Unattended Digital Libraries

by

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Abstract

Unattended Digital Libraries investigates the best use for unattended presentations as used in museums and libraries. The objective is to find out how much text and images and for how long any slide of content will capture the attention of a potential viewer. A subset of a digital library, namely the Online Bleek and Lloyd collection, was used in various slideshows and reviewed by users. The results show that users prefer to read less than ten words on any screen and the screen usually catches their attention for roughly 2 minutes.

1. Introduction

With the advent of technology, museums have made use of screens and websites to digitally display archived data adding an extra dimension to the visitors experience. However, at times when a visitor is not directly interacting with a screen, often only a menu is available for display. (Perrot, 1993)

The focus of this study is to find out what users would prefer to see on such screens, and how we could make better use of these screens during periods of inactivity.

With the introduction of new technology and applications into museums, the question arises: "What is the best use of the museum screens when a visitor is not directly interacting with one?" The aim was to find out how the viewers of the screen would prefer content displayed in a demonstration mode. The aspects taken into consideration were the image-to-words ratio (that is, how many words on screen per image at any given time), the speed of transitions between different content, and the overall period of time of a particular set of content. The author hypothesized that users would prefer a large image-to-words ratio (that is, not many words to read to describe any given image) and transitions of not more than 10 seconds. An overall length of 2 minutes would be found to be an ideal time before moving onto the next exhibit in the museum. (Demski, 2009)

2. Methodology

To test the hypothesis, a web based slideshow was created. At any given time, the slideshow displayed a single image from the Bleek & Lloyd Collection along with a matching description. (Bleek & Lloyd, 2013) The system was designed to be able to handle various scenarios. The number of images per show, time intervals per slide, as well as the amount of text per slide could all be altered as variables to the system. A group of 12 users were then asked to assess the system. They were shown 3 different sets of varying slideshows. For each set the number of images per slideshow was kept constant at 10 images. Set 1 displayed the images at 3 second intervals, with an average of 2.55 words per image amounting to a total slideshow time of 30 seconds. Set 2 displayed the images at 6 second intervals, with an average of 8.9 words per image amounting to a total time of 1 minute. Set 3 displayed images at 15 second time intervals and lengthy text descriptions averaging 40.46 words per image amounting to a total show time of 2 minutes and 30 seconds. Upon viewing each set, the users were asked to complete a questionnaire sharing their preferences.

3. Results

3.1 Amount of text per slide

The users were asked to grade each slideshow according to the following statements:

1 Too little text, not very informative.
2 Not too much text, but an acceptable amount.
3 Just the right amount of text.
4 Too much, but I still managed to read it all.
5 Too much text, making it difficult or almost impossible to read it all.

Table 1 depicts the results for the amount of reading the users preferred. While the results for Set 1 and Set 2 are very close, Set 2 with less than 10 words per slide was the preferred choice. An average rating of 2.92 achieved for Set 2 was very close to 3 ,("The right amount of text.), whereas

Set 1 achieved a rating closer to 2 at 2.48. Set 3 achieved an average rating of 4.96 (almost exactly

5 and a "Too much text" rating).

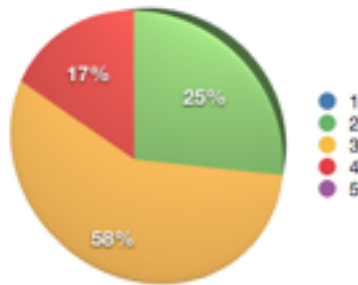Table 1 : Ratings for amount of text per slide

Set	Average Rating	Average words per slide
Set 1	2.48	< 5
Set 2	2.92	> 5 and < 10
Set 3	4.96	> 15

The following set of graphs depicted in *Graphs 1* reveal which rating the users preferred as a

percentage. Set 1 achieved reasonable results with 33% of users rating less than 5 words per slide as

"acceptable" and 42% of users rating it as "the right amount" of text. Set 2 achieved the best results

with 58% of users deeming between 5 and 10 words per slide as "the right amount" of text. Set 3 on

the other hand had 92% of users rate the amount of text per slide as a 5, "too much".
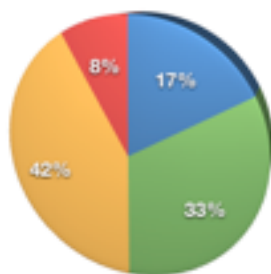
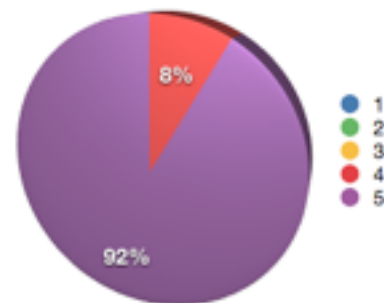Set 1   Set 2   Set 3

Graphs 1 : Amount of text per slide and their ratings as percentages

3.2 Time between slide transitions

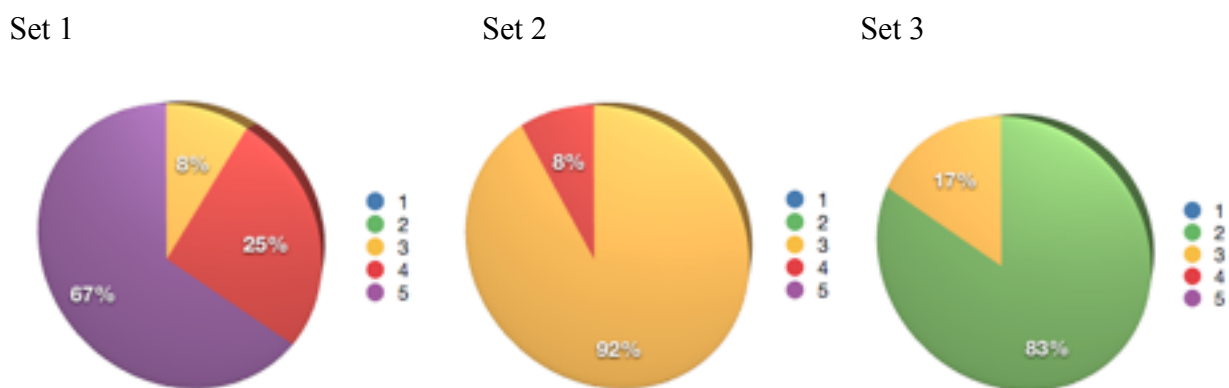The options for grading time between slide transitions were as follows:

