



Research Paper

Influence of visibility and situational threats on forest trail evaluations

Yen-Cheng Chiang^{a,*}, Jack L. Nasar^b, Chia-Chun Ko^c^a Department of Landscape Architecture, National Chiayi University, Chiayi 60004, Taiwan, ROC^b Department of City & Regional Planning, The Ohio State University, Columbus, OH, USA^c Department of Leisure and Recreation Management, National Kaohsiung University of Hospitality and Tourism, Kaohsiung, Taiwan, ROC

HIGHLIGHTS

- Assessing landscape appraisals through slide questionnaires.
- Different levels of visibility affect appraisals (fear, danger, and preference).
- Four situational concerns (from the environment, criminals, wildlife or getting lost) are influenced by exploratory characteristics and visibility in forest environments.
- The results of study presented have contributed to improved knowledge in methods to assess landscape evaluations in natural setting.

ARTICLE INFO

Article history:

Received 24 July 2012

Received in revised form 31 January 2014

Accepted 2 February 2014

Available online 14 March 2014

Keywords:

Environmental context

Environmental preference

Prospect

Fear of crime

ABSTRACT

Obstructions to vision and movement can make a place feel more menacing. They can hide a potential predator or other danger. Research found that such obstructions in natural environments increase fear and reduce preference. However, research has not paid sufficient attention to locomotive access. In addition, research indicates that depending on the context complexity and mystery may evoke positive or negative evaluations. Finally, inadequate visibility may cause situational concerns (e.g., getting lost or environmental safety concerns), which research has also not adequately addressed. Thus, the present study sought to examine the effect of visibility on situational concern, evaluation, and to clarify relationships between exploratory characteristics, visibility, situational concerns, and evaluation in forest trails. For visibility, we obtained ratings of visual and locomotive access; for situational concerns, we obtained ratings of environmental threat, criminal threat, wildlife threat, and wayfinding threat; and for evaluation, we obtained ratings of preference, danger and fear. Sixty forest trail slides photographed from the Royal National Park, Australia. 211 undergraduate students rated each environment shown as a slide on one of the eleven measured variables. The results showed that as visibility increased, situational concerns decreased, and as situational concern increased, fear and preference decreased. Aspects of nature that evoke positive responses may also evoke negative evaluations. Thus, research on positive natural experiences may benefit from considering these experiences in conjunction with negative experiences. The findings suggest that the design, planning and maintenance of trail routes should seek varied vegetation that does not block visual or locomotive access.

© 2014 Elsevier B.V. All rights reserved.

1. Introduction

People prefer natural environments to those in urban areas (Kaplan & Kaplan, 1989; Staats & Hartig, 2004), and they find natural environments as restorative from stress or attention deficit (Hartig, Evens, Jamner, Davis, & Gärling, 2003). However, natural environments can also evoke feelings of danger or fear (Bixler & Floyd, 1997; Herzog & Kutzli, 2002; van den Berg & ter Heijne,

2005), which would depress preference. Fear and depressed evaluation can relate to inadequate information from the environment to predict what is ahead. Thus, hiding places, concealment or blocked prospect evoke fear (Nasar, Fisher, & Grannis, 1993). People tend to prefer natural environments that provide sufficient information of the surroundings, such as open meadows that are encompassed by woods (Zube, Pitt, & Anderson, 1975). Research has indicated that complex or mysterious natural environments increase feelings of danger or fear (Herzog & Bryce, 2007; Herzog & Kutzli, 2002). Responses to environments also depend on the situation and the perceived compatibility of the environment with a person. For example, fear of crime is higher among women than men and higher after dark than during the day (Nasar & Fisher, 1993). However, few studies have examined situational concerns or the effect of these

* Corresponding author at: 300 Syuefu Road, Chiayi City 60004, Taiwan, ROC.

Tel.: +886 5 2717639; fax: +886 5 2717634.

E-mail addresses: ycchiang@mail.ncyu.edu.tw (Y.-C. Chiang), nasar.1@osu.edu (J.L. Nasar), ccko@mail.nkuht.edu.tw (C.-C. Ko).

concerns on evaluations from the environmental information and visibility perspectives. In the present study, we expect to find that physical structure and arrangement of an environment influence perceived situational concern, fear, danger and preference.

Fear in natural environments may relate to four perceived situations or properties of places: environmental fear, fear of crime against person, fear of wildlife, and legibility. For environmental fear, people are more likely to encounter danger in low-visibility areas with dense vegetation than in open grasslands (Schroeder & Anderson, 1984; Skår, 2010). For fear of crime against person, the woods may evoke fears of becoming a victim of physical or sexual assault, robbery, bullying, or intimidation by groups of young people in woods in urban contexts (Jorgensen & Anthopoulos, 2007; Jorgensen, Hitchmough, & Dunnett, 2007; MacNaghten & Urry, 2000; Madge, 1997). Fear of wildlife includes fears of potentially harmful predators, snakes, slugs, spiders, and insects (Arrindell, 2000; Bixler & Floyd, 1997; van den Berg & ter Heijne, 2005). For legibility, environments that lack adequate cues for orientation and wayfinding could confuse and stress people (van den Berg & ter Heijne, 2005). We refer to these four perceived properties as “situational concerns.” They refer to possible threats associated with properties of the environment. They may relate to specific events, objects, times, or characteristics of the environments. They may evoke rapid responses or involve cognitive processing (Kaplan & Kaplan, 