

UNDERSTANDING THE USER EXPERIENCE OF WATCHING ONLINE VIDEOS

ABSTRACT

The consumption of online content especially in the video format has increased many folds over a decade, which highlights the merit of online video as a great potential of sharing knowledge across wider audiences. This research study was conducted to understand existing user interactions with online videos, and it is discovered that the user interactions and use-cases of an online video are still very rudimentary by being limited to pause, play, next, closed caption, full screen, speed of player etc., there is a lot of scope of work in interaction flow of how users consume online video content. This paper describes the research process for understanding the underlying user goals in terms of their interactions and experiences with the online videos. It also illustrates how the discovered insights can improve the future interactions and use-cases of online video interfaces and eventually a better user experience of watching online videos.

INTRODUCTION

Since 2005 onwards, with the surge in online video sharing websites like myspace, YouTube, Vimeo and others, the consumption of videos has increased manifold. As a result, online videos has now become an open access to information, a powerful force for education, building understanding, and documenting the world events. On the basis of this research study, it was discovered that there are new use-cases of interacting

with videos as such and especially the online videos, which is open to everyone to share and access knowledge using any of the online platforms.

The research study incorporated most of the primary research methods like interviews, surveys, contextual inquiry, task analysis etc. along with some secondary research method like literature review and trend analysis to support the findings of the primary research.

The objective for this research study is to primarily understand how different user-types interact with online video content and further discover insights which could help in designing better user experiences for the identified future use cases.

LITERATURE AND THEORY

To gain a better understanding of the domain of this research study, one needs to learn from the existing resources. Therefore a model consisting of 4 areas were devised which helped in making informed decisions while conducting this research:

1. Technology
2. Devices
3. Businesses (Services)
4. UX Research

On the technological front, there have been interesting breakthroughs in the past, in terms of recognition technology developed at Microsoft Research, MAVIS (Anon, 2008 MAVIS), *to enable searching of audio and video files with speech*; Real time language translation by Skype Translator (Anon, 2014. Skype), which was the result of decades of research in *speech recognition*, *automated translation*, and general machine learning technologies.

When we talk about hardware/devices; there has been a drastic change in the modalities of interactions with these types of devices which varies from being static to mobile, large screens to handheld scale factors. As per YouTube “more than half of YouTube views come from mobile devices”, which shows a trend shifting from big static screens to mobile handheld devices.

In the grand scheme of things, the internet’s accessibility has changed very fast in a very short

amount of time, causing a surge in the consumption of online video content (McCarthy, J., 2017 - Zenith's Online Video Forecasts 2017 report) (Statista, 2017) thanks to services such as YouTube, Netflix, Vimeo, TED, Amazon Prime Video, Facebook, Instagram and Whatsapp to name a few; with their easy accessibility on mobile devices. (Wroblewski, L., 2016)

To formulate the research process for this study, the 3-dimensional framework of "When to Use Which User-Experience Research Methods" by NN/g (Rohrer, C., 2014) is used. It is helpful to view which research method to use along a 3-dimensional framework with the following axes:

1. Attitudinal vs. Behavioral
2. Qualitative vs. Quantitative
3. Context of Use.

These literatures and theories on technology, hardware devices and services available, as studied in this research study, highlights the trends in how these factors are aiding the use case of consuming variety of video contents from different services available to the users which are easily accessible to them, at the same time enhancing the voice enabled searching of audio and video file formats.

Proceeding ahead with the basic understanding on the possibilities in the area of technology, devices and services available, this research study is primarily going to focus on the experience of users while watching online video content.

DATA AND METHODS

In order to find answers to the first objective i.e. to understand how users interact with online video content, quite a few primary research methods were used to get the first hand idea of user expectations and their goals.

For the primary research study, a short survey was conducted which primarily targeted working professionals and college going students. This target group is chosen because of their frequent interactions with online video content.

Following which, personal interviews were conducted by taking cues from the survey data. A draft version of questionnaire was created and a sample of 4 users were interviewed.

Followed up by the contextual inquiries where mix of task based exercise and open-ended work items were provided to the participants. The participants here being post-grad college students. They were not invited in any specially arranged settings, all the activities were conducted in their natural context of usage. The findings from the survey and interview methods were taken into account to formulate the action plan for the following contextual inquiry.

For the secondary research study, the literature review method was used which involved referencing a lot of reading materials and videos as listed in reference section of this paper.

To gain a better understanding of existing features and solutions available to users by taking learnings from the literature review, a comparative analysis of existing online video hosting and sharing websites (YouTube, DailyMotion, Vimeo and TED) was conducted.

