The Role of Attention in Designing Effective Interpretive labels

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Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought ... it implies withdrawal from some things in order to deal effectively with others, and is a condition which has a real opposite in the confused, dazed, scatterbrained state which ... is called distraction.

[William James, 1890, p. 403]

INTRODUCTION

Purpose
Despite some cynicism among interpretive professionals, visitors will read well-designed interpretive labels. However, how the labels are designed is critical. The purpose of this article is to suggest a psychological approach using the concept of attention as the basis for designing effective interpretive labels. In addition to previous work (e.g., Bitgood, 1993; 1996), the conceptual framework proposed here incorporates a rapidly growing visitor studies literature including the excellent work of Judy Rand (1990), Chan Screven (1992), Beverly Serrell (1983;1996) and many others. Several useful guides are available for designing labels (see Rand, 1990; 1993; Screven, 1992; Serrell, 1996; Tilden, 1977). In addition, a number of research studies have examined the numerous variables that play a role in the design of interpretive labels (for summaries, see Screven, 1992; Shettel, 1968; Serrell, 1996). One can also find a substantial amount of speculation based on research extracted from textbook typography or on the personal experience of interpretive professionals.

The current article offers a psychological framework based on the processes of attention to integrate the visitor literature on labels for any interpretive setting — be it exhibits, way-side signs, trail signs, etc. In addition to providing a framework for label design, this article reviews research studies that support the framework.

Interpretive labels: What are they and what is their role?
For purposes of this article, the term “interpretive label” is used to refer to titles, orientation/introductory labels, section or group labels (Serrell, 1996). However, much of what will be said about attention applies to noninterpretive labels as well (identification labels, wayfinding and orientation, etc.). The current analysis is most concerned with the major condition necessary for delivering the interpretive message, i.e., focused attention on the objects and labels. It is assumed that the principles of attention described below apply to objects as well as labels of all types. Thus, interpretive labels are a special case of objects in terms of the processes of attention.

The limitations of attention prevent visitors from simultaneously attending to both label and objects. When given a choice, visitors look at objects rather than read labels. Since the focus of visitor attention is primarily on three-dimensional visual experiences, this is where interpretation should start. Rarely do visitors start their viewing experience by reading text. In study after study, graphic panels not associated with some three-dimensional objects receive very little attention. Label reading cannot (and should not try to) compete with the visual experience. It follows that labels are most effective when
they complement the objects. They complement by focusing attention on important characteristics, or explaining phenomenon, or serving some other such function. Visitors generally want to know what they should look for, how to focus their attention, etc. How do you design for this complementary role of labels? Here are a few suggestions to provide visual reference to the label.

- Focus attention on important ideas or relevant features associated with the exhibit object.
- Create a symbolic dialogue between the label and the object.
- Answer the visitors’ questions first, then try to tell them what you think they should know.
- Use labels to ask what is most notable or important about the object(s).

**Importance of evaluation**

The only way to determine if interpretive labels are truly effective is through objective evaluation. Given the complexity of most interpretive, measuring the impact of interpretation on the audience is essential. Evaluation can be conducted during all phases of interpretive development (e.g., Bitgood & Loomis, 1993; Bitgood & Shettel, 1993; Screven, 1990). During the planning stage, a front-end evaluation attempts to assess the audience’s preknowledge, misconceptions, attitudes, preferences, interests, etc. During the preparation stage, ideas and media can be tested (formative evaluation) and modified to make them more effective. After installation, interpretation can be “fine-tuned” with remedial evaluation.

**What is success and how do you measure it?**

What are the criteria of label success? It is important to make a distinction between the success of overall interpretation (“The Big Picture”) and success of individual interpretive labels. The “big picture” message (“a sentence or statement — of what the exhibition is about) is of critical importance (Serrell, 1996), but should not be confused with the success of an individual label. Some individual labels may fail to deliver their message, but the “big picture” message may still be successful. The current article deals primarily with the design and ultimate success of individual labels. See Serrell (1996) for a discussion of “Big Picture” considerations.

