

Videos in Photo Books and Other Tangible Products

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Abstract

This paper describes in addition to the paper presented last year how videos can be implemented into printed photo books and presents first results about the users' implementation. We will show that –surprisingly or not- pictures from videos are similarly used such as classical images to tell compelling stories.

Videos taken with a traditional camcorder are not good candidates for implementation into photo books, as they are usually made with the intention of generating a movie. Videos taken by DSCs and smart phones are taken on the fly and are on average less than one minute in length and are the basis for the following evaluations.

Keywords: Photo Books, QR code, story telling, video formats, H264, video in printed product.

Introduction

Using QR codes to represent videos in printed products is one possibility to link the classical printed media with online media. Online media means that users scan the QR code with their portable device and view it also on that device. In this paper we present first data about what kind of contents is displayed and how the users represent their videos in printed products, e.g. CEWE PHOTOBOOKS. We report the share of the different video formats used, the number of images extracted out of the video in order to represent the video, the positions in the book and different design strategies compared to regular books.

Videos taken by DSCs and smartphones are taken by chance and are in average blow one minute length. Particularly these videos cannot be combined with the current state-of-the-art story telling: printed photo books. We proposed implementing user-defined pictures (scenes) out of the video implemented in the photo book to reach an even more compelling story as well as implementing the whole video via automatically generated QR codes printed in the photo book in [1,2].

QR codes (for Quick Response), a decades-old technology that was first used in the supply chain, are now expanding aggressively into the marketing space. QR codes were first developed in Japan by the Denso-Wave Corporation for use in the automotive industry, and remained a b2b tool, not unlike RFID [3]. Figure 1 shows the user interface and how a selection of frames (user defined or automatically extracted from the video) and the associated QR code are visualized during the design process.

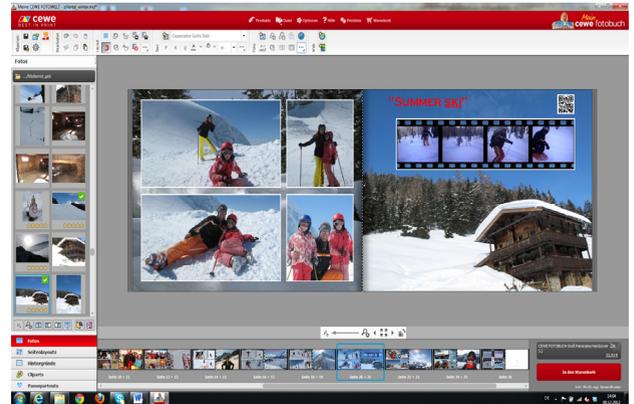


Figure 1: Frames of the video displayed in the editor

QR-Code usages

The software offers to implement scenes from videos with or without a QR code. If the user decides to implement simply scenes selected from the video, there will be no additional costs and the video will not be uploaded, only the extracted frames as jpg files.

Nevertheless a huge majority decides to implement scenes from the video and the QR code and is paying for the storage of the video. A little bit less than 25% only implement selected frames from the videos; more than 75% therefore implement scenes and the QR code! The data uploaded are getting significantly higher, the videos normally at least double the amount of data transferred to the online storage.

There is also the possibility to only implement the QR code and none of the frames extracted from the video. Users can “link” their video to images taken by classical DSCs and place that image next to the QR code or simply display the QR code and text or an icon to “explain” that a video is represented by the QR code. This option is taken by nearly half of the users, the remaining 25% are implementing at least one frame (possible are 1 to 6) of the video and the QR code to tell their stories. The possibilities to select these options are shown in figure2.

There is also the possibility to mark the frames from the video with a clipart representing a film strip. 90% of the users displaying frames from the videos select this option in order to show, that these images are extracted from a video and accent that the QR Code is “linked” to a video that can be displayed on a mobile device after a scan with a QR code reader.

