beskriver det som "ubiquitous computing" hvor interaktion med computere omslutter os og smelter sammen med vores dagligdags aktiviteter. I forhold til musik er det ret interessant, hvordan vi fremtiden kan håndtere musik uafhængigt af enheder som vi kender dem i dag.

Musik industrien lider under al den fri tilgængelige musik på nettet. Omsætningen fra digital musik distribution er steget med 300% de sidste fem år, på trods af at samlede omsætning er faldet med 32% i samme periode[3]. Ifølge musikselskabernes brancheorganisation IFPI, er der derfor ingen vej uden om at streaming tjenester er det næste skridt. Teknologien er på plads, og målet er nu bare at skabe services der lever op til brugernes krav om funktionalitet, for at musik industrien igen kan komme til tjene penge på det. Der er altså rigeligt incitament for at forske i fremtidens musik tjenester, men der er bare ikke rigtigt lavet forskning med udgangspunkt i brugernes krav og ønsker. Vi vil derfor finde frem til fremtidens musik-services. For at kunne dette, kræver denne udvikling at man er på forkant med hvad der kommer til at ske. Derfor har vi sat os for at undersøge hvilke krav der stilles til fremtidens services og hvilke præmisser de kommer til at fungere under for, at kunne

[1] D. Kusek, G. Leonhard, og S.G. Lindsay. *The future of music: manifesto for the digital music revolution*. Berklee Press Boston, MA, 2005

[2] Mark Weiser. The computer for the 21st century. *Scientific American*, 265(3): 94–104, 1991

[3] IFPI. Musikselskaber 2011 - tal og perspektiver. 2011. URL `http://www.ifpi.dk/publikationer/Musikselskaber2011.pdf`

komme med designforslag til fremtidens musiktjeneste.

Vi har især været interesseret i, at vi i dag har en generation der er vokset op med disse tjenester og altid har været vant til at altid have adgang til musik, fuldstændigt uafhængigt af tid og sted. Fordi denne generation netop kan give et fingerpeg, om hvilken funktionalitet der er vigtigst for fremtidens services. Derfor har vi valgt primært at fokusere på teenagere som målgruppe. Vores empiriske data består af interviewet 16 unge mennekser, i alderen 13 til 25, der giver et indblik i hvilke funktionaliteter og æstetiske og emotionelle virkemidler de mener fremtidens services bør have. For at komme nærmere ind på disse karakteristikker formulerede vi følgende forskningsspørgsmål:

- Hvad karakteriserer unges musikforbrug?
- Hvilke krav stilles der til fremtidens musiktjenester?

KAPITEL 2

Forskningsbidrag

Baseret på et bredt litteraturstudie hvor der er blevet søgt på Google Scholarog ACM digital libraryefter keywords som *music, digital music music listening, music listening, digital music, everyday life, music and everyday life, organization of music, organizing music, mobile music, music and teens, everyday life and teens, music experience, cloud music, online music,* og efterfølgende yderligere kigget i artiklernes referencelister. I dette studie, så vi at musik bliver brugt udfra et behov om kontrol i dagligdagen, en kontrol der skabes ved integration af emotionelle og æstetiske virkemidler, så brugeren kan skabe en hensigtsmæssig fremvisning af følelser, enten overfor en selv eller andre [1]. Med personlige teknologier som MP3-afspillere, får brugeren mulighed for selv at kontrollere stemninger der understøtter deres følelser. Blandt andet ved at tage sange brugeren tidligere har lyttet til og lave deres egne musikalske narrativer, til at understøtte fremvisning af følelser i deres dagligdag [2]. Musikken bliver også brugt som afgrænsning af ens eget område, for eksempel teenagere bruger det som afgrænsning af deres privatsfære, hvor de bruger lyden som barrierer for deres private domæne [3].

Med introduktionen af digital musik kom der flere problemstillinger. Med muligheden for at have enormt store musik biblioteker, opstår der automatisk andre problemstillinger som eksempelvist at det bliver svære at finde og vælge musik. Med nye streaming services går musikken hen og bliver *ubiquous* hvor vi har mulighed for en konstant strøm af musik uden begrænsninger, og uafhængigt af tid og sted. Musikken og musik teknologierne bliver hermed også yderligere integreret i det uudtalte i vores dagligdag, hvilket også gør det sværere for os at forstå deres musik praksiser, kun gennem kvalitative interview omkring deres brug.

Udfra vores interviews identificerede vi fire hovedtemaer for brugen af musik i dagligdagen, med det formål at komme med forslag til fremtidens musik tjenester. Vi forsøger komme frem til disse med udgangspunkt i gennemgående beskrivelser af deltagernes bruger oplevelse. Generelt fandt vi, ikke overraskende, at der var stor variation i tidspunkterne for musik lytning og til hvilke aktiviteter.

(1) Adaptering af brugen af videoer. Vi fandt at vores deltagere brugte YouTube til at lytte til musik i deres dagligdag, YouTube

[1] Simon Frith. Music and everyday life. *Critical Quarterly*, 44(1):35–48, 2002. ISSN 1467-8705. DOI: 10.1111/1467-8705.00399. URL http://dx.doi.org/10.1111/1467-8705.00399

[2] Michael Bull. No Dead Air! The iPod and the Culture of Mobile Listening. *Leisure Studies*, 24(4): 343–355, 2005. ISSN 0261-4367. DOI: 10.1080/02614360520003304447. URL http://dx.doi.org/10.1080/0261436052000330447

[3] Simon Frith. Music and everyday life. *Critical Quarterly*, 44(1):35–48, 2002. ISSN 1467-8705. DOI: 10.1111/1467-8705.00399. URL http://dx.doi.org/10.1111/1467-8705.00399

blev altså i mange tilfælde brugt på samme måde som andre cloud musik tjenester. For disse deltagere var YouTube et kæmpe bibliotek af musik, hvor de fleste mente af de ville kunne finde alt. En fordel for deltagerne var muligheden for ikke kun at lytte til musik men i nogle tilfælde også for at kunne se en musikvideo eller andre videoer uden relation til musik. De tilfælde hvor brugerne valgte at se en musikvideo var når det enten var den officielle video, hvis de ville følge med i sang teksterne eller hvis de brugte videoen som et samtaleemne. Når YouTube kun blev brugt til musiklytning, var det kun få af deltagerne som havde musikken til at spille kontinuerligt, i stedet brugte mange YouTube til musik ved at skifte mellem deres primære opgave og YouTube, for enten af søge efter en ny sang eller vælge et af YouTube's forslag.

(2) Behov for en kontinuerlig strøm af musik. Selvom deltagerne kan bruge YouTube på alle tidspunkter hvor de vil lytte til musik til alle aktiviteter, valgte mange af deltagerne alligevel at bruge andre tjenester, herunder radio. Størestedelen af deltagerne brugte ikke playlister på YouTube og derfor skulle de skifte til YouTube hver gang et nummer sluttede. For at skabe en kontinuerlig strøm af musik, betød dette at de skulle interagere direkte med YouTube, hver gang musikken stoppede. Der var mange grunde til at deltagerne hørte radio, enten var radioen kilde til fælles baggrundsmusik, ellers var det en afløser for YouTube på de tidspunkter hvor de enten ikke gad at tage valg i forhold til hvilken musik de ville høre eller til aktiviteter hvor det ikke var muligt at bruge hænderne, hvis de eksempelvist var beskidte eller våde.Radioen blev i mange tilfælde også brugt som inspirationkilde for ny musik.

