

	C1	C2	C3	C4
P1	No preferences			
P2		B		A
P3	B			A
P4	B	A		
P5	No preferences			
P6	B	A		
P7	A		B	
P8		A		B
P9	B	A		
P10	No preferences			
Total	A+4B	4A+B	B	2A+B

Table 2: The preferences of the four concepts by the ten professionals, P1 & P10 indicated no preferences toward the four concepts (A=First preference; B=Second preference; C1=Chapter-based IDE; C2=Mixed IDE; C3=Workflow Wizard; C4=Premiere Plugin).

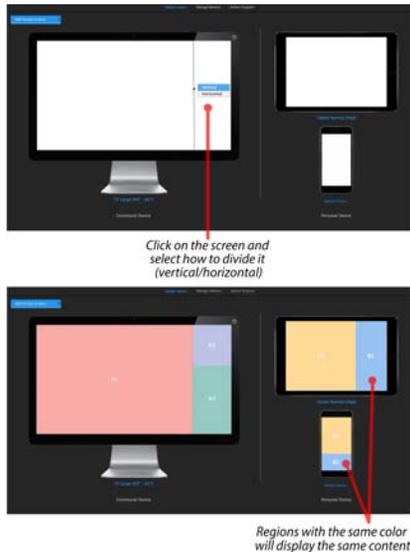


Figure 5: The advanced mode of layout design: Click on the screen to divide it vertically or horizontally (above); Label the regions with names and colors (below). Regions with the same color will display the same content.

During the preproduction phase of a live program, timeline is not relevant, because the length of live events is unpredictable. Live broadcasting is event driven and sequence-based (P1, P3, P5, P6, P9, P10). Instead of the timeline, P2 suggested that an eventline is helpful for rapidly rearranging contents during live broadcasting.

Hierarchical organizations of contents are advised by a few professionals. Each piece of content should be encoded specifically for accurately retrieving later (P4 & P5). P9 pointed out that DMAP components should be organized according to the frequency of usage. P9 also suggests a hierarchical organization of the chapters to form a tree-like system, which provides flexibility to edit contents in chapters.

P4 and P9 pointed out that layouts may vary in different chapters, so layout design should allow certain flexibility. The professionals proposed two modes of layout design. One is the advanced mode, where they need arrange content objects on a region-less screen. Another is the normal mode, where templates are provided.

Final Design

Based on the results, the selected mixed IDE concept is re-designed. Figure 5 and 6 show featured screen shots of the re-designed wireframes. Figure 5 illustrates the layout design mechanism in the advanced mode. Figure 6 depicts the eventline and event templates creation. Figure 6a shows the way to create a master layout, for example, a master layout of the “main logo”. Figure 3d exhibits a three-level hierarchical overview of the program. From top to bottom, these levels are the program level, the chapter level and the experience level. Once created, the master layout can be applied at the program level. Then, the same master layout will be automatically added at the chapter level and the experience level. The master layout largely reduces repetitive work. Figure 6c and 6d are similar, both

including previews on multiple screens, eventline and a library of DMAP components. Clicking at one of the documents at the experience level will direct to the interface shown in Figure 6c, where an experience can be created, previewed and edited. The interface shown in Figure 6d has the same function, but for creating, previewing and editing live events, such as a crash at a motorcycle race or a goal in a football match.

Conclusion and Future Work

This paper presents the design and evaluation of an object-based preproduction tool. The professionals found that the paradigm that provides a hierarchical overview of the program chapters can best accommodate to the authoring for multiscreens. Features such as two modes of screen layout design, re-usable DMAP components, master layout, and templates for live events are considered important. We also realized that the preproduction of live broadcasting can be distinct from recorded broadcasting due to unpredictable events. In the future, an observational field study is planned at an Outside Broadcasting truck (OB truck) for a sport show, aiming at understanding the current workflow of live production, and how the tool can be integrated into that workflow and better help the preproduction as well as live production. The final design of the preproduction tool is ongoing work. A validation study is planned by the end of January, 2018. The goal of the validation study is to see whether the proposed object-based workflow is appropriate, and how the tool can fit into the existing workflow and who will be the potential users.

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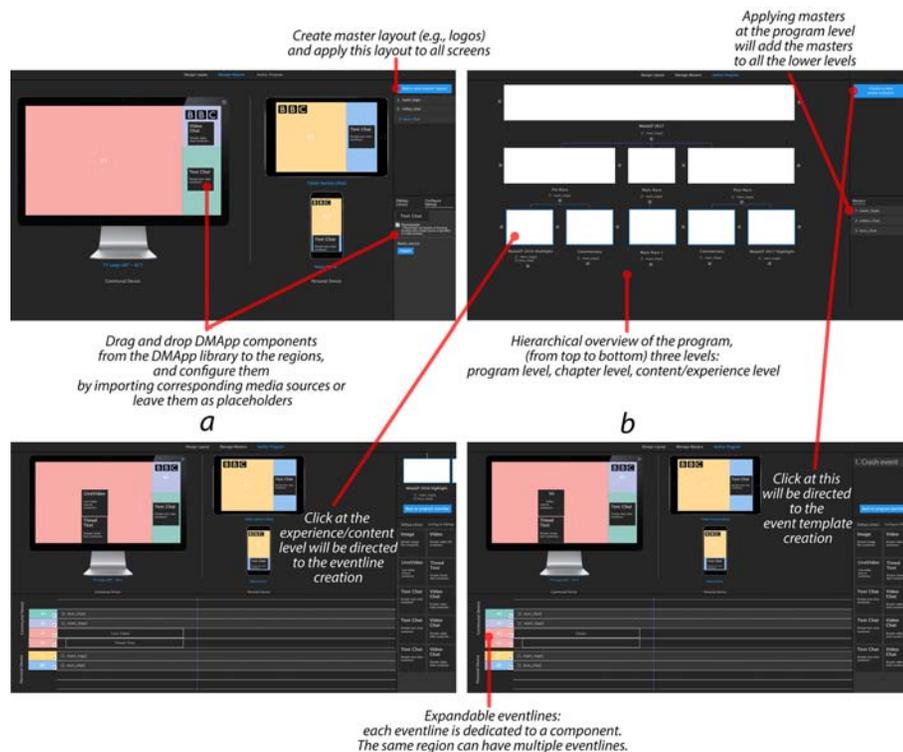


Figure 6: The eventline and event templates creation: (a) Create master layout, (b) Hierarchical overview of the program, (c) Create and edit content at the experience level, and (d) Create and edit content for live events.

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