

Personal Video Collection Management Behavior

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ABSTRACT

Video content typically consumes more storage space and bandwidth than other document types although users structure their content with the same organisational tools they use for smaller and simpler items. We analyze the 'native' video management behavior as expressed in 35 self-interviews and diary studies produced by New Zealand students, to create a 'rich picture' of personal video collections. We see that personal collections can have diffuse boundaries and many different intended uses—and that these information management needs are difficult to fulfill with their homegrown video collection management strategies.

CCS Concepts

• Information systems applications → Digital libraries and archives.

Keywords

Personal collection management, qualitative research, video information behavior.

1. INTRODUCTION

Personal information collections have expanded to include a diverse set of multimedia digital objects; in particular users now regularly create and download video files. Video content typically consumes more storage space and bandwidth than other document types although users structure their content with the same organisational tools they use for smaller and simpler items.

2. METHODOLOGY

We base this research on a set of self-interviews and diary studies conducted by 35 New Zealand tertiary students, in the context of a third-year university course in Human-Computer Interaction, offered in New Zealand in 2013. As a first step in a semester-long project to design and prototype a personal video management system, the students examined their own video collection behavior through a self-interview, and then through a diary study focusing on video document behavior.

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Self-interviews and diary study summaries (totaling 175 pages) are here analyzed for 35 students (21 (60%) male, 14 (40%) female; 32 (91%) aged 2 to 24, 3 (9%) aged 30 to 60). The analysis was based in grounded theory methods [1]; analysis proceeded through iterative reading, code development, and coding as the categories emerged inductively from the documents.

3. RESULTS

3.1 Size and Storage of Collections

The students typically estimated the size of their collections in number of videos and/or in memory usage. Collections ranged from the miniscule (three students had fewer than 20 videos in their collection) to the enormous (1.85 Terabytes on the student's personal media server, with an additional 2332 videos bookmarked, favorited, or otherwise linked to in online sources). On the other hand, the size of a collection can also be subjective; one of the moderately sized collections (approximately 150 Movies, TV episodes, and short clips) was described as "very large" by its owner, while another believed his 700 gigabyte collection to be "rather small for this day and age" [P20].

Table 1. Number of students utilizing each collection storage method or technique.

| Physical storage | | Virtual storage | | Personal record | |
|------------------|----|--------------------------|----|-------------------------------|----|
| Laptop / desktop | 28 | Facebook, social media | 14 | Bookmarks, favorites, 'likes' | 23 |
| External drive | 18 | YouTube subscription | 6 | Open browser tabs | 2 |
| Mobile | 7 | Cloud | 5 | Word document | 1 |
| USB memory stick | 7 | Personal YouTube channel | 3 | Email message with links | 1 |
| CD-ROM / DVD | 4 | iTunes | 2 | Links posted on blog | 1 |
| SD card | 2 | Netflix | 1 | Pinterest | 1 |
| Video camera | 1 | | | Memory | 9 |
| Gaming console | 1 | | | | |

To store or track these videos, the students used a wide variety of storage devices and techniques (Table 1). An initial, striking finding is that the students' personal collections are highly diverse and not limited to video files stored on physical devices under the students' control 'in the cloud' (e.g., in Dropbox or Google Drive); students also 'saved' videos virtually by posting them to Facebook or uploading them to a personal YouTube channel. Students also considered videos that they had viewed

through large online collections such as YouTube (through channel subscriptions), Netflix, etc. as being in some sense ‘their’ videos, in that the students could access the videos for re-viewing. Given this blurring of the division between private and public video collections, we note the obvious difficulties with maintaining a record of previously viewed videos, trusting that the video will not be removed from the collection, and maintaining a subscription to permit continued access.

Students also employed a variety of techniques to keep track of ‘their’ videos without necessarily storing them: the videos could be tagged by the student by bookmarking them in a browser, ‘liking’ or ‘favoriting’ it on a social media site; ‘pinning’ them on Pinterest; starting to stream the video and then simply leaving the browser tab open; keeping a collection catalog that might be simple (e.g., saving email messages that include links) or elaborate (e.g., posting links to a blog or maintaining a personal video catalog in a Word document); or simply relying on their memory to be able to re-find videos, rather than storing the file or a link. No student in the study used only a single mechanism from Table 1; instead, their collections were scattered across two to eight, with an average of five. This can necessarily make it difficult to access a particular video in the collection.