(3) Access og availability af musikken. Ved at undersøge hvad begrebet *access, anytime* i forhold til cloud musik tjenester, fandt vi at der stadig var problemer med opretholde en stabil forbindelse til internettet, og dermed adgang til musikken. Derfor valgte mange af deltagerne at downloade musikken til deres computere, for derefter at ligge det over på deres musikafspillere for på den måde altid at have adgang til musikken. I enkelte tilfælde valgte deltagerne at købe sange med den begrundelse, at det var for besværligt at skulle på YouTube og søge efter de samme sange hver gang. Når deltagerne tog til udlandet vidste de at prisen for at bruge mobiltelefonen ville være højere, og derfor valgte de ikke at bruge YouTube mens de var i udlandet. Med undtagelse af en enkelt deltager der brugte sin mobiltelefon fordi han havde en specifik aftale med mobilselskabet hvor prisen ville være den samme. Deltageren fortalte at han ikke ville bruge mobilen hvis ikke han havde sådan en aftale.

(4) YouTube's betydning for socialisering. YouTube er en gratis musik tjeneste og derfor blev det også brugt af mange af deltagerne fordi en gratis tjeneste kan tilgås af alle og det er derfor lettere for deltagerne at dele sange fra YouTube. Samtidig gør YouTube det lettere for brugerne at snakke om sange. For eksempel i skolefrikvarterene hvor teenagerne ofte lyttede til sange sammen, samtidig med at de nogle gange også så videoer sammen. Hvis ikke YouTube

havde været gratis, ville deltagerne måske bruge flere forskellige tjenester. For at de så skulle kunne snakke samme om en sang ville det også kræve at de var klar over, at sangen var begge steder, så de kan gå ud fra at deres veninde eller ven har hørt den på forhånd og dermed kan snakke om sangen.

KAPITEL 3

Konklussion

Streaming services bliver mere og mere populært, som det kan ses på antallet af nye services der er kommet på markedet det sidste årti (fx. Spotify, MOG, Rdio, WiMP, TDC Play). Vi må med god sandsynlighed se disse tjenester modnes over de næste år.

Indledningsvis startede vi ud med, at fokusere vores forskning på hvordan unge mennesker som os selv i dag bruger musik i deres hverdag. Vores første problemstilling blev derfor:

- Hvad karakteriserer unges musikforbrug i dag?

Brugen Youtube som en dedikeret musik service imponerede udbredt. På trods af at det er en service der er oprindeligt er tiltænk videoer og videodeling, anvendes den i udpræget grad af vores deltagere til musik lytning. Især de helt unge deltagere bruger det som deres primære kilde til musik, og det er især servicesens tilgængelighed der gør den så attraktiv for dem. Youtube er nu også tilgængelig på alle nyere telefoner, og er altid tilgængelig uafhængigt hvilken situation brugeren måtte være i.

- Hvilke krav stilles der til fremtidens musiktjenester?

Digitale musiksamlinger som vi kender dem i dag begynder langsomt at blive forældede, fordi der i princippet ikke længere er grundlag for at have indhold fysisk, i en verden hvor vi altid at forbundet til internettet. I praksis fandt vi at verden ikke hænger sådan sammen endnu og mange har stadig backup løsninger (som eksempelvis playlister på en iPod) i tilfælde af netværksnedbrud og dårlig dækning. Tilgængelighed en af de absolut vigtigste ting for fremtidens tjenester. Og det er desværre ikke en udvikling musik branchen alene kan drive. Først og fremmest kræver det et mere stabilt datanetværk, med en forbedret dækning i forhold til hvad vi ser idag.

KAPITEL 4

Let’s Listen to a Video: How Teens Use YouTube as a Music Service

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The rapid growth in cloud music services lets people consume unprecedented amounts of music anywhere on most contemporary technologies. With the emergence of these new services and little research on peoples music practices this article therefore presents a study on teenagers use of YouTube. The article highlights their practices with digital music listening in their everyday lives, and what instrumental and non-instrumental needs they have. Four factors in the use of YouTube are identified; the adaption of a video service to a music service, the significance of a free music service in socialization, the convenience of having a continuous stream of music and the importance of always having access to music. By revealing some of the users needs and experiences, we work towards a better understanding of cloud services in digital music listening and identify design implications for future music services.

Additional Key Words and Phrases: Mobile music, User experience, YouTube, Music service.

ACM Reference Format:
Johansen, K. and Houmark, M 2012. Let's Listen to a Video: How Teens Use YouTube as a Music Service. ACM Trans. Internet Technol. V, N, Article 1 (August 2012), 21 pages.
DOI = 10.1145/0000000.0000000 http://doi.acm.org/10.1145/0000000.0000000

1. INTRODUCTION

This article reports from a study on how YouTube is used for music listening practices in teenagers everyday lives. The last century has brought with it an array of new devices and technologies, with each new technology transforming the music industry into what it is today, affording new opportunities for music consumption and production. The vinyl record and the radio brought the music into the personal space of home and the car [Frith 2002], empowering the listener to experience and re-experience the music at their own leisure. Later with the cassette tape and Sonys Walkman the music technologies shrunk and became mobile. These technologies enabled the listeners to both create their own playlists and to take the music with them out into the street, letting them listen in many more contexts than previously possible [Bull 2000]. This afforded opportunities for creating personal narratives of old experiences, transforming both the old experiences and the surrounding environment while moving through urban space. Letting the listener manage their mood in their everyday lives [Bull 2005].

Internet based technologies as MP3, peer-to-peer networks and online music stores further arose. With the MP3 players, most notably the iPod, the user got unprecedented power to control the experience of time and space as they move through urban space in their everyday life.

Today with the rapid emergence of cloud based music services, the users is offered access to millions of songs, almost instantly, without thinking about where they are,

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DOI 10.1145/0000000.0000000 http://doi.acm.org/10.1145/0000000.0000000

what they are doing or what they want to hear. Like the earlier music technologies, this new technology gives a range of new opportunities to experience music. Among the technological change these services have brought, is access to an even bigger music library than possible with the iPod. With such a big digital repository, the enjoyment of the content is impaired by issues of content retrieval [Leong et al. 2008] and the unpleasantness of being confronted by an overwhelming number of choices [Schwartz 2005]. On the other hand this change also brings an opportunity for the listener to explore songs independent of time and place. For example, the listener can at any time throughout the day become aware of a song, which they might want to explore further. With music technologies, before music services, the listener had to plan ahead and never had an opportunity to spontaneously listen to and explore a song. With the introduction of music services the user is no longer restricted to the songs that they planned to have with them by giving access to millions of unfamiliar songs they no longer need to actively engage in the activity of acquiring a song beforehand. For example, a user overhearing a song from a fellow commuters crackling headphones, without knowing the song beforehand the user can potentially find the song by searching for part of the lyrics.

Kusek and Leonhard [2005] envision a future where music becomes ubiquitous by flowing into our homes like water or electricity. In this vision music will become more of a utility that seamlessly fits into our lives rather then merely a product. Everything would be synchronized between listening sessions and across devices. Having access to the same songs, favorites and playlists on both mobile and stationary devices brings with it the potential of ubiquitous computing [Weiser 1991]. In this philosophy the listener no longer needs to think about what songs he or she wants to listen to when they can access a repository of millions of songs, like YouTubes repository. Compared to iPods YouTube is further moving in the direction of ubiquitous computing by removing the listeners need to plan what song to listen to beforehand affording the opportunity, for the music technology, to become invisible in the tacit nature of our everyday life. As the music technologies evolve towards the notation of ubiquitous computing, the practices of music listening merges between the personal use in the home and the personal use in urban space. Because such experiences can occur in both places and because these experiences are transformed and constructed through the habitual use, they cannot be viewed separately between the temporal and spatial, but are instead interrelated in what we see as a holistic music experience. In the light of how technologies have transformed the music industry and the practices of music listening, an interesting question emerges; what has the introduction of music services signified for everyday music listening practices and what does this possible change entail for future music service technologies.