How do you measure success? The outcome measures generally include the percentage of visitors who stop at a label (often called “attracting power”), the reading time (related to “holding power”), collateral behaviors (e.g., social interaction, pointing), and measure(s) of knowledge gain, memory, reasoning, and/or attitudes (“communication power”). (For further discussion of these measures see Screven, 1990; Serrell, 1996; and Shettel, 1968.)

**THE CONCEPTUAL FRAMEWORK**

The basic assumption underlying this framework is that the processes of attention play a vital role in the design of interpretive labels. All major textbooks in cognitive psychology include a chapter on attention (e.g., Best, 1999; Reed, 2000; Reisberg, 1997; Solso, 1998). While there is considerable disagreement on what these processes of attention are, there seems to be general agreement on at least three of its characteristics. First, attention is selective – when we focus attention on one thing, we tend to ignore others. Think of attention as a spotlight that selectively focuses on one thing at a time (Johnson & Dark, 1986). In some cases we can divide attention, but it is difficult except under very specific conditions. Second, attention has focusing power. If highly motivated, we can focus our attention on something with considerable concentration. The degree of concentration is related to the level of motivation (Easterbrooke, 1959).
Third, the *capacity of attention is limited* (Kahneman (1973). There is only so much of this cognitive resource available and it dissipates with time and effort. The more time passed and effort expended, the less attention available.

**THE PRINCIPLE OF SELECTIVITY**

Attention is selective in the sense that some things capture our attention while others do not, and in the sense that we can attend (generally) to only one thing at a time. The question for label design is: What factors in the interpretive setting are involved in the process of selective attention? If we can attend to only one thing at a time, what will it be? Capturing visitor attention is the first step in the interpretive process. Visitors must first pay attention to a label before it has any chance of delivering an interpretive message.

Two obvious factors in capturing attention are the salience or distinctiveness of the label and the traffic flow patterns in the environment. The more salient the label, the more likely it will be noticed. Traffic flow also influences whether a label will be detected: labels in locations along the pathway taken by visitors have a higher chance of being seen than those not in the path.

**Stimulus salience (distinctiveness)**

Below are some of the major factors that influence visitor attention in terms of detecting labels. Note that all of these factors are related to the distinctiveness of the label.

- **Isolation.** An object and its interpretive label isolated from other objects is likely to get the undivided attention of visitors (e.g., Melton, 1935; 1972). The greater the number of stimuli surrounding a label, the less likely it will be noticed, especially if the label lacks other salient factors.
- **Size (point size and label background size).** Larger point size and label background increase the attention-getting power of an interpretive label (Bitgood & Patterson, 1993). Of course, this is true only up to a point. Appropriate scaling must be considered.
- **Contrast with setting background.** An interpretive label that blends into the background may be ignored because it lacks attention-getting power. In the parlance of signal detection theory, background “noise” makes it more difficult to detect a stimulus.
- **Multi-sensory characteristics.** Adding sound, or smell, or touch to an interpretive label may attract a higher level of attention. However, a nonvisual stimulus could also compete with the label if not carefully designed to be complementary.
- **Lighting.** The overall level of lighting is, of course, important in determining whether or not a label will be noticed. In addition, the contrast in lighting between a label and its surrounding produced by spot lighting is another way to make a label more detectable. (Lighting contrast could be considered a special case of “contrast with setting background” discussed above.)
- **Line-of-sight placement.** A label that falls easily within a viewer’s line of sight is easier to detect. One consideration is the distance from the floor — labels placed more than six or seven feet above the floor often go unnoticed because people tend not to look up (Bitgood, Benefield, & Patterson, 1990; Bitgood, Conroy, Pierce, Patterson, & Boyd, 1989). Another consideration is where visitor attention usually is focused — on the object. If the label is not close to the object it describes, it is unlikely to be noticed (Bitgood, et al, 1990).

