

A Study of Labels, Groups, and Readers in an Egyptian Mummy Gallery

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Introduction

The major questions addressed in this paper were: (1) Would label reading decrease when the number of labels is increased? (2) Do groups who visit in families behave differently than groups composed of adults only? and (3) Do label readers view exhibit objects longer than nonreaders?

The relationship between number of labels and reading behavior is an important one. It seems reasonable to assume that, at some point, as labels are added to an exhibit, a saturation point will be reached such that visitor attention to labels will decrease. Evidence of label saturation would include any decrease in label reading such as number of labels read or reading time per label. A saturation-type of effect was observed by Melton (1935) when the number of paintings in a gallery was systematically increased. As the number of paintings were increased above a certain level, the viewing time per painting decreased and the total time in the gallery remained about the same. One of the purposes of the current study was to assess the effects of varying numbers of labels on visitor reading to determine if label saturation would occur.

A second purpose of this study was to systematically replicate results obtained by Bitgood and Patterson (1993) who found that visitors who read labels viewed exhibit displays longer than nonreading visitors. The fact that readers give more attention to exhibit objects is important since it demonstrates that labels do not have to conflict with viewing objects. In fact, it is very likely that well-designed labels may increase interest in objects.

The third purpose of the study was to compare adult and family group behaviors. Bitgood, Kitazawa, and Patterson (unpublished) found that adult-only groups were more likely to read labels and view text-laden exhibit objects longer than family groups. Obviously, understanding the difference between family and adult-only groups has important implications for exhibition design.

METHOD

This study was conducted in the Egyptian Mummy gallery at the Anniston Museum of Natural History. The Egyptian Mummy gallery is comprised of two mummy cases (with mummies inside), a small holder containing pamphlets

that describe the mysteries of the mummies on display, a bronze mummy bust, an X-ray display of the mummies, and six wall labels. This is the last gallery visitors encounter in their museum visit.

Before the current study began, the Egyptian mummy exhibit gallery contained six wall labels each with headings. Three labels were located on the east wall and three labels were located on the north wall of the exhibit gallery. During this experiment all labels were mounted on the north wall of the gallery. The exhibit gallery labels were systematically changed and visitor behavior was monitored during the spring and summer of 1994. During this time frame, a total of 374 visitors participated in the experiment. The three conditions were: (1) one label with heading; (2) three labels with headings (one inch apart); and (3) six labels with headings (one inch apart)

A total of six labels was used in this study. The position of each of these six labels was systematically changed and, in the case of the one- and three-label conditions, the labels on display were rotated so that both the specific label and the position of any label were varied. During the course of a recording session, the label condition was changed once every hour.

The first visitor to enter the gallery was selected and observed until he or she left the gallery; then, the next visitor to enter the gallery was selected, and so on. In addition to recording the gender, age, and group composition, the following behaviors were recorded for each visitor:

1. Time viewing the mummy cases
2. Time viewing the X-ray display
3. Time viewing the mummy bust
4. Time reading labels

Label readers were defined as visitors who stopped in front of a label and visually fixated on that label. To be identified as readers, visitors had to read at least one of the wall labels. Object viewing times were defined as stopped in front of the object and visually fixated on that object.

Data were collected by graduate and advanced undergraduate students from Jacksonville State University. Occasional interobserver reliability checks were made to ensure consistent measurement.

RESULTS AND DISCUSSION

Number of Labels

Table 1 summarizes the effects of number of labels. The percentage of readers increased as the number of labels increased. In the One-label condition 22.5% of visitors read;

in the Three-label condition, 34.4% read; and in the Six-label condition, 46.8% read. This difference was statistically significant (Chi Square = 8.67; $df = 2$; $p = .0131$).

As the number of labels was increased, the total reading time also increased [$F(df=2,59) = 23.947$; $p = .0001$]. Reading time in the One-label condition was 8.6 sec; reading time in the Three-label condition was 20.5 sec; and reading time in the Six-label condition was 42.8 sec. However, the reading time per label among these conditions did not significantly differ. Reading time per label was 8.6 sec in the One-label condition; 6.8 sec in the Three-label condition; and 7.2 sec in the Six-label condition.