Research in the field of digital music listening often focuses on specific interfaces for music devices, instead of how consumers of these new services practice their everyday music listening [Liikkanen et al. 2012]. Further motivating our research is the recording industry whom sees cloud music service as the next step IFPI [2012]. At the same time we will follow and embrace the user experience research agenda [Hassenzahl and Tractinsky 2006] by looking at the users non-instrumental needs.

To explore and understand the practices surrounding the use of cloud music services, we take a look at YouTube; a free service with millions of songs available on almost any device. YouTube is different from other cloud music services in four notable ways. Firstly YouTube is a service that does not require a user-account to be used for consumption, lowering the barrier for new users. Secondly YouTube is free to use only financed through commercials, which are only visible when watching a video and does not affect the listening experience like other music services, where commercials period-

ically interrupts the music(see Spotify[1]), potentially effecting the listening experience. Thirdly all of YouTubes content is uploaded by its users, this theoretically makes it possible for YouTube to have more content than other music service, where the music labels have full control of the content. These differences enable us to explore the relevance of price, commercials and what huge digital music archives with a higher likelihood of finding a song means for the experience and choice of service.

The article consists of the following parts; a summary of existing work from the field, the method used in our study, descriptions of our findings, and end with a discussion of our findings and explore design implications for future music services.

2. RELATED WORK

In this chapter, we will describe and try to clarify the field of our study. We focus on the behavior of teenagers when using YouTube for music listening. We look at how they adapt to this technology, which initially was created for sharing videos, to suit their specific needs and what impact the possibility to access any song at any time have on their use of music.

First, we study related work on digital music listening to outline the shift from analog to digital music and how digital technologies have changed music consumption, to help clarify how music can be consumed today. Then we study related work on teenagers use of technologies in their everyday life. This will help in understanding teenagers behavior revolving around technologies and also clarify how teenagers present themselves in their everyday life, with social networks and identity work being a big part of it.

2.1. Digital Music Listening

While digital music listening has received increased attention over the past years (e.g. [Brinegar and Capra 2010; Leong et al. 2012]), historically music research has been on either the analysis of musical compositions and sound (e.g. [Middleton 1993]). Brown et al. [2001b] conducted one of the early studies of the MP3s and the Napster service and found that *"new digital music technologies are unlikely to replace physical media"* and *"Likewise, we are unlikely to see physical music shops superseded by internet shopping"*. Despite this Brown et al. [2001a] describes an early prototype of the online music stores we know today. The article shows the possibilities of online music stores, before they became part of our digital lives. In hindsight, we now know that internet shopping grew and became more widespread then ever could have known.

The music industry have seen a number of music streaming services establish themselves in the last decade (e.g. Grooveshark and Spotify). And the development from traditional physical medias to streaming services lead a large change in the distribution system and the music industry itself. Williamson and Cloonan [2007] describes a shift in what we used to see as 'the music industry'. They argue that we no longer should consider it as a single industry, but as a lot of industries sharing the same goal. Streaming services should therefore not be seen as a competing media to the existing, but instead as a supporting industry. Back in 1999, at the early ages of digital music, Napster was released to the public and reached 60 millions active users within the first 2 years [Garnett 2001], which arguably led to this shift. Users were no longer dependent on a single distribution system. Instead the system is constantly changing and developing news ways for the user to get to and interact with their content. An example of this could be Spotify's subscription-model, where you purchase the right to access the music and not the actual music itself.

[1] www.spotify.com

To properly understand the use of new music services, we also have to consider how we manage these large collections. We found studies on management of digital libraries and organization of documents [Hinrichs et al. 2005; Dourish 2003]. Other studies focus specifically on management of digital music, and how we interact with large digital music collections in our everyday life [Sease and McDonald 2011; Taylor and Swan 2005; Cunningham et al. 2004]. But none focused on what happens when everything is accessible, and the tools to organize the library have different features.

We are now more mobile than ever, and access to our data (including music) is now possible anywhere and at anytime [Geambasu et al. 2008]. Since the Walkman and later the iPod, listening to music in urban context have been a mobile experience [Bull 2006]. With these mobile technologies the listener got unprecedented power to control music experiences in everyday life enabling them to bring out old experiences, transforming them and creating personal musical narratives to manage their mood [Bull 2005].

Today all new smartphones are sold with a dedicated music player, making it possible to access a range of music services through high speed mobile internet. Liikkanen and Lahdensuo [2010] observed the popularity of utilizing mobile devices in the wild, finding that one of nine commuters were engaged with music devices as part of their everyday daily routine. This *omnipresence* of music creates a complex domain in which the listener can choose between a range of music technologies (iPod, smartphone, radio and PC etc.) with some enabling further selection of different services with different *foci* (Spotify, YouTube, integrated music application, Rdio et al.). Arhippainen and Hickey [2011] found that this wide range of different services and technology use, varied a lot depending on the context they were used in, and that the selected services varied depending on the chosen device. The user experience also changed a lot, both according to the users context, but also due to the different form factors of the devices. With the number and diversity of mobile devices constantly increasing, designers of streaming services needs the take many factors into account as these services become increasingly complex.

2.2. Teenagers and Technologies

As shown by Barkhuus and Tashiro [2010], teenagers adapt technologies and services to satisfy their own needs. This in correlation to the availability and immense popularity of YouTube, mean that many teenagers now use this service for much more than it originally were intended. Other studies have shown that music is used to strengthen their social image and identity. In a study of the social practices surrounding media sharing, Voida et al. [2005] found that peoples impressions of others, were created through their music preferences. Svoen [2007] analyses how late tweens and early teenagers respond to television and new media in their everyday lives both in relation to their social lives and on building their identity. Seshagiri [2009] found that music was used to maintain an online presence, that content consumption is constrained in exchange, dissemination and storage. And that young people have a preference for free content, and listening to music while multitasking in their everyday life. According to Goffman [1959] one's identity is represented by the acts we carry out to influence others perception of the self. This development and expression of one's self is of great importance to adolescent life where they become increasingly involved in building a sense of self in the context of the social world [Josselson 1987]. Other studies focuses on their behavior and whether or not the teenagers are actively engaged in choosing the music, or just passively listening in. *"Away from the often critical gaze of their peers and parents, it was in the bedroom that the girls could safely explore popular music and cultural (gendered) identity"*. [Baker 2004] describes a change toward a more active management of the musical flow, in order of creating their own identity.

On teenagers use of media, some studies report on how their public media-usage differs from their private usage patterns [Larson 1995; Arnett 1995]. They state that teenagers generally are aware of the signals they send when listening to specific types of music, and that this awareness affects their behavior in social contexts.

With the technological advances of the internet, smaller sub-genres like dub-step have never been as easy to exposure. And it have never been easier to sympathize with musical sub-genre and engage in genre specific music communities. Williams [2006] looks at musical forums, and analyses some of the discussions on musical-identity to see if the fact, that you do not have to meet face to face changes the way we identify ourself with musical-subcultures. *"internet forums simultaneously function as a subcultural resource, a form of subcultural expression, and a medium for subcultural existence for young people outside music scenes."*. The internet made it easier for young people to explore the different aspects of what used to be underground music scenes. And thereby also helping them create their musical-identity at an earlier stage. Lindtner et al. [2011] states teenagers who see themselves as part of a target group, they are part of that target group. And this correlate very well with [Barkhuus and Tashiro 2010], in the sense that teenagers use more genre specific music to further shape their identity.