**Circulation/traffic flow**

Many labels are missed because of the traffic flow. If visitors do not pass by a label they will obviously not give it attention. Consequently, understanding how visitors move through interpretive spaces is important. Several circulation factors (assumed to be
in the order of importance in the list below) seem to determine whether or not visitors will pass by the labels, giving them at least a chance of receiving attention...

- **Attraction of a salient object.** A large object (such as an exhibit display) will influence the traffic flow by creating a tendency for visitors to move toward or approach after entering the environment (Bitgood, et al, 1991). Landmark objects influence pathway which in turn influences whether or not other objects receive attention. For example, visitors are likely to bypass and consequently ignore a less salient object in order to approach and view a more salient one.

- **Attraction (or distraction) of an open door.** Melton (1935) reported that there was a strong tendency for visitors entering a gallery to move along the right-hand wall and exit by the first open door. When the door was closed so that visitors had to exit by the same door as they entered, visitors circulated more completely through the gallery giving attention to more objects on exhibit.

- **Arrangement of objects/displays.** The arrangement of objects within the environment determine how people will move through the environment (e.g., Bitgood, Hines, Hamberger, & Ford, 1992). In every exhibit space, there are “hot” and “cold” spots of visitor attention which are at least partially influenced by the circulation patterns of visitors. A myriad of exhibit islands creates a chaotic traffic flow in which some displays receive a high level of attention, and others receive a low level. When the flow is chaotic, visitors are more likely to miss a display unintentionally. If there is a clear pathway or order of viewing displays, each object is more likely to get attention.

- **Inertia.** Visitors tend to continue along a straight-line path unless some force (e.g., landmark exhibit object) pulls them away. Melton’s (1935) proposed “exit gradient” is a special case. Melton defined “exit gradient” as the tendency to take the shortest distance between the entrance and exit when moving through a gallery.

- **Right-turn bias.** In the absence of other forces (see above), visitors have a tendency to turn right when entering an interpretive space (e.g., Melton, 1935).

**MOTIVATED FOCUSING**

The second principle of attention is that focused attention requires motivation. Motivating visitors to focus on labels and objects is the most challenging task in interpretation. Rand (1990) has suggested some intriguing ideas on how to “hook” readers with the use of language. Screven (1992) has identified many of the variables that seem to increase visitors’ motivation to read labels. Motivating interest results in focused visitor attention on the interpretation.

There appears to be three general factors involved in motivating visitors to focus their attention on labels: (1) minimize the perceived effort to read; (2) increase cognitive-emotional arousal (provoke interest in the subject matter if it is not already there); and (3) minimize distracting factors.

**Minimize perceived effort**

In terms of the processes of attention, mental effort may do two things: (1) it decreases motivation to attention; and (2) it depletes the “power supply” or capacity to attend over time. The first of these will be discussed here, and the latter (depletion of the “power supply”) will be discussed later. By reducing mental effort, more cognitive resources for attending to interpretation are available and presumably, will increase motivation to focus.

- **Number of words per chunk.** Bitgood and Patterson (1993) demonstrated that breaking down a long label into three smaller ones (chunks), resulted in increased reading.
**Proximity of label to object.** The least amount of effort in label reading occurs when a visitor can look at the exhibit object and read a label at the same time. Thus, placing a label on a railing in front of the object viewed is more effective than on the side of the exhibit or away from the exhibit (e.g., Bitgood, Benefield, & Patterson, 1990). Placement closer to the exhibit object is apparently important in a recessed exhibit display as well (Bitgood, Campbell, Desmidt, Gunnip, Hawerott, & Johanessen, 1992). There is a common approach to interpretation (especially in natural history museum and naturalistic zoo exhibits) that places interpretive labels away from the naturalistic exhibits. The assumption is that the immersion experience will be compromised by the presence of text which is unnatural to the setting. Instead, interpretative labels are often placed in a central area away from the exhibit. Evaluations of such exhibits suggest that this is a mistake if one wants to motivate visitors to read labels.