3.2 Reasons for adding a Video to a Collection

The primary reason for saving a video is, of course, ‘to watch later’. This motivation can be teased apart to mean: to watch in the future, as watching now is inconvenient; to watch the video again, as it has been watched once and enjoyed; to watch at a more appropriate time, given that the video appears interesting but the student can’t view it presently in its entirety; to have something to watch later when the internet can’t be accessed or access is prohibitively expensive; to look more deeply into previously enjoyed videos; to intensively (re)view a video for its information content; to support the *possibility* of watching or re-watching the video, at some indeterminate future time. No student reported a useful technique or tool to differentiate between these intended future viewing purposes, and instead relied on memory of intent when adding a video to their collection.

Additional motivations for saving a video included: to share the video with others (where sharing included the gift of video copies to individuals and posting to social media sites); to retain a video as a memento or record of an event or experience (more common for self-created videos that are filmed in the moment, but other videos may be saved as reminders of the circumstances in which they were originally watched); as part of a themed sub-collection (television series, anime, etc.); and to improve a later viewing experience (by avoiding buffering in streamed video, to support a marathon viewing of a series, etc.). Again, the students had to invent their own techniques for supporting these intended uses in their collection (for example, dividing television shows / series into appropriately named files / folders on their storage devices). We also note that sharing and memento experiences are indeed sometimes ‘recorded’ in the email system or social media records for that student, but that these records are generally scattered across systems, media, and time—and so are not accessible or integrated into the collection.

3.3 “Keeping Track”

Another common task in managing a personal video collection is maintaining a record of one’s interactions with it. Students

reported a variety of interactions that they attempted to track, with varying degrees of success:

- marking their viewing progress through a sequence of videos (e.g., episodes in a season of a TV series);
- marking the place to begin watching again in a video whose viewing has been interrupted;
- keeping a list of of videos that have been added to the collection but that have not yet been viewed;
- differentiating between watched and unwatched videos in a stream (e.g., a subscription to a YouTube channel);
- tracking which videos have already been downloaded / added to the collection;
- marking one’s viewing position in a partially watched video, to be able to pick up viewing again at that spot;
- selecting brief clips of interest embedded in longer videos

These tasks are not well-supported in the file systems used to store video files, so the students with collections on their own devices (hard drives, external drives, etc.) either had to rely on memory to track their viewing, or had to develop their own tracking system. Given that metadata for downloaded videos is not saved with the file and that filenames often vary between download sites, it can be difficult even to know which videos are already in the collection. A major difficulty lies in the absence of a detailed viewing / usage history supported directly by the file system (beyond the date of modification, which is often too crude a measure and further is visible only for a single file / folder rather than across an entire collection). The simple work-arounds could only handle one or two of the tracking tasks above. More complex schemes rely on the student’s diligence in recording the relevant aspects of their viewing history—and these more onerous management techniques are often not rigorously applied

4. CONCLUSIONS

The results reinforce earlier findings that video content causes storage concerns for users in ways that are not present for other media types [3]. Although some participants did engage with metadata for collection organization, the familiar difficulties of maintaining order were common. Problems in naming objects were common for our participants; a file system survey using the approach of Henderson [2] would be a valuable complement to the reports in this paper. The provision of more meaningful default filenames by applications and devices would likely help users manage their collections more efficiently. Greater intelligence on the part of the operating system to use embedded metadata and heuristically use information in filenames are areas of future work for software developers.

5. REFERENCES

- [1] Glaser, B., & Strauss, A. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Chicago.
- [2] Henderson, S. 2011. Document duplication: How users (struggle to) manage file copies and versions. *Proceedings of ASIS&T'11*, 48(1). doi:10.1002/meet.2011.14504801013
- [3] Odom, W., Zimmerman, J. & Forlizzi, J. 2011. Teenagers and their virtual possessions: design opportunities and issues. *Proceedings of SIGCHI '11*. ACM. 1491-1500.