Contrary to the early web, Web 2.0 services made i possible for the users to contribute with content, and YouTube is a great example of a product of the Web 2.0 era. When YouTube initially were launched in 2005, it was one of the first large scale video-sharing service. YouTube was from start based on the freemium model [Anderson 2009], and let its users access its large archive free of charge, only supported by the income from advertisement. Chau [2010] discusses how YouTube as an artifact enables teenagers to easily connect to communities where they collaboratively engage in both consumption, production and distribution, afforded to unique technical and social features. By participating in these communities the youth can explore their identities and gain new skills. The increase in music-piracy had the recording industry turning to digital rights managements to stop unauthorized downloading. According to a study by Jackson et al. [2005], the majority of users reported this as having an adverse effect on their music experiences. Users wanted to be able to download music so they can preview music before buying and share music in their social network. YouTube removes this restriction by providing free access to millions of songs making it easy to produce and distribute music.

3. METHOD

From previous research it is clear that there is a gap in the understanding of teenagers behavior when using YouTube, or another cloud music service for music. Because of this, we were motivated to fill this void and expand on the understanding of teenagers use of music in their everyday lives. We want to create an understanding of how teenagers use YouTube, how it functions as a music-service, and what motivates them to use this as the primary source of music.

The study consists of two interrelated but different parts. The primary part focused on teenagers use of music streaming services, with the primary focus being on YouTube as an music-service. To complement our focus on teenagers the supporting part consists of 4 additional interviews with people in their twenties. The findings from the two parts are reported as a single study unless noted otherwise.

3.1. Participants

In total, we conducted 29 interviews with 16 people (9 girls and 7 boys) with an average age of 18,3. The participants in the first part include 12 teenagers (7 girls and 5 boys),

Table I. Demographics of Participants

Name (anonymized)	Age	Gender	Occupation	Primary Music-services[a]	Daily use of YouTube[a]
Cecilia	13	F	Primary School	YouTube	1-2 hours
Kai	14	M	Primary School	Netflix	2-5 hours
Xena	14	F	Primary School	YouTube / Spotify	1-2 hours
Nicolas	14	M	Primary School	YouTube	5-10 hours
Sofie	15	F	Primary School	YouTube	1-2 hours
Milla	15	F	Primary School	YouTube	1-2 hours
Paul	16	M	Primary School	YouTube	2-5 hours
Elvira	16	F	Primary School	YouTube / Spotify	1-2 hours
Tina	16	F	Primary School	YouTube	2-5 hours
Lance	16	M	Primary School	Grooveshark	0-1 hour
Paige	18	F	High School	iTunes / YouTube	0-1 hour
Ivan	18	M	Carpenter	Radio / Spotify	8-9 hours
Raul	22	M	High School	Grooveshark	3-5 hours
Carmen	23	F	Unemployed	YouTube	1-2 hours
Hilda	24	F	Accountant	Radio	0-1 hour
Niels	25	M	University	Spotify / YouTube	2 hours

[a] Based on participants self-assessments

between 13 to 18 years of age. The second part include 4 young people (2 girls and 2 boys), between 22 and 25 years of age. For an overview see table I.

The criterion for participating was being an active user of a music service with access to a large amount of music, which they could access anytime and anywhere. All the participants had a smartphone and all except one (Ivan) had a PC. They could all access YouTube, either through wireless networks at school or in their homes. When no wireless network were available all the participants had a mobile data-plan which enabled all, excepts one of the participants (Paige), to access the internet through their mobile plan.

Participants were recruited through public announcements in the form of flyers posted at schools, the use of our expanded network and snowball sampling. All schools were located in Aalborg, Denmark. By using snowball sampling the participant became a research assistant [Biernacki and Waldorf 1981], to make the participants feel more related to the study and because of this relatedness, feel more motivated about doing the study. We hoped that by including participants friends, we enabled them to talk to each other about their music listening and at the same time keeping each other reminded to write diaries.

10 out of the 12 participants in the first part were primary school students between 13 and 16 years of age, from 7th to 9th grade. They usually went to school from 8am to 14pm, with some of them having jobs or leisure time activities they attended. The participants in the primary were mostly still primary school students, while the supporting part of our study, included a more diverse pool of occupations. Many of the participants chose to spend a lot of time either listening to music during other activities or listening to music as their primary activity. Most of them used YouTube as their primary music service, both on their cellphones and on their computers. Most of the participants had a fixed-cost data-plan on their cellphones, and also had access to wifi both at home and in school. Most of the participants in the primary part has their parents pay their cellphone bill.

Interviews were conducted with the participants in one of three places; their own schools, at the Institute of Computer Science at Aalborg University or in their homes.

3.2. Data Collection

We collected our empirical data primarily through interviews. Due to the mundane and tacit nature of music listening, we further collected secondary empirical data from self-report diaries. With 11 of the 16 participants, we conducted three interviews. The first was a screening interview were participants were screened in a brief informal manner at first contact, either by phone or in person. The second interview was a formal interview where participants were interviewed with a semi-structured interview framework for 15 to 25 minutes. The semi-structured interview framework were continuously developed after each interview to further explore concepts and their dimensions. At the end of the interview 10 of the participants were given a diary and bootstrapped on its use as a self-report diary. They were encouraged to daily write about their use of music and any incidents that they believed had something to do with music. These self-recollections was used to get the participants to better recall experiences in their everyday life and provide support for later interviews [Carter and Mankoff 2005].

After two weeks the diaries were collected. They were utilized differently by each participant, and not everyone were equally active with 8 of our participants updating the diary on a daily basis. After collecting we read the diaries and the semi-structured interview framework was further developed to better understand concepts and phenomenons. This lead to a final interview, ranging from 25 to 90 minutes where the participants were asked follow-up questions, to get a deeper understanding of the concepts from the first interviews.

In total we conducted approximately 13,5 hours of interviews. All interviews were audio recorded and all were fully transcribed, to generate a most extensive empirical dataset possible.

3.3. Data Analysis

Data analysis was carried out by employing elements from the Straussian [Matavire and Brown 2008] grounded theory approach by Strauss and Corbin [1998].

The analysis was conducted by both authors. The first step consisted of reading transcriptions of the interviews line-by-line and labeling concepts in the transcripts as we went along. Concepts were then written on post-it and grouped into categories. Using post-its afforded an easy exploration of categories and allowed us to easily examine connections between them. In the second step, we used open coding to further break down the data and, by using comparative analysis, further discovering properties and categories. Using axial coding some categories were changed to sub-categories and grouped under other categories, further explaining the category. After these initial steps we continuously iterated on our categories each time a new interview were transcribed. The categories were also used to form interview questions for further exploration of phenomenons.

Both authors are avid users of streaming music services on a daily basis, causing our personal preconceptions, values and beliefs to cause bias [Hutchinson 2001]. We were aware of our bias towards teenagers and how we thought they used music. To prevent this we continuously reflected upon our interpretations of the participants recollection of their everyday use.

4. FINDINGS

The following chapter identifies and describes the findings we found from our empirical data. To get a better overview of our findings, we will start by clarifying the concepts we found during our research. Instead of going trough each individual participant one after another, we divided our findings into common themes. These themes were dis-

sected into 4 categories highlighting the most interesting and surprising aspects of our findings, summarized as the following:

— adapting the use of videos;
— creating an identity and socialization though music;
— a steady stream of music; and
— the need to access anything anywhere at anytime.

The categories are used to examine and describe the different notions of music listening. Though they are all interconnected with each other, they all supply different views and problems. Each of the key categories will be expanded and described i the following section.