**Ease of cognitive processing.** Visitor are more likely to read if information is arranged in a manner that minimized effort. One way to accomplish this is to bullet a list of items rather than embedding them in a paragraph format. Another way to decrease cognitive processing is to provide small chunks of text close to a visual image on a diagram/illustration/graphic.

**Figure-ground contrast.** Figure is the form that must be distinguished from the background. The greater the contrast, the easier the perceptual effort. Not only is it easier to attract attention with high figure-ground contrast, but it is easier to read text when the letters and the background have high contrast (Bitgood, 1989).

**Sensory overload (density of labels/objects).** The greater the number of labels in an area, the less attention any one label is likely to receive. While this relates to attention, it may also relate to perceived effort. That is, an overabundance of text in any form (number of words per label or number of labels) may be perceived as too much work.

**Increase cognitive-emotional arousal (by provoking interest, thought, etc.)**

One of the more difficult tasks that interpretive labels attempt to accomplish is provoke interest and/or thought in the visitor. Once stimulated, visitors become more “mindful” and are more willing to read and think about the exhibit content. Thus, increasing cognitive-emotional arousal motivates focusing on interpretive objects. Provoking interest may also be a way to renew the resources of attention (see principle #3, capacity of attention).

Below are brief descriptions of and the evidence for many of the variables that seem to motivate label reading.

**Asking questions.** Among others, Rand (1990) has suggested that labels should ask questions rather than just tell the facts (e.g., “Which jaws could crush a crab?”). Several studies suggest that labels that ask questions can be effective at provoking label reading (Hirshi & Screven, 1988; Litwak, 1996). The content of the question is likely to be critical. If the question raises issues/information that are not interesting to visitors, it is not likely to be motivating.

**Confront and correct misconceptions.** Once a misconception about a subject has been identified by a visitor study during the planning stage (front-end survey), directly confronting this misconception may provoke greater interest. Rand (1990) provides an example: “They may look empty, but mudflats crawl with life.” At present there does not appear to be any studies that have examined the effectiveness of addressing misconceptions explicitly, although Borun and her colleagues (Borun, Massey, & Lutter, 1993) have documented the difficulty in overcoming misconceptions about gravity in a series of exhibits at the Franklin Institute of Science.

**Challenge the reader.** Another difficult task is to stimulate visitors to problem solve.

“Not all fishes need a buoyancy regulator; when a wolf-eel or sculpin swims, it doesn’t go too far from the bottom. But what do you suppose happens when a wolf-eel stops swimming?” (Rand, 1990)
There is a danger in taking this approach. If the question is too difficult, the reader may lose interest and is unlikely to try additional challenges. It is also important to provide the correct answer once visitors’ interest has been stimulated.

- **Writing style.** Rand (1990) has listed a number of label objectives that translate to good writing style. These include:
  - Draw analogies (“Flatfishes are quick-change artists.”)
  - Use a reader-relevant approach to explain things (“Orca clans take care of their own.”)
  - Communicate in a conversational tone that is approachable, familiar, often humorous, but not flippant or formal (“See the rock with ruffles? That’s the hornmouth, one of the more ornamental snails”).
  - Address the reader directly (“The tentacles you see are sensitive to touch and help locate drifting algae.”)

- **Identify high interest content.** A survey during the planning stage can often identify information that is of interest to visitors (and it’s not always what the museum staff thinks visitors are interested in).

- **Mental imagery.** The use of mental imagery (Attack & Defense evaluation?). Screven (1992) described this as “encouraging visitors to fantasize or project themselves into an exhibit situation.”

- **Handouts.** Robinson (1928) used a handout giving more detailed descriptions of selected paintings than found on wall labels. Those who used this handout showed decreased “museum fatigue” (i.e., increased total amount of time in museum and attention to art work).

- **Presence of 3-D objects.** Two-dimensional labels by themselves attract less attention than labels associated with three dimensional objects (e.g., Peart, 1984).

- **Format of label.** Labels can be designed using several formats (graphic panel with blocks of text, flip labels that can be raised to reveal an answer to a question or additional information, auditory labels either self-activated or visitor activated, etc.).