1 Too slow, I thought the slide would never change.
2 Slow, but it gave me time to review everything on the slide.
3 Just the right amount of time.
4 Fast but I was still able to review each slide
5 Too fast, I did not have enough time to take in each slide

As indicated in *Table 2,* Set 2 achieved an average rating of only 0.08 points wayward of a rating of 3, a "right amount of time" preference rating. This means that the 6 second intervals between slides were highly rated. Set 1 and Set 3 were both off this rating by at least 0.80 points with Set 1 being rated as "slow". Users in this category did however appreciate the extra time to read all the the text on the slide. Set 3 was rated as being too fast and not allowing them the chance to read all the text on the slides.

Table 2 : Rating for time between slide transitions

Set	Average Rating	Intervals (s)
Set 1	4.56	3
Set 2	3.08	6
Set 3	2.16	15

Graphs 2 show the percentage of users who chose each rating. 67% of users felt Set 1's transitions were much too fast. An overwhelming 92% of users felt that Set 2's slide transitions were the right amount of time. The slide transitions of set 3 were found by 83% of users to be slow but bearable.

Set 1   Set 2   Set 3

Graphs 2 : Slide transitions and their ratings as percentages

3.3 Time of whole slideshow

The options for grading the time taken to display whole slideshow were as follows:

1 Too long, I thought it would never end.
2 Long, but not unbearable.
3 Just right to capture my attention.
4 A bit short, but I still enjoyed it.

5 Too short, it was over far too soon.

The total time of the slideshow ratings did not produce a clear preference such as the previous two ratings. Set 2 with a total time of 60 seconds is the closest set to achieving an average of rating of 3 ("just right"). Set 1 of 30 seconds was judged to be "short" whereas Set 3 with a time of 150 seconds was judged to be "long".
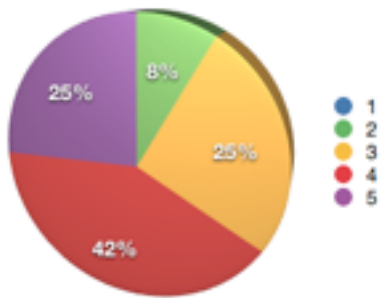
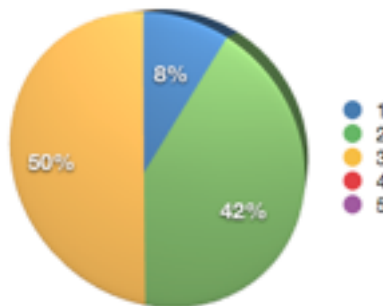Complete results are indicated in *Table 3*.

Table 3

Set	Average Rating	Slideshow Time (s)
Set 1	3.96	30
Set 2	3.44	60
Set 3	2.08	150

Graphs 3 shows a more even spread in choices among the sets, with only Set 3 having a more dominant choice whereby 64% of users thought the slideshow was too long.
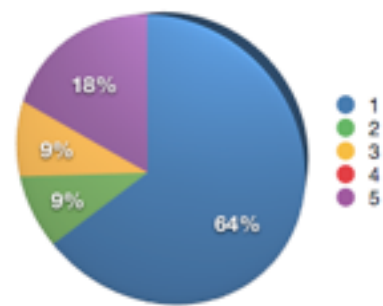
Set 1   Set 2   Set 3

Graphs 3 : Time of whole slideshows and their ratings as percentages

4. Discussion

From the results, it can be deduced that users prefer to read not more than a phrase or sentence of 10 to 15 words per slide. Set 3, whose average words per slide was greater than 15, achieved an average rating of 4.96 meaning that a large majority of users rated this slideshow as having too

much information to read per slide. Sets 1 and 2 on the other hand, with less than 5 and less than 10 words per slide averages respectively, both received preferable results.

Set 2, containing a slide transition time of 10 seconds was the overwhelming preference as it received a near perfect rating of 3.08 while the other 2 sets were largely shifted towards the two opposite ends of the scale. This indicates that users attention was easily diverted when a slide appeared for 15 seconds without changing. It also shows that users found the information difficult to follow if the transitions were performed too quickly.

In terms of the length of the slideshow, the results point to an ideal length as being somewhere in between the lengths of Set 1 and Set 3 as they were each rated 0.96 points too short and too long respectively. Set 2 received a 3.44 rating meaning the ideal time would be greater still than this set. If we agree that an ideal time length lies between Set 1 and Set 3's times then the following calculation can be done to estimate an ideal slideshow time:

(Set 1 Time (30 seconds) + Set 3 Time (150 seconds)) / 2

= 90 seconds (1 minute 30 seconds)

5. References

BLEEK & LLOYD. 2013. Digital Bleek & Lloyd Collection. http://lloydbleekcollection.cs.uct.ac.za

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PERROT, X. 1993. Applications in Museums. In Proceedings of the 2nd International Conference on Hypermedia and Interactivity in Museums, Cambridge, England, 1993.