The 16 people in this study are diverse in their music listening practices. They consume music at very different points in time and at many different activities depending on the context. For instance smartphones were often used under transport because they were easy to carry and because they always had it on them. One participant said that she used her smartphone because it was in her reach and already turned on, making it the easiest and fastest way to reach music. Other times they used YouTube was when at home in their bedrooms, at school and at parties or get-togethers. When used in their bedroom, is was often a part of something else, sometimes they did other tasks and switched between what they were doing and YouTube to change track. Many of the participants used YouTube as their primary method to listen to music, using it all day. While others supplemented their primary service, typically searching for specific song when . Our participants used YouTube a lot, up to 5 hours a day during weekdays. Most of our participants are primary school students, and have a lot of time at their own disposal in the afternoon. This and the fact that they use YouTube throughout the day, lets them achieve the many daily hours of YouTube listening.

4.1. Adapting the use of videos

During our interaction with technologies, we dissect and customize systems to suit our needs. Some technology have become so indispensable, that many of us would have trouble imagining our lives without them. Music is to many of our participants such an essential part of their daily life, because it is so deeply integrated in everything they do. YouTube is a technology focused on production and consumption of videos, be it low-budget home videos, professional music videos or videos of people playing videogames. It is therefore interesting that 9 of 16 participants use YouTube as their primary music service (see table I). As all of our participants said that the sound quality is more important, than the quality of the video when using YouTube. It suggests that they use YouTube more as a music listening service, instead of the the video sharing service it was originally intended, qua YouTubes slogan; *"Broadcast Yourself"*. Many of our participants state that they either do not watch the video at all, or consider the video itself of very limited importance, when they listen to music on YouTube.

> *"I only choose from what I can hear. It doesn't matter whether it is the official video or one with lyrics"* – Kai

The primary focus is the sound quality, and none of our participants stated that the video quality is more important. To most participants the original video is the first choice, because the creator of the video is well known, and is expected to deliver the best possible quality. They only chose another video if the chosen videos sound quality did not live up to their expectations.

> *"If there is a difference I would rather choose the one with the the better sound, but if there isn't a difference it doesn't matter"* – Kai

Others chose videos based on whether they included lyrics or not. Videos with lyrics was often chosen instead of music videos because it allowed the them to learn what a song was about. As Hilda explains in the following, she primarily searches for videos with lyrics if it is a song with significance to her.

> *"... if it is a song that means something for me then it is relevant that I can see some of the the lyrics, and then I primarily go for the ones that are named something with lyrics so I can go and look at the songs lyrics. I can then sit and follow along with the video so that I see the lyrics. But if it is just dance and choreography and stuff like that I don't watch."* – Hilda

As Hilda explains the thing that can get her to watch a video is if the video has lyrics so that she can expand her understand of a song by exploration of the songs meaning. Other users searching for songs with lyrics did it for the same reason while only looking for music videos if someone had told them about it, if is was a new video or the official video. Although the participants initially wanted to find a video with lyrics they could change their current goal and look for another version of the song, if the lyrics versions sound quality was lower then their requirement.

> *"If the quality is not especially good in the video with lyrics, I would rather hear the original, so I can hear it properly."* – Carmen

Participants used YouTube to bring out old experiences and re-experience them. For example, one of the participants went to a concert with one of her idols. Some time after she got home, she searched for that specific concert to re-experience it. The concert was also significant to her because there were some random artists included in the set and some new songs. These new songs were not released yet but with YouTube she could find these songs.

> *"It's because I think she is really talented live. On the whole I was present at her concert and thought it was a really really good experience and she sings special at this one and there were some unusual artists with her that night and some unreleased songs. I could then find them as recordings on YouTube because they aren't released yet."* – Hilda

We found that many use music to increase their ability to focus on tasks. Tasks as doing homework is often supported by some sort of music listening. We found several statements that directly indicated that music help them maintain focus. This is specifically significant when doing homework or other activities that demand an increased level of focus.

> *"I can have trouble staying focused, when many things happens around med. When i listen to music i sit inside my own little world, and do not recognize everything else"* – Elvira

Music is also used to create a better atmosphere and to be able to increase the focus on the task ahead. The participants explained that they found it easier to focus on a task if they liked the atmosphere around them by getting them into a better mood.

> *"I should pull myself together and get started on the german assignment. I don't think I found inspiration in the music, but it helped create a better atmosphere and I got in a better mood to write my german essay."* – Tina

Tina describes how she uses music to get in a better mood and how this motivate her to do her assignments. This indicate that she use music as part of her homework routine and that she have integrated music listening in her daily tasks, to control her emotions and mood.

Almost all our participants had in common that music, by their own assessments, increased their attention on the primary task, instead of giving them another subject to share their focus. We found this to be interesting because the use of music as an ambience soundtrack, might be more complex than expected.

4.2. Socialization through music listening

According to Frith [1996] music both shapes and reflects peoples identity. Supporting this we also found that some of our participants shaped their identity, upon the music they are listening to. This is specially significant among the younger participants. The younger participants are going though a period of their lives, where they start shaping their identity by building a sense of self in relation to the social world around them [Josselson 1987]. It seems to hold a great social value to have a individual taste in music, and this might emerge from the process of creating a identity. Many of our participants use their taste in music as a way to express themselves and stand out from the crowd, letting the music reflect their identity.

> *"I just think that it is a little bit cooler that I'm not part of the crowd. If everybody was so, I think we have a terribly boring life. Then nobody would try anything new, and those who did would not attest to their taste in music."* – Tina

Even though it is very common to use music to base and promote a specific identity. We found very few indications that any of our participants based the friends on the musical compatibility, or thought that their friends did so. When asked how she would feel, if she had a different taste in music than her friends, Elvira answered: *"I think I would feel a little left out, but never the less don't care, because I will not bother hearing something I don't like, just because they are listening to it."*. Though we found it common that our participants, were aware of who had the same musical taste in their group of friends. We found that most of them would not describe themselves as part of a musical fraction, or in fact just listen exclusively to a single genre. All of our participants listen to more than one genre of music, and very often they listened to several genres at once. The genre classification might be a lot more fluid than we initially thought. We interpret that teenagers uses a much more complex system to classify songs. The artist current popularity among the friends of the participant certainly is a major factor. When asked to describe her favorite music genre, Paige answered: *"Boring, and preferably with a female voice. Boring women who does nothing but sing, oh that's just me"*. Even though her voice had a hint of irony, it is truthfully the way she sees herself. She identifies herself as 'boring'. Our interpretation of this, must be that she is 'boring' compared with the people she i surrounded by, simply because she listens to a more quiet music genre. *"It is properly because people think like that. And you do hear that a lot, people saying 'that they listen to this and that'. That is just stupid, so I just don't do it at all."* - Paige. This statement indicate that, at least some of, her acquaintances present or creates their identity through the music they listen to. We think the behavior is caused by them, wanting to position themselves in their social circle. The pressure of peers do not seem to be significant enough to change our participants taste in music, or listening practices. Most are very aware of the genre or type of music they listen to, and how it divide groups of friends into more genre-specific subgroups. Tina describes how her female friends share the same taste in music, while her male friends listens to another genre of music.

> *"We accept each other. And my female friends at least listen to the same music as I do, so in that sense I'm not that different from them. I could choose to say that they are the ones that are different and I'm the normal one."* – Tina

She further said, that she shared the same musical taste as her mother, but her father and older brother listened to a different genre. We interpret that there might be more complex sex-dependent social codex, that defines what kinds of music are socially acceptable. As an example Ivan described some tracks as being 'girly', and would not want his friends to find out that he listens to them.

> *"When a track seam a little 'girly', I don't think my friends should hear it. It might be very normal, but I don't think they should hear it, because it is just not something you do."* – Ivan

Ivan want to maintain a certain identity and do not want to lose face to his friends, even if this means he is not able to listen to the music he wants to.