- **Instructions on what to look for or what to do.** Assuming visitors are at all curious about the objects they are seeing, they generally welcome information that tells them what they should look for or do.

- **Hands-on flips.** Arndt, Screven, Benusa, and Bishop (1993), in a zoo study at a lion exhibit, found that flip labels increased the percentage of visitors who stopped, viewing time, and learning. Flip labels, when carefully designed, are capable of sparking considerable curiosity.

- **Clarifying the message.** Written text can help to clarify the message. Bitgood, Cleghorn, Kota, Crawford, Patterson, and Danemeyer (1996) found a dramatic increase in attention and total time in the gallery when text was placed on life-size photos. The text clarified both what was being said and who said it in recorded voices conducted over speakers.

- **Social interaction.** Interpretive experiences are primarily social in nature. Design should consider how to motivate visitors to share information and ideas. Parents often read labels to children, and it is not uncommon for one adult to read to other adults in a group. Labels are likely to encourage social interaction if they are interesting, challenging, prompt parents to ask questions of their children, etc.
Minimize distractions

Sensory distractions such as sounds from outside the interpretive area can take attention away from labels. In one of the first studies of label reading at a zoo, my colleagues and I observed that each time the zoo train blew its whistle as it passed, visitors would stop reading labels. Once interrupted, visitors did not go back to complete reading of a label. They moved on to the next exhibit. This phenomenon was observed for almost every visitor!

- **Sounds**. Sounds of all types can distract visitors from reading. Sound bleed from other exhibits is a common distracter in museums, zoos, and science centers.
- **Competition from other exhibit elements**. Frequently, two elements of the same exhibit compete with one another for attention. An object may compete with a label, a label with another label, etc.
- **Novelty of the surroundings**. The work of John Falk and his colleagues (e.g., Balling & Falk, 1982; Falk & Balling, 1980) suggests that, at least for school groups, a novel setting distracts students from the programmed interpretation. To some extent, this may also apply to all visitors in interpretation settings. Visitors may be concerned with where to go next, etc.

Good orientation (visitor guides, direction signs, etc.) will minimize the distractions.

THE PRINCIPLE OF LIMITED CAPACITY

The third principle of attention states that the resources of attention have a limited capacity and are depleted over time with effort expended. The reserves are renewed slowly over time (e.g., with rest periods). The reserves of attention may also be more quickly renewed, by cognitive-emotional arousal such as a change to more interesting objects. Consequently, three factors are of critical importance to this principle of attention: the size of the reserve, the rate of depletion, and the rate of renewal.

Evidence for the depletion effect is provided by several studies of “museum fatigue” (Falk, Koran, Dierking, & Dreblow, 1985; Melton, 1935; Robinson, 1928; Serrell, 1998). For example, Robinson (1928) compared decreases in attention across time during visits to four museums that differed in size as well as other characteristics. He found similar decrements in attention (as measured by average viewing time per painting) at all museums. An even greater decrement in attention across viewing was found in a laboratory study in which subjects, seated at a table, were asked to view 100 prints of paintings. Subjects were allowed to view each print as long as they wanted. Dividing the viewing session into tenths, Robinson found that there was a systematic decrement from the first to the last tenth of the prints. Clearly, the decreased viewing time across art prints in this study could not be due to physical fatigue! Some type of mental satiation seems to be taking place.

**Size of reserve**

The total capacity of the attention reserve is assumed to be limited; the total capacity based on the physical energy available to the individual, condition of health, mental attitude, and so forth. Obviously, the capacity would vary for different individuals and for each individual from one time to another.

Serrell (1998) reported total viewing time measures for 110 exhibitions from museums that differed in terms of size, topic, and geographical location. For 80% of the exhibitions, the average total time of visitors was less than 20 minutes despite size of exhibition or type of museum. The mean total time for all exhibitions was 11 minutes and the median was 8 minutes (time distributions were skewed toward shorter times with few visitors spending a long time). Median stops for these exhibitions was 34% with
very few visitors stopping at more than 50% of the exhibit elements. Serrell’s data may suggest that the capacity of attention for a single, non-extraordinary exhibition is about 20 minutes.