Increasing the number of labels in the exhibition had the effect of increasing the number of labels read by visitors without significantly influencing the reading time per label. Apparently, label saturation does not occur in this setting when six or fewer labels are used. At this point, we do not know how many labels would be necessary to produce label saturation.

Table 1

Visitor Reading for Each Label Condition

Condition	Percent Read	Total Read Time	Reading Time Per Label
One Label	22.5%	8.6 sec	8.6 sec
Three Label	34.4%	20.5 sec	6.8 sec
Six Label	46.8%	42.8 sec	7.2 sec

Adult versus Family Groups

Figure 1 shows, for both adult and family groups, the percent of visitors who read at least one label when one, three, or six labels were placed on the wall. When all three conditions (One, Three, and Six labels) were combined, individuals from adult groups stopped to read the labels significantly more often (mean = 46.6%) than adults from family groups (mean = 31.3%) [$Chi\ Square = 8.571$; $p = .0034$].

Table 2 compares exhibit object viewing times for type of group (adult vs family) and number of labels (one, three, or six). While Mummy Case viewing times for adult vs family groups were not significantly different, viewing times at the Bronze Bust and X-ray Display for adult and family groups were significantly different [$F(1,188) = 6.178$; $p = .0138$ for Bronze Bust viewing; and $F(1,188) = 9.029$; $p = .003$ for X-ray Display viewing]. In only one case did

viewing times of exhibit objects significantly differ when one, three, or six labels were present — that is, viewing of the mummy case.

Consistent with a previous study (Bitgood, Kitazawa, and Patterson, unpublished), adult groups viewed some exhibit displays in the Mummy gallery longer than family groups. These displays were the Bronze Bust and the X-Ray, both requiring reading. There was no significant difference between adult and family groups for the Mummy Case, a display that contained no reading text. Given that adult groups read more than family groups, these results are not surprising.

Figure 1

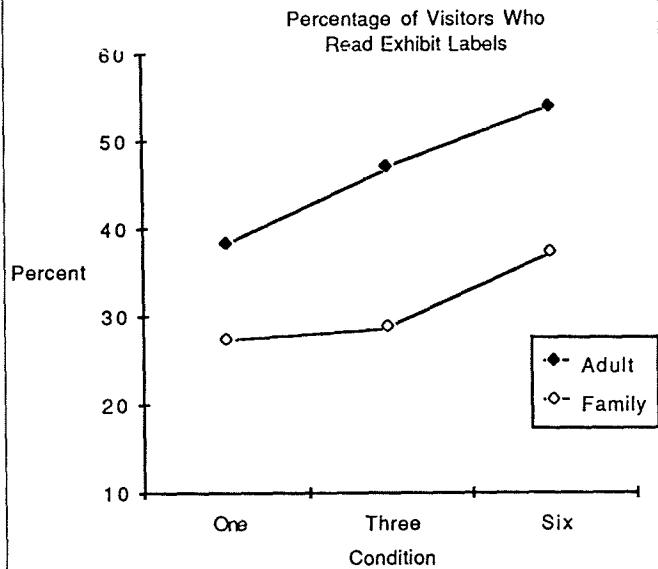


Table 2
Average Viewing Times

	Mummy Case	Bronze Bust	X-Ray Display
One Label			
Adult Group	20.7	10.0	35.3
Family Group	20.0	5.0	22.0
Three Label			
Adult Group	21.7	8.4	32.8
Family Group	21.6	6.4	17.4
Six Label			
Adult Group	37.0	14.5	39.9
Family Group	24.4	7.6	29.4

Readers versus Nonreaders

Figure 2 graphs the average object viewing time of readers and nonreaders across exhibit elements (Mummy Case, Bronze Bust, and X-Ray Display). In each case, readers spent significantly more time viewing the Mummy Case, the Bronze Bust, and the X-ray Display [$F(1,103) = 31.738$; $p < .0001$]. Viewing time for all conditions (exhibit elements and label conditions) between readers and nonreaders remained at a constant proportion as shown in Figure 3. Readers tend to spend about twice as much average time viewing exhibit objects as nonviewers whether it was viewing the Bronze Bust, X-Ray Display, or Mummy Case. These findings are consistent with those of Bitgood & Patterson (1993).

