

Science Notes

Park signs and visitor behavior: A research summary



Relying on an illustration and words, this sign is used at Sequoia and Kings Canyon national parks. Though it has not been studied, it seems to frame the injunctive-proscriptive message. Furthermore, it addresses a management issue in a setting where a high number of international visitors, including those who do not read English, are found. The author plans to study this approach.

NATIONAL PARK STAFFS RELY ON SIGNS TO inform visitors of a great variety of expected behaviors. Where park rangers or volunteers physically cannot be present to remind visitors of important rules, signs can be especially helpful. However, as any ranger will attest, signs vary in effectiveness. The reasons for this are numerous, but message content is a critical factor.

Many studies have examined the effectiveness of interventions to reduce the incidence of damage to natural and cultural resources and facilities in outdoor settings. Cialdini et al. (1990, 1991, and 2006) discuss the “Focus Theory of Normative Conduct,” which stipulates that social norms can be a powerful influence on human behavior. Normative information either describes typical human behavior (descriptive) or relates desirable behavior in a particular situation (injunctive), and is framed positively (prescriptive) or negatively (proscriptive). Table 1 presents combinations of message patterns that follow this two-by-two conceptualization of norms. These patterns have served as the basis of a series of studies investigating the effectiveness of signs in directing human behavior.

Background investigations

In 1998 my colleagues and I examined signage in park and forest settings (Winter et al. 1998). We found that the majority of signs focused on rules and regulations and related desired behavior in negative terms (injunctive-proscriptive pattern, e.g., “Don’t leave the trail”). In 2000 we reported results of surveys with professional interpreters and educators who were asked to judge the anticipated effectiveness of a variety of messages (Winter et al. 2000). The messages presented desired behaviors (injunctive) in positive or negative terms (e.g., “Protect our environment. Please extinguish your fire,” and “Don’t endanger our environment. Please don’t leave your fire burning”). The positively worded messages were viewed as the most effective.

In another study we field-tested the four message types in deterring theft of petrified wood at Petrified Forest National Park in Arizona (Cialdini et al.

2006). We placed signs displaying different messages along park trails and monitored the amount of petrified wood stolen under each condition. The control was the absence of a sign. The least theft occurred in the presence of the sign presenting desired behavior in negative terms (i.e., injunctive-proscriptive), “Please don’t remove the petrified wood in the park,” paired with an illustration of the desired behavior, in this case a photo of a person admiring petrified wood on the ground. The message associated with the most theft highlighted the unwanted behavior and was negative (i.e., descriptive-proscriptive): “Many past visitors have removed the petrified wood from the park, changing the state of the Petrified Forest.”

Sign research at Sequoia and Kings Canyon

Recently I tested similar messages, but without photographs, at Sequoia and Kings Canyon national parks (California) (Winter 2006). Again I used the two-by-two conceptualization in formulating messages (see table 1) with a control of no sign. All messages were polite, presented clearly and singularly on the sign, and expressed prohibition of off-trail hiking and a brief justification. Signs were 12 by 16 inches (30 x 41 cm), constructed of aluminum and placed on iron posts, and featured white lettering on a dark brown background. Signs were placed along trails in pairs (at two opposing points) at four locations that varied in level of use, amount of existing signs, and degree of resource hardening. Tests were conducted on weekend days in randomly assigned time blocks (see Winter 2006). The research team videotaped hikers in full view of the trail (to assuage privacy concerns), and recordings were evaluated by two independent raters and an arbitrator.

The number of people going off-trail varied significantly by experimental condition, with the greatest proportion of off-trail use occurring where there was no sign. The most effective message (5.1% left the trail) presented desired behavior in negative terms (injunctive-proscriptive message; see table 1). Least effective (18.7% left the trail) was the message describing others’ behavior in a negative way (descriptive-proscriptive; see table 1).

Table 1. Trail sign messages tested at Sequoia and Kings Canyon national parks, 2006

Message Type	Wording
Injunctive-prescriptive (i.e., desired behavior, positive)	Please stay on the established paths and trails, in order to protect the sequoias and natural vegetation in this park.
Injunctive-proscriptive (i.e., desired behavior, negative)	Please don't go off the established paths and trails, in order to protect the sequoias and natural vegetation in this park.
Descriptive-prescriptive (i.e., others' behavior, positive)	The vast majority of past visitors have stayed on the established paths and trails, helping to preserve the natural state of the sequoias and vegetation in this park.
Descriptive-proscriptive (i.e., others' behavior, negative)	Many past visitors have gone off the established paths and trails, changing the natural state of the sequoias and vegetation in this park.

Comparing just the desired-behavior messages (i.e., injunctive), it was better to tell people not to go off the trail (negative/proscriptive; 5.1% left the trail) than to stay on it (positive/prescriptive; 15.9% left the trail). Messages describing typical behavior (i.e., descriptive) revealed a different pattern: the most effective (11.8% left the trail) were positive (i.e., prescriptive) rather than negative (i.e., proscriptive; 18.7% left the trail).

Conclusion and limitations

The findings from the Petrified Forest and Sequoia/Kings Canyon studies contrast with what interpreters and educators thought would be most effective, suggesting instead the use of injunctive-proscriptive messages (i.e., desired behavior, negative wording) in signage when relaying information pertaining to desired visitor behaviors, rules, and regulations.

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Application of the findings, however, is limited. This research sought to resolve local resource management problems and did not test the influence of the messages beyond the immediate vicinity of the signs or over a longer-term park visit. Furthermore, the research focused on visitors acting out relatively simple and easily accomplished actions. Behaviors that would require more effort or for which the setting presents substantial barriers might not lead to the same outcomes.

Nevertheless, the research was carried out in park settings involving the public. The results are helpful in identifying practical management approaches in situations where individual variations in attitudes and knowledge about park management and ecology, outdoor recreation, and outdoor experience cannot easily be known or accounted for.

References

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