Falk et al (1985) described a decrement in visitor attention to exhibitions across time in a study at the Florida State Museum of Natural History. These investigators monitored visitors’ attention to exhibits, to the setting, to self, and to other people throughout the visit. They found that visitors’ attention to exhibits dropped rapidly after 30-45 minutes in the museum. According to the authors, “The primary change in visitor behavior during the observations was a change form moving slowly from exhibit to exhibit and reading labels to ‘cruising’ through the halls, stopping occasionally and only very selectively” (p. 254). Since this study did not divide the visit into exhibit galleries, it is not known if there were attention decrements within each exhibit. However, in terms of the total visit, the reserves of attention appeared to have been depleted within 30 to 45 minutes for this museum.

Rate of depletion and renewal

While decrements in attention are well-documented, it is not entirely clear what mechanisms may be necessary to explain the process associated with a decrement in attention across time. At least two possibilities come to mind. First, the resources for attention could be depleted with mental and physical effort. A second possibility is that the capacity of attention remains relatively high, but some inhibitory mechanism prevents attending. For the moment, the latter explanation will be explored.

How quickly the reserves of attention are depleted is likely to be influenced by the amount of mental effort, by the number and strength of distractions (both setting and social), information overload, by physical fatigue, by time pressures, and by the rate of pacing through the exhibition (e.g., rest periods allow renewal).

Several design factors may help reduce this inevitable attention decrement:
• Design heterogeneous exhibits with varied displays rather than monotonous repetitions of similar objects laid out in a row. Displays of similar objects or animals all in a row create a rapid decrement in attention. By varying the displays in terms of content and appearance, greater interest is maintained.
• Minimize mental effort every way possible. As noted above, there are many ways to decrease the amount of mental effort required by visitors.
• Increase interest level with methods described above under “increase cognitive-emotional arousal.” Provoking interest by the methods described above should also help to hold off object satiation.

Renewal rate refers to how fast the reserves of attention are replenished. It is assumed that a recovery period will renew these resources. Thus, taking a break to have a snack or eat lunch will rejuvenate the resources of attention. Increasing cognitive-emotional arousal (stimulating interest) also acts to renew the reserves. Thus, entering a new museum gallery on a new topic (especially one that is interesting) generally results in increased attention to exhibits.

Interpretive labels come in many forms and, in the form of hand-held guides, may be used to slow down the rate of depletion of attention. Robinson (1928) reported a study (study #4) in which pamphlets were handed out as a visitor guide to art work in a small museum. Those who used the guide spent more time in the museum (28 versus 17 minutes); viewed a larger number of art works (46 versus 30), and viewed a larger percentage of the art works (25 versus 17). Those who did not use the guide showed the
usual decrement in viewing time across their visitation. Thus, the hand-held guide appeared to counteract the “fatigue” effect usually observed.

SOME IMPLICATIONS AND RELATED CONCEPTS

Re-distribution of attention

Any change to the interpretive setting creates a change in the pattern of visitor attention to the whole milieu. According to the attention framework suggested here, this redistribution is the result of a combination of moment-to-moment selectivity, motivated focusing, and depletion of the reserves of attention. In an interpretive environment dense with stimulation, the capacity of attention is likely to be depleted before all elements have received an adequate level of attention. Also, in a densely stimulating environment, only the most distinctive elements are likely to receive attention because of the selectivity principle.

Given the limitations of attention, designers are wise to plan the interpretive experiences carefully so that visitors distribute their attention to focus on important messages and objects. This is a difficult task. In addition to considering the moment-by-moment distribution of attention, the designer must, throughout the interpretive area, attempt to minimize mental demands that sap visitors of their resources for attending.