Figure 2

Viewing Times at Exhibit Displays for Readers and Nonreaders

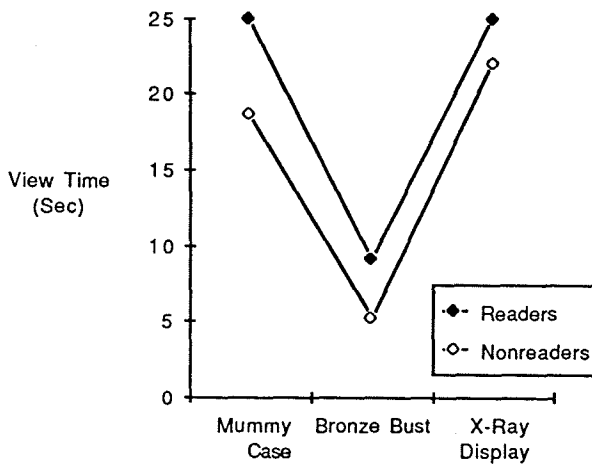
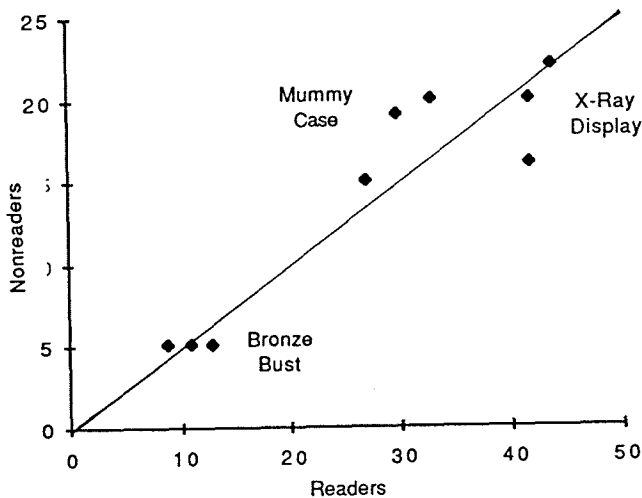


Figure 3

Viewing Time Relationship Between Label Readers and Nonreaders



General Discussion

Label saturation. No evidence of label saturation (decreasing attention with increasing number of labels) was observed in this study. Undoubtedly, more than six labels are required to produce such an effect for this particular exhibition. Further study will be necessary to determine the parameters of saturation. It is likely that factors such as number of objects and concentration of all visual stimuli play a role in saturation.

Family versus adult groups. As with previous work in the Anniston Museum of Natural History, it was found that family and adult groups have different patterns of behavior. For exhibit displays that are heavy in label text, adult groups view longer. There was no difference, however, between adult and family viewing time at the Mummy Case in which label text was absent.

Readers versus nonreaders. Visitors who read the labels tend to view exhibit objects longer than those who do not read. The viewing time relationship between readers and nonreaders appears to stay a two-to-one constant — readers view objects twice as long as nonreaders whether the object is viewed for only a few seconds or for longer time periods. It is not clear if label reading creates additional interest which translates to viewing time or if people who are more interested are the ones who read.

The study systematically replicated two previous findings (family versus adult group behavior and reader versus nonreader behavior). In addition, this study found that for the exhibition under study, six labels displayed on the gallery wall did not constitute a label-saturated exhibit environment. Further studies are planned to determine the parameters of label saturation.

References

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