The overall outcome of these research methods was that it helped in coming up with the user task flow of how they go about watching an online video and understanding the opportunity areas to enhance the user experience in their natural flow of task.

EVALUATION OF DATA AND RESULTS

The data resulted from the user survey, which was taken up by 29 participants (office going professionals and college students). The data showed three crucial data points:

1. 87% of the respondents manually seek the progress bar of the video player to reach at relevant content
2. 62.5% of the respondents (office goers) do go through the recorded meeting videos (if available), if they have not attended the meeting in first place
3. 17% of the respondents plays the video at a faster speed (1.2x, 1.5x or 2x) to finish the video quickly, but do not want to miss out something important

This research study started of by conversing with people around about how they go about watching videos online. Key observations that emerged from these personal interviews are:

1. Annoying to locate content inside the video (which does not have a structure to their content) which user has already seen before.
2. Users like to skip content in between while watching videos e.g. music pieces in a movie.
3. Users find it helpful to scrub over the progress bar to see the thumbnails while revisiting a video to remember contents inside the video.

To understand the context of how people actually interact with online videos and to get a clearer picture of "what people say" versus "what people do" (Rohrer, C., 2014), few instruction based task activities and few open-ended tasks were given to the participants. This was done while conducting a contextual inquiry to better understand their behaviour while watching online video content. Key observations from this method are as follows:

1. User's (going through the video for the first time) doesn't know what content to expect and when
2. Users wanted quick lookup in comments section while watching, a few of them used CMD+F (mac) or CTRL+F (windows) to search
3. Users played the video at 1.5x or 2x speed to go through the video quickly while looking for something important
4. Hassle of toggling between the video tutorial on the web browser and the software application
5. User's wants to save the URL if they found it useful and might use it for future reference
6. Title doesn't justify the content in the video
7. Users were not sure whether the content of a video would be worth the time to go through the full length, judging by the number of likes or dislikes on the video

The literature review study on the timeline of the online videos pointed out that since 1995-2004 some websites, like newgrounds.com, heavily rely on the container formats to display online video. After 2005 till 2010, mass-streaming services like YouTube and Netflix became massively popular for streaming online video content. From 2011 to 2016, live-streaming becomes increasingly popular because of the services like Vine and Keek which are in-turn being integrated into services like Facebook and Instagram.

As per YouTube press statistics (*YouTube Press website*), 1 billion hours of online video is watched on daily basis by the users; the watch time has increased by 60% over past 2 years; and 40 minutes is the average mobile session by YouTube users.

According to the pewinternet.org study on the audience for online video, overall 19% of video viewers say they have either rated a video or posted comments after watching it online. Unsurprisingly, those who engage with online video by rating and commenting tend to be young; video viewers ages 18-29 are twice as likely as those ages 30-49 to do so (Madden, M., 2007).

Another interesting fact came across the secondary research that is 96% of internet users in US aged 18 to 24 years accessed the video platform (Statista, 2018).

A comparative study was done to analyse how various other online video sites currently functions, and understand the nuances of their interfaces which helped in discovering the features set that is currently available for the users to interact with.

DISCUSSION

In this research study, it is observed that users do have underlying needs whenever they interact with the online videos while watching it.

From the interviews, contextual study and task analysis, it is discovered that the existing user interactions are incapable of addressing the problems identified in these primary research methods. Most of the approaches user have to take to achieve these are makeshift in nature and that too individualistic for each user, there is no standardized interaction patterns to accomplish the tasks.

Based on these observations made in the process, this study identified that there is an intrinsic need for the online video users

1. to find,
2. to remember, and
3. to revisit the specific content later.

And for these needs to be met, the key insights discovered from this research study for designing better user experiences are:

1. to **enable searching specific content inside** an online video, which could make use of recognition of audio and video file formats using speech, text or image based searches, auto-transcription and index based searching on transcripts
2. to **discover quality content** based on **experts' recommendation** system on websites like YouTube, Facebook etc. as these platforms has a profiling of the users based on their viewing history or their engagements with the content on social media
3. to **save, revisit** and **share** the content inside the video, for e.g. taking notes or by bookmarking just the interesting video snippets instead of the complete URL of the video
4. to **enable tagging by viewers** on top of the tags which are provided by the video content uploader, which could be a better method of rating the quality of a video content in a crowd sourced manner, rather than just depending on the number of likes or dislikes by viewers

At the time of this research study, no digital solutions were found that takes care of the user needs identified in this study. The findings of this research study works as foundation for requirement specifications of the features for *power users of online video content*.

