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What Users Expect from Players for Interactive (Non-linear) Videos

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Abstract

Various players for interactive non-linear videos exist in the web nowadays. Each player provides commonly known buttons as well as buttons triggering additional functions of the player or the video presentation. Additional buttons show a large variety of different icons. This work examines which functions and GUI-elements users expect from players for interactive non-linear videos. Therefore the layout of buttons in existing web-players is tested for its intelligibility. User's expectations are determined in a second step. Used methods are a labeling exercise/questionnaire and a paper prototyping.

1 Introduction and Problem Statement

Web players for interactive non-linear videos provide different sets of functions and various concepts of content arrangement. A common basis for all these players can be noted. It contains the presence of areas where annotations are displayed, clickable objects in the video and an extended tool bar. However a closer look at these players offers a large amount of different symbols and arrangements of video- and annotation-areas. This leads to the following questions: Which arrangement of video- and annotation-areas is preferred? How many annotation-areas are expected? Which additional functions are expected by users? Are the currently used icons for additional functions intelligible?

We conducted our experiment in two steps within the framework of a group testing session (Nokia, 2004). The test users were aged between twenty and forty; four of them were male, five of them female. The group contained students, secretaries and research assistants employed by the University of Passau. On average, the test users have high experience in using a computer, but only basic experience in using interactive non-linear videos.

2 Button Labeling Exercise

To identify if the icons and buttons which are used in online video players are coherent, a labeling task was performed with nine users ($N = 9$). It was used to figure out if there are problems of comprehension in using existing players. Therefore this small number of test users is entirely sufficient ((Barnum, 2011) and (Nielsen, 2000)). After comparing several players available on the web, we chose to do the exercise with the 5min's-player[1] and the VideoClix[2]-player because those were the players with the most non-standard icons. To affect the test persons as little as possible, the same video content was built in the player screenshots by image editing. The Player controls on the screenshots where labeled with empty text fields. The 5min's-player had 21 and the VideoClix-player had 14 text fields as a result. That way the test users were able to letter the function of each control. The exercise sheets where printed in color and there was no time limit given for completing the task.

Standard buttons/icons like "Play" and others were recognized by almost every participant. Elements which were recognized wrong by two or three users were the "Extended position"-slider (VideoClix-player), the "Scenes"-button (5min's-player) and the "Hiding related videos"-button (5min's-player). Several buttons were not recognized by four or more test participants in the VideoClix-player. In four out of five cases ("TV"-button, "Person"-button, "Mail"-button, "Clapper board"-button) the button was not interpreted correctly by a single test user. The function triggered by the "Facebook-like"-button, was recognized by three users. The 5min's-player revealed more elements that were not recognized correctly, but only the "Smarts"-button was misinterpreted by all test users. The "Tools"-, the "Addons"-, the "Copy"-, the "Twitter"-button, the "Embed"- and the "Arrow"-button were misinterpreted by five to six users. Buttons which are labeled with an icon and text, did not necessarily show advantages compared to buttons with only an icon. Icons with a strong symbolic expressiveness like thumb-up and thumb-down are understood better even in an unknown context.

3 Paper Prototyping

After the labeling task, followed by a brief introduction to interactive videos and forms of interaction possibilities in appropriate use cases, a paper prototyping was conducted with four groups of two people each ($N = 8$). The groups were drawn by lot. Afterwards each group was provided with various cut-out-sheets containing elements of videos, images and text as well as a search bar with results, a table of contents and a broad selection of icons and bars. The cut-out-sheets also contained blank icons and placeholders which could be used to design own elements. In addition each group got crayons, scissors and glue. The paper prototypes were created with a time limit of one hour for a self-chosen use case. Each group presented its use case at the end, the explanations in the presentation were minuted.

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1 http://www.5min.com/ (accessed Mai 25, 2011)

2 http://www.videoclix.tv/ (accessed Mai 25, 2011)

The paper prototyping revealed four paper prototypes with common and distinctive elements. Scans of the prototypes are illustrated in figure 1. The layout of prototype A and B is pretty similar. Prototype C is based on overlays and has only a small annotation-area placed below the table of contents. The reaction principle of prototype D is different to the one of the other players. The user "collects" annotations during the playback of the video, while he is able to concentrate on watching the video at full-length. Collected annotations are stored in a separate area and can be viewed later on. This concept affords more interaction by the viewer.