Echoing Silfverberg et al. [2011] we found that some participants did not like Spotity's close integration with Facebook. Spotify by default shares everything the user hear to the users Facebook-profile. It is possible to turn this 'feature' of in the Spotify settings, but most of our participants were not aware that this possibility. *"When you heard something, then anyone else could see what you heard. That I didn't care to much for."* - Paige.

Compare this to YouTube where the user can pick what to share and how to share it. For example Cecilia who often shared songs with her friends on Facebook did so either by using the share button on YouTube or copying a YouTube link and pasting it on to a friends Facebook wall. When she shared directly from YouTube

> *"To share it you can go to YouTube and press 'share' and then press Facebook, then the song comes up on ones wall and then you can write something to go with it or tag friends in it. For example, I found a song a friend should hear and tagged her in it, and then it came up on my wall and then she could see what song it was."* – Cecilia

The choice between the two sharing options was denoted by a degree of personal privacy. As Cecilia explains in the following example, the choice to share directly to a friends wall was made because it could be shared in extension of an earlier shared experience and because the experience was of personal nature between the two, no one else needs to see it, at least not directly.

> *"I would say that pasting a link on to someones wall is more like something, uhm what can one say, like something privateish because for example, I have a picture where my and my cousin is standing in, and then there is this song that describes, not directly describes, but describes some of our relationship together and stuff like that and a sweetish song. There were also some other songs, some happy songs."* – Cecilia

The songs that describes her cousin and hers relationship is denoted by happy and sweet feelings, this indicates that sharing of songs is part of identity work, and that the two different sharing options are used for different identity and social work.

We found that the social aspects of music are very important for both inspiration as well as a general topic in the daily conversations. We found several direct articulations where the interviewee responded on recommendations from friends, or got inspired by others choice of music, and that some social contexts allowed for public music listening. Often this occurs during other activities, such as leisure time between classes in school, where music and music videos were used as entertainment. During recess some of the students used the classroom 'Smart-board' to created a communal viewing space letting the students have social interactions around this common source of entertainment. The Smart-board is a blackboard combined with a large screen, that lets the teachers and students connect a computer and other peripheral devices. Other times

the ambience music were conversational topic during parties or other social gatherings. When people, who does not know each other in advance, get together music can be a good ice-breaker. Tina describes this scenario, in the following example:

> *"It helps to keep the mood up when you run out of things to talk about .. usually it's not a problem, but it happens sometimes when you are surrounded by people you don't know .. If you are at a party, where you don't know that many people, you can sit and listen to the music, and perhaps get an idea to an interesting subject from the song that's playing."* – Tina

It seems that music is a common subject of discussion when teenagers interact with each other. And we find that music in some situations acts like a 'social lubricant', to get conversations rolling. Music listening can have a large social factor, and be a conversation-starter or just create a common starting point for conversations.

4.3. A continuous stream of music

Music is often used as an ambient soundtrack to our everyday activities. This could be the morning routine, to make it easier to concentrate or just as background music throughout the day. Among our participants, radio was especially often used as ambience music. With the intense use of YouTube, we found it interesting that our participants seeks other services, than YouTube, when used as ambience. We examine why YouTube is not the primary choice, and what our participants use instead.

One of the primary things we found is the diversity of YouTube use. YouTube in all sorts of situations, and with very different purposes. Both as a general source of entertaining videos, but also as a very flexible music player. In our research of this field we found that the diverse use of YouTube, also meant different areas of interest. As an example, when YouTube is used a an ambient soundtrack, most users only listen passively, and only interact with YouTube when it either stops playing or wants to listen to something else.

As we see it, there is a difference in being actively choosing songs and in which order they are playing, and choosing a pre-defined playlist. The first aspect of it is control. Depending on the situation, the listener might not want to minutely control every aspect of the listening experience. When focusing on other tasks it might be more convenient to choose a pre-defined list, or letting others decide (e.g. listing to the radio). Active music listening was therefore most commonly seen during leisure activities, and as a source of entertainment. The most common scenario is a situation where the listener is neither completely active nor completely passive, and is constantly changing between the different states. When using YouTube on a computer, our participants often multitasked and switched between YouTube, and another activity. This meant they switched from an active to a passive state, and back. We define active music listening as being a primary task of the listener, otherwise it is a passive listening activity.

YouTube generally requires an active use, and this means that YouTube in some situations might not be the most obvious choice (e.g. as an ambient soundtrack). Many of our participants describes this situation, they often do other tasks during music listening, or at least switching between the active / passive state of music listening.

The use of playlists on YouTube allows users to create a more seamless listening experience. Where they do not have to actively engage in the choosing of music, as often as they otherwise would. Listening to a playlist requires that the user previously have put effort into the creating of the playlist. YouTube does, in its current form, not support automatically generated playlists. This is a feature of both Spotify and Grooveshark, which both can base a generated playlist on a chosen song. YouTube

currently have a tool[2] that supports this feature, but its still in beta, and have not been implemented on their main site yet. In both the services mentioned above, the feature is called "Radio", because it mimics the experience the radio provides.

Contrary to other types of media, the radio doesn't require active interaction from the user, and therefore it is well used as ambient soundtrack and during leisure activities. Many of our participants also described the radio as a source of inspiration, and the fact that the radio supplies a changing supply of music, is one of their primary reasons to choose the radio over other medias. Some of our participants also said that they chose the radio because of convenience and comfort.

> *"Some times, if I'm doing my homework and I cannot be bothered to change song all the time, then I will just turn on the radio, because there are songs all the time"* – Elvira.

As Elvira explains, when she is doing homework and the tedious task of changing songs *"all the time"* is something she cannot be be bothered to do, she turns on the radio. She does this because the radio provides a continuous stream of music, freeing her from actively changing songs and focusing on what is important, her homework. Here the radio is used because it was more convenient to her, not having to change songs, while doing an activity that required her attention.

This was a general reason to use the radio. Our participants identified the radio to be less troublesome, because they could turn it on and leave it alone.

> *"I think we changed to radio, because i were to troublesome to keep drying of our hands and walking back and forth. .. because it was my turn to get up all the time, and i could not be bothered."* – Tina.

In the example, Tina describes a situation where she is making breakfast, and is required to dry her hands before interacting with YouTube on her computer. In this situation, the radio is more convenient than YouTube, because she is able to listen to a continuos stream of music while doing other activities. During the daily routines, it seams that our participants find it more convenient to let others decide their playlist for them, instead of actively make up ones mind about which music to listen to. *"In the morning, i don't want to find a new song and press play all the time."* Elvira says. She do not want to use to much time making up her mind about which songs to play. Accordingly, she either listens to a predefined-playlist, or just puts on a random song and use the shuffle function. In this particular situation it would not make sense to use resources and time on choosing the next songs. Not because she is not able to change song, but simply because she found it easier to let others control the stream of music. Radio seems specially popular during morning-routines. Both Raul, Elvira and Tina describes this behavior. *"I mostly just listing to the radio. And i listen to i while i cook, take a bath and get ready in the morning."* - Raul. He sees it is part of of his daily routine, and as above he does not want to use to many resources on which songs to play. Many of our interviewees used radio as a ongoing soundtrack throughout the day. To the question "do you listen to radio?", Ivan responded:

> *"Yes constantly, i am a carpenter, aren't i? We always have the radio with us and it is always radio P3"* – Ivan

He further states that carpenters, or craftsmen in general listen to radio through out the day. Ivan identifies himself with his job, and sees himself as a part of this grouping due to his line of work. And his statement indicates that there must be some

[2]YouTube's "Disco" project, can be found at: http://www.youtube.com/disco/

sort of social codex dictating that craftsmen listen to certain radio stations. YouTube in its current form would have trouble coping with the harsh environment that is constructions sites, primarily because it needs to be accessed though a phone or a computer. But also, the fact that YouTube needs continuous interaction, is not a ideal in a active work environment.