Few areas in which this research findings could be utilised for are

1. Designing new user interfaces for the online video players like YouTube, Amazon Prime

Video, Netflix etc. which allows users to search contents inside an already being watched video.

2. Building note taking or bookmarking applications that could be standalone or embedded with user's account e.g. how Google Drive is with Gmail account etc., which enables users to save and revisit specific content at later time.

Consider a grad student who has to write a movie critic based on the movies shown in her class. She log into her NETFLIX account to re-watch those movies and in the process of that she takes notes of scenes that interested her to mention in her critic. With a new UI, she can take **in-line note** describing a scene in her own words, put **tag** to categorise, **annotate** the context and can **bookmark** a specific scene clip or image to **review** it later while writing her critic.

Consider an office goer, a team leader in a MNC, he has come back to office after 2 weeks vacation. He discovers that there were many meetings / discussions had happened which he could not attend, but were **video** recorded. To save time of going through all the **recorded meeting** sessions, with a new UI / tool, he is now able to do **smart searches** on topics **inside the video content** which he finds relevant for his work items.

Mentioned above are few use-cases which are easily achievable and probably can become a reality in near future and just to back this proposal, here is a fact, this study was completed (independently) by the end of April 2017 and on May 19, 2017 at Google I/O event Video Intelligence API was launched which is a new machine learning API for automatically recognizing objects in videos and making them searchable; the API also allows developers to tag scene changes in a video (Lardinois, F., 2017).

With advances in technology like Video Intelligence API from market leader such as Google, this research study actually shows a lot of potential in designing solutions for better user experiences.

REFERENCES

- Rose, D.E. & Levinson, D., 2004. Understanding user goals in web search. *Proceedings of the 13th conference on World Wide Web - WWW 04*.
- Cisco, 2015. Capture, Transform, and Share Your Video Content: An Overview (white paper)
- Obrist, M. et al., 2015. Online video and interactive TV experiences. *interactions*, 22(5), pp.32–37.
- Wroblewski, L., 2015. Video: Multi-Device Output, Input, and Posture. *LukeW*. Available at: <https://www.lukew.com/ff/entry.asp?1949>
- McCarthy, J., 2017. Global online video consumption and advertising to increase by a fifth in 2017. *The Drum*. Available at: <http://www.thedrum.com/news/2017/07/17/global-online-video-consumption-and-advertising-increase-fifth-2017>
- Statista, 2017. U.S. daily digital video consumption by device 2017 | Statistic. Statista. Available at: <https://www.statista.com/statistics/420799/daily-digital-video-content-consumption-usa-device/>
- Wroblewski, L., 2016. As Mobile Screen Size Increases... So Does Activity. *LukeW*. Available at: <https://www.lukew.com/ff/entry.asp?1956>
- Anon, 2008 MAVIS. *Microsoft Research*. Available at: <https://www.microsoft.com/en-us/research/project/mavis/>
- Anon, 2014. Skype Translator – How it Works. *Skype Blogs*. Available at: <https://blogs.skype.com/news/2014/12/15/skype-translator-how-it-works/>
- YouTube Press website. Available at: <https://www.youtube.com/yt/about/press/>
- Statista, Video-on-Demand - worldwide | Statista Market Forecast. *Statista*. Available at: <https://www.statista.com/outlook/201/100/video-on-demand/worldwide#>
- Statista, 2018. U.S. YouTube reach by age group 2018 | Statistic. *Statista*. Available at: <https://www.statista.com/statistics/296227/us-youtube-reach-age-gender/>
- Paster, F., 2017. comScore: Cross-Platform Future in Focus report (2017). *LinkedIn SlideShare*. Available at: <https://www.slideshare.net/FilippPaster/comscore-cross-platform-future-in-focus-report-2017>
- Madden, M., 2007. Online Video. *Pew Research Center: Internet, Science & Tech*. Available at: <http://www.pewinternet.org/2007/07/25/online-video/>
- Madden, M., 2007. The Audience for Online Video. *Pew Research Center: Internet, Science & Tech*. Available at: <http://www.pewinternet.org/2007/07/25/the-audience-for-online-video/>
- Lardinois, F., 2017. Google's new machine learning API recognizes objects in videos. *TechCrunch*. Available at: <https://techcrunch.com/2017/03/08/googles-new-machine-learning-api-recognizes-objects-in-videos/>
- Rohrer, C., 2014. When to Use Which User-Experience Research Methods. *Nielsen Norman Group*. Available at: <https://www.nngroup.com/articles/which-ux-research-methods/>