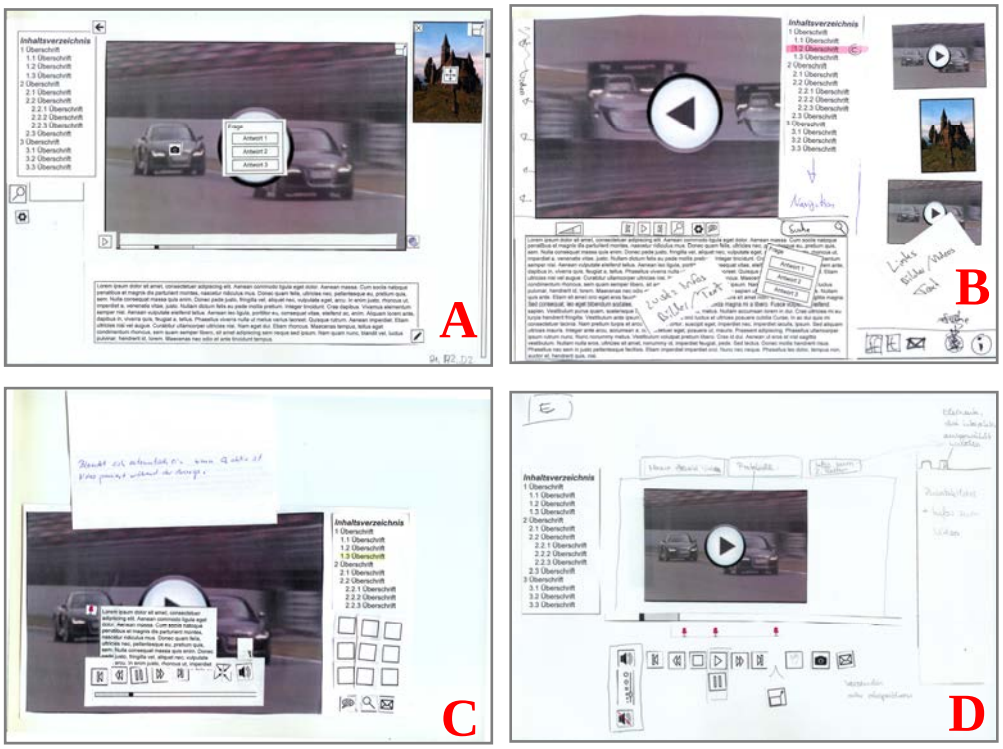

Figure 1: Prototypes of the four groups (only one version of prototype B)

Each of the prototypes shows a single main video. It is centered between other elements in prototype A and D. A horizontal and/or vertical separation of the space is used in prototypes B and C. Each of the prototypes has a table of contents. It is positioned on the left and the right side of the video in two of the prototypes. It can be hidden in one case (prototype A), but it is always displayed by default. A search function is integrated in three of the four players. It is positioned close to the table of contents in each case. Only prototype D has no search function, which might be related to the different viewing concept. Objects in the video can be clicked in each of the players. A click triggers additional information for the clicked object (or saves them for a later viewing in prototype D). Non-linearity is integrated into two of the four players by using decision elements. Each player shows areas where additional information can be displayed. Depending on the view, there are up to two areas for annotations which are overlapping the video partially. Three out of four prototypes show annota-

tions or interactive elements as overlays over the video area. The video stops if an overlay is positioned on the video canvas. All players had buttons for play/pause (toggle or two buttons), volume-control and switching the video into full screen. Three out of four prototypes contained buttons for the hiding of annotations (not needed in prototype D, because of the different viewing concept), to send the link by e-mail and fast for-/backward.

It can be noted that a table of contents, a keyword search and clickable objects in the video are desired functions for players for interactive (non-linear) videos. Furthermore, each player should have at least one area for displaying annotations. It should also be possible to position annotations on the video canvas. The most important buttons are the buttons known from standard video players (play/pause, volume, video full screen, stop and fast for-/backward) as well as a button to hide the annotations and watch the plain video without annotations solely, a full screen button and a button to send a link to the video per mail.

4 Conclusion

We examined how a web-player for interactive (non-linear) videos should look like. Conducting a labeling exercise leads to the result that standard icons are recognized by all test users, but the relationship between new icons and the corresponding function is not always self-explaining. A text label in combination with an icon is not always sufficient enough. Symbols from the real world are easier to understand in a new context. The paper prototyping revealed that all users expect a table of contents and a search function to navigate in the video. Clickable objects in the video and at least one area for displaying additional information are desired features as well. Besides standard buttons which were known by each of the test users in the labeling task, only one button was wanted by all users: a button to hide all annotations.

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