Re-distribution of attention was demonstrated in a study by Melton (1935; 1972) in which the number of art works in a museum gallery were systematically varied. Melton found a decrement in attention (as measured by average viewing time per painting) when the number of paintings in a gallery was systematically increased from 6 to 36 in increments of six. As the number of paintings in the gallery increased, the time per painting decreased. Total time in the gallery increased to a point and then stayed constant as if there was only so much time visitors were going to spend no matter how many paintings were displayed. A more detailed analysis of the distribution of attention can be found in a study by Bitgood and Patterson (1993). Their study, conducted over a two-year period, systematically varied label characteristics and locations. The study was conducted in a small Egyptian mummy gallery at the Anniston Museum of Natural History. Labels were systematically changed and a bronze bust added to the gallery during the course of the study. Each change in the gallery resulted in a re-distribution of visitor attention to all objects in the gallery. For example, when more labels were added, the percentages of stops at labels increased, but the total reading time decreased. In addition, when the percentage of label readers increased by label changes, average total time in the gallery for label readers declined suggesting that the new label readers produced by making the labels more attractive didn’t influence the overall time in the gallery of these new readers. However, when a three-dimensional object (bronze bust of a mummy) was added to the gallery, the total gallery time as well as time viewing other objects in the gallery increased.

Communicating educational messages

Focused attention is necessary, but not sufficient for the interpretive messages to be communicated. Once visitors attend to the label and are motivated to read, the final task is to ensure that the interpretive message in communicated. The critical factor here is difficulty of comprehension. Anything that makes comprehension more difficult, is going to increase mental effort, deplete the “power supply” of attention, and consequently decrease the chances of delivering interpretive messages. Note that many of the variables associated with interpretive labels seem to influence both motivation and communication. Text that is difficult to understand impedes visitor motivation to read.

Here are a few suggestions from the literature that may help to keep attention focused and facilitate the delivery of the interpretive message:
Minimize syntactic complexity. Screven (1992) described a group of variables he termed “syntactic complexity.” They include sentence length and number of sentences with phrases that lack any new information (e.g., in summary). As Rand (1990) points out: “every word counts.” It is easier to understand if short, simple sentences are used.

Reduce semantic complexity. According to Screven, semantic complexity includes: “number and level of propositions, causal structures, vague, abstract language, concept density (ratio of concrete to abstract concepts).”

Keep vocabulary simple. Difficult-to-understand vocabulary has been frequently been noted as a problem in communicating interpretive messages (Bitgood, 1989; Screven, 1992; Serrell, 1983; 1996). The best advice is to keep it simple and test any questionable words/phrases on the target audience.

Practice a good writing style. Clarity, conciseness, and simplicity is assumed to facilitate understanding of the interpretive message. In addition, Rand suggests using an active voice, vivid language, and addressing the reader directly.

Apply appropriate literary techniques. Rand (1990) has suggested drawing analogies and using a conversational tone to “hook” readers. Serrell (1996) suggests that labels tell stories. Both of these techniques, when used intelligently, are likely to increase label effectiveness.

Eliminate conflicting messages. At times what visitors see and what they read are in conflict. If a sign at a zoo exhibit implores visitors not to feed the bears, it is inconsistent for a keeper to throw an apple to the bear when the bear begs.

Visitors can more readily attend to the educational messages if the labels are designed to minimize mental effort, increase interest level, and help visitors focus their attention on easy-to-understand information.

A FINAL WORD

The cognitive processes of attention are among the most important factors in successful interpretive design. To be most effective, labels need to be designed with an understanding of these processes. Three principles of attention can go a long way in predicting success in interpretation. Although these principles (selectivity, motivated focusing, and limited capacity) provide limiting parameters to interpretation, they need not doom us to interpretive failure. By understanding how the processes of attention work, more effective interpretive experiences can be designed. This article has attempted to identify factors that are likely to produce attention, hold and focus attention, and ultimately communicate the interpretive messages. It is hoped that this will help the interpretive designer improve the effectiveness of labels.

REFERENCES