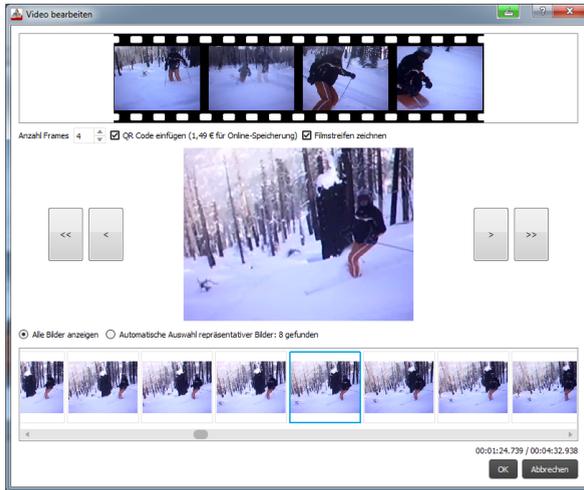


Figure 2: UI to select video and/or QR code display

Videos and Frames

As mentioned above, not every video is linked with frames from a video and a QR code. But 75% of the users implement both in their product, the code and frame(s) from the video. From all implementing a QR code, 47% do not implement any frame from the video, 50% show one frame (that is the default setting) and only 3% are selecting two to six frames out of the video as shown in figure 1.

Video formats uploaded

There are a lot of different video formats generated by different devices (smartphones, tablets and DSCs) in the market. The original video formats are all transcoded while being broadcasted to the common H.264/AVC codec, which can be displayed on nearly all devices. For further details to that codec and the legal implications please refer to, e.g. [4].

We allow the implementation of most of the common video formats up to a length of 5 minutes. The maximum resolution accepted is HD. The original formats are stored online. Table 1 shows the share of the video formats uploaded by our users

| Video format | Share [%] |
|--------------|-----------|
| mov | 43,96 |
| mp4 | 20,62 |
| avi | 19,40 |
| mts | 7,46 |
| mpg | 4,12 |
| wmv | 2,06 |
| m4 | 1,09 |
| vob | 0,90 |
| 3gp | 0,38 |

Table 1: Video formats used in CEWE PHOTOBOOKS

Positions in the printed book

Analyzing thousands of samples we found something interesting. The videos are not equally distributed over all pages, there is a tendency to display them more in rear of a printed

product. Based on that evaluation shown in Figure 3 we assume that users treat videos differently in story telling than “regular” images. By the way, that is consistent with the authors’ way of implementing videos. I am displaying videos more at the end of the book.

Figure 3 shows the distributions of the videos on the cover, the first thirds of pages, the middle third of pages and the last third of pages.

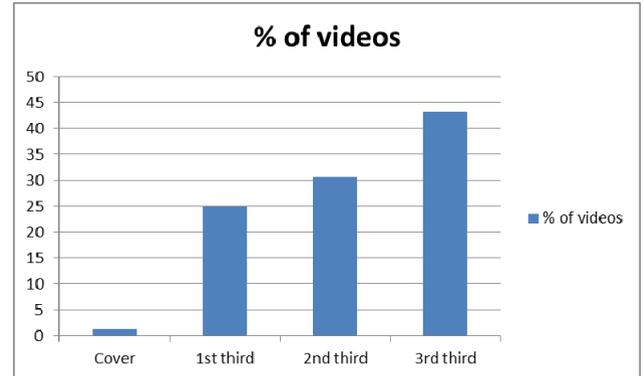


Figure 3: Position of videos

Conclusions

Preserving memories combined with storytelling using photo books are substituting more and more classical 4*6 prints and silver halide posters [5]. The proposed implementation of videos in photo books makes the story telling even more complete because during taking a video with a DSC no image to be added to the story telling would be available.

Implementing scenes from personal videos in printed photo books allows therefore for compelling and complete story telling. This approach offers a symbiosis or convergence of images and videos in one tangible product.

The usage of frames from videos is similar to the usage of classical still images, the only difference we see is the distribution of the videos in the books. The videos integrated by the users tend to be more in the second half of the printed book than being equally distributed over all pages.

We implemented very recently also the QR codes on greeting cards. The evaluation of the usage on a different kind of printed product will be part of our next analysis.

References

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Author Biography

Reiner Fageth received his diploma in Electronic Engineering from the University of Applied Science in Heilbronn, Germany (1990) and his Ph.D. in 1994 from the University of Northumbria at Newcastle, UK in the field of industrial image processing. Up to 1998 he worked

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