We also found that almost all of our participants reported that they use music during transport. Both when traveling by car or bike, as well as public transport. Most of them primarily use music as entertainment purposes during transport.

There are some differences in how YouTube is used during transport, depending on the type of transport used. When being chauffeured in i either a car or other forms of public transportation, the user can interact with the device more freely. And this let the you completely decide and control the sequence of songs, without affecting the ability to transport yourself. Needless to say, when traveling by bike or chauffeuring a car, it is not possible to interact with YouTube in the same way.

When asked if she listened to music while riding her bike, Celina answered: *"No, it is dangerous"*. She is well aware of the dangers, and proclaimed that she never listened to music while in traffic. When music in general is deemed to dangerous when in traffic, and again, YouTube's need of continuous interaction seems to take away even more attention from the primary task. Though only Celina reported that i is dangerous to listen to music while engaged in traffic, many of our participants is well aware of the dangers linked with listening to music i traffic. Most the time they either used playlists or other work-arounds, as stoping while changing songs, to decrease the probability of accidents. Some admitted that they still sometimes changed song while biking, but always chose one from YouTubes suggestion, to minimize time not focusing on the road ahead.

4.4. Access and Availability - Anywhere, Anytime

Weisers [1991] notation of ubiquitous computing has received much attention over the last two decades. In his vision technologies melt into the tacit nature of everyday life, providing continuous access to information and services anywhere at any time. Looking at YouTube through the lens of ubiquitous computing we can see that the site includes elements with ubiquitous properties. For example, having YouTube on many platforms enables the user to access YouTube anywhere at anytime. One participant, Ivan, describes having this access as empowering him to take spontaneous action and both search for and listen to a song.

> *"It has much impact, I think. I think that if you don't have internet, wherever I walk around, then I think my music genre would be a lot smaller then it is now, because I don't have the same options to find . . . all music on my mobile, because then you would just have taken all you have on the computer, but then I wouldn't have any chance to search for the new, which you maybe just wanted to hear in that moment. If you just, for example, have just heard a song and then you try to search a little on it and then you quickly find out what the song was."* – Ivan

Ivan describes that he often need this access *"in that moment"*, and that he is reliant on a connection to the internet, in order of discovering and listening to songs. If he could not access the internet when mobile, he would not be able to discover and listen to the new, which is of great importance to Ivan.

The need to look up music on YouTube was pertinent for many of the participants. Most of the participants explained that almost anything is available on YouTube and therefore it was the easiest way to find a song. Although this was the case most of the time, three of the participants had experienced that YouTube did not have the song

they were looking for, and found it on another service, or resorted to buying it on the iTunes Store. The primary reason for buying the song, instead of finding it though streaming services, were that the dedicated music player made accessing it easier.

Having access to YouTube anywhere at anytime is not only pertinent when looking for music, but also when showing music to others. For example Tina who at the time was at a scout camp, decided that one of her girl scout friends should experience a song on YouTube.

> *"I still had my phone on me and I had YouTube on it, so there she should then just be allowed to hear the song, which I had been singing the last several days."* – Tina

When our participants were not able to access to the internet they were forced to change their behavior and access music in other ways than though streaming services. Many of the participants were aware of unstable connections and possible connection loses with some of the participants planning ahead for it. This planning ahead was done by downloading the music they listened to the most and saving it locally. As Elvira explained her reason for doing this was if the *"network does not work"* she is still able to access her music.

> *"Well now, if the network does not work or I'm outside then I can just go to iTunes*[3]*."* – Elvira

Another participant chose to download songs locally, just to increase her own comfort and to make sure she were not bored, in specific situations.

> *"... if I didn't have access I would properly be tired of having to sit and hear the same as my parent hear, if I'm not that into it. Or if you are walking outside and so cannot really hear it."* – Milla

The approach and reason to download was different among the participants. For example, Elvira approaches this by downloading every song she liked from YouTube and moving it to iTunes to move it to her iPhone or iPod, depending on the activity she would do the listening. Another participant Milla echoed the same reason of not having access to a network and approaching this problem by downloading music she liked. The carpenter Ivan, who did not have a PC, was unable to download from YouTube and save to his smartphone, he would instead buy songs from the iTunes Store. Ivans reason for this was that it could be accessed through his iPhones music application which he saw as easier then going to YouTube all the time. The participants with multiple devices kept music synchronized between devices, or tried to keep the playlists on the different devices similar.

During the study three of the participants went abroad on holiday. During thus time they had access to the other countries network, but the participant did not use it because of the expenses associated with data roaming. Although the participants did not have this access they did not feel they were missing out on anything while on holiday. Instead of listening to online songs they chose to keep a local library for themselves or being reliant on friends local libraries. Still music was not that important while on holiday because they were busy doing other things then listening to music. Instead it was in their everyday lives where economics were not constraining their use that they were missing access.

As important as availability is, if the procedure to get to the content is to complex, the user experience falls short. We want to access our data in a easy, fast, and conve-

[3]Her articulation of her iPod, dedicated music player on her smartphone and PC.

nient way. As exemplified by one of the participants, the reason he uses YouTube is because it's the easiest:

> *"... if you just want to listen to a few tracks, it is the easiest way to find them on YouTube."* – Niels

Most of our participants list accessibility as the most important reason to choose a specific service. Especially the younger participants grew up with the ability to search and find the anything they want. Because of this, they want their media player to facilitate this workflow.

> *"It is easy to find everything. You just have to search, and then it shows up. If you spelled it right, that is."* – Nicholas

Many say that the immense size of the YouTube archives, is the main reason why they use the service. As Nicholas says above, everything is available at your request. When everything is available, why should they then use anything else. Streaming services gives a certain freedom, not having to worry about updating archives and keeping them in sync.

> *"It gives freedom, in the sense that you don't have to download music. And that you don't have to decide which music you want to hear, before you leave home."* – Niels

Often it is a question of the economic aspect of these services. The new generation of music listeners have always been able to access music for free, and we found that especially the younger participants, have a harder time shifting from a freemium model [Anderson 2009] to a payed service. Xena states:

> *"Well, it is a good thing that you can listen for free ... I don't think that i would pay for it. ... Then i would just find another way to listen for free."* – Xena.

We don't know if this is because they are limited financially, or due to the fact that they always had access to the free services, all of their lives. We found that some of our older participants were more willing to pay, for a service that can make their music listening more convenient. This include streaming services as Spotify and Grooveshark. Our younger participants were more likely to use the free services as YouTube. We do not think they specifically have decided, that they not want to pay for a service. But it is more likely that they simply do not have the finances to make the choice to use a payed service. At least we see that they mainly prioritize otherwise. The main argument we found, is that it gives them a flexibility they would not have otherwise. They pay a flat-rate fee to access all the music they can possible think of, instead of constantly having to update their own music collection, it just there when needed.

> *"I pay 9 dollars a month. I think the difference between that the 6 dollars a month service only works on my computer, and for 9 dollars i can have i on my phone as well."* – Raul.

Generally the its the initial cost that seems like the worst to overcome. When users first start to paying for a service, it easy to up-sell services. The leap from for example 6 to 9 dollars is not that hard to overcome.

5. DISCUSSION

Our aim was to study how some teenagers use YouTube as a music service to better understand their music listening practices and identify implications for the design of future cloud music services and technologies.

We found that YouTube were used extensive by our participants as an expanded searchable music library. They customized existing systems to suit their own needs. In our case especially in how the systems were utilized, and that it is differed from its original purpose. To many the video-sharing service have become a music streaming service, and when it is used as one, the music practices changes as well. Our participants adapted YouTube to their listening practices to access the content at their own comfort. One of these practices were to download the music they listen to, in case of unavailable internet or lost connection. This means that if our participants were to suddenly be denied access to YouTube, they would still be able to access some music and might initially not miss the access to YouTube. As we identified, YouTube was often used to spontaneously explore songs, learning the content of a song through lyrics and socializing with peers. Without access to YouTube the practice of exploring new songs, independent of time and place, would require the user to get acquainted with another music service with the same amount of music and the same freedom to access it anytime, anywhere. Without access to song lyrics, the listener would not be able to learn the content of a song and get further emotionally involved in the song. Finally YouTube afforded quick access to music that the teenagers then used in the act of socialization, pulling out a device in school and showing peers a song was important, especially for the teenagers.

Mobile subscriptions with unlimited data were popular among our participants. Smartphones are no longer just a quick call when away from home, today they are used in every possible situations both when away from home, but also around the house. Many of our participants reported that they mostly use YouTube to listen to music, no matter what other services were present and accessible in their household. But what happen when we go from former generations massive digital libraries [Leong et al. 2008], moves to a completely cloud based services like YouTube. Previously, when you wanted to listen to a specific song, you had to own the content. This is no longer the case among our participants, and in the future this will case for a lot more us. The assumption that music consumption is becoming reliant on some form of subscription service seams to be quite widespread.

When Anderson [2009] described the Freemium model, he was especially inspired by Google, who at that time already had acquired YouTube. One of the main characteristics of the Freemium model, is to give something for free in exchange of brand exposure, and this is essentially what YouTube does. The users can watch videos and listen to music for free, and the fact that everything is financed by advertisements do not seam to bother them. The Freemium business model builds on the expectation that the users eventually will end up paying for the service. And we think will be interesting how Google decides to utilize the 'goodwill' they have created by giving the YouTube service away for free. Do they at some point launch a payed commercial free service, perhaps with an expanded feature set to support the changing usage patterns we discovered? At this point it is anybodies guess.

Our findings point out that, most young people have had access to free media sharing services all of their lives, and at this point have a lower probability of changing to a payed service. In correlation with that they does not buy physical medias either, we might end of loosing a whole generation of music buyers, if the current models of distribution does not react and adapt to the situation. Our content is with cloud-services now accessible from any device, at any given time, so getting access is no longer the problem. The problem is to provide the users with a service, that delivers an experience and accessibility that exceed the alternatives (MP3-players etc.). Despite being used to have constant access to our media, it is quite interesting many still prepares for network outages, and manually 'sync' their online services with offline medias. We don't think this is a general skepticism against the new services, but more

likely a simple realization that there are still situations where more mature medias provide better accessibility.

The need of accessible and comfortable solutions is quite predominant amongst our participants. They often just want a steady stream of music, and uses the shuffle function as a alternative to the regular radio. This finding is backed by earlier studies. Leong et al. [2008] argue that shuffle functionality provides, what he describes this as a ”relief of choice”. And that it reliefs the users ”from the dread of having to to choose”. This had not been a large problem if the user had a regular sized collection, with a limited amount of songs. But because YouTube allows the users to access an almost infinite number of songs, most have trouble just finding out where to start, unless they have a specific song in mind. We found it interesting that the radio is as widespread, as it is. Many still uses the regular FM-radio in correlation with YouTube, as a source of inspiration. As Brown et al. [2001a] predicted that the MP3-format would support the record industry, instead of taking over, could YouTube do the same to radio? We think the future will bring some sort of streaming radio hybrid, as we already seen in the case of Spotify, but with YouTubes more open architecture. The fact that YouTube videos is shareable and instantly accessible from every platform seems to be an advantage and mayor reason in our participants choice of service.

For music and music technologies to become ubiquitous and part of our tacit everyday life, future music applications shall embrace three features [Abowd et al. 2002]. First they should be context-aware including the when, where, what, why and who of the context [Truong et al. 2001]; secondly they should automatically capture live experiences and give access to those at a later time and lastly; services should be constantly present affording continuous interaction. The first feature of context is only partially supported in YouTube with the when, where, what and why not getting collected. The who is supported if the user is logged in or if YouTube presumes a persons interest from their search terms or suggesting similar videos. When a user is signed into YouTube the videos they watch are recorded and stored in a list for the user, where they later can go and explore what songs they heard at different points in time. By appending time YouTube captures the when of live experiences, giving the user access to a history of these experiences for later recollection. Again who the users were during an experience only captures the currently logged in user or no one at all, as experiences can be shared among many people capturing this dimension requires knowledge of the surrounding people. There is no collection of who they shared an experience with, why they did it, where they were or what they were doing. With some of the users organizing music according to activities we propose that the future music services should capture the users location to propose spatial recommendations and correlate the location with the time to get a better understand of the users current activities, maybe serving up a specific playlist or specific songs.

YouTube can be used from any Smartphone and PC making the site available anywhere at any time, only constrained by data-coverage. If the user is logged in with the same account on two devices e.g. if a user listen to a song on her PC, it will show up in history on her smartphone. Information about the users previous activities are synchronized between devices, giving participants access to temporal information about their interactions with YouTube and therefore also some of their previous experiences with YouTube. Playlists are synchronized across all devices, for example if a user listens to a song on her computer it will show up on her phone in history, but only if she is logged in on both devices.

We found that a constant presence of music was important for our participants daily music practices. Because music is everywhere (elevators, retail shops, the beach, schools, other peoples headphones etc.) in our everyday lives, it is potentially possible to get music inspiration anytime in any context. With inspiration coming from the lis-

teners current environment, independent of space and time, it is important for future technologies to support the user in performing spontaneous actions, for example listening to a specific song at a specific moment. With all the participants having access to high-speed mobile networks, access should not be a problem. Instead we found that our participants still experienced break-down in access to YouTube and because of this some planned ahead by collecting music and storing it locally. Another reason for the participants to collect and archive music was when they wanted quick access to the music

It is not clear how quick a music service should be for the participants to prefer it over a competing service, but it is clear from our findings that the user most often choose what they experience as the fastest service. The notation of fast had different properties either the time for a song to begin playing and the time it takes the listener to navigate to a song. We therefore propose that designers of future music services should think about how navigation is structured, so that the users can quickly navigate to the desired content. And for future developers of music services to create technologies that enables faster user interfaces and data transfers.

6. CONCLUSION

The focus for this article has been to understand how teenagers use cloud music services, specifically YouTube as a music service. Our findings have shown that for at music service to succeed, it does not need to be specifically designed for music, because teenagers can adapt technologies to suit their needs. How it is important for music services to always give access. Affording the users new opportunities for socialization with peers, exploring and getting involved in new songs and that they no longer need to plan ahead. Echoing [Leong et al. 2012] our findings further showed that the user sometimes abdicate the choice of music to other people or technologies, instead of controlling the music themselves.

Technologies play a large role of our everyday lives. But there is still a long way from where we are today, to the predictions Weiser [1991] made on ubiquitous computing. At some point we might experience the total merge between the technologies and the tacit. The teenagers of today represent a new generation of music listeners, and we they differ a lot from earlier generations, in the sense that they always had access to services like YouTube, from the day they were born. We found that this make them more willing to adapt to technologies, and integrate them in their everyday activities.

We only interviewed danish teenagers, and since there can be differences in the quality of cellular networks around the world, our findings might differ from studies conducted in other countries with participants of different nationalities. More recurring interviews through a longer period of time might uncover additional details about the findings, and provide nuanced view on streaming services as our participants music use develop through time.

ACKNOWLEDGMENTS

The authors would like to thank the participants for giving their time, effort and knowledge to help us conduct the study, and Mikael Skov for supervision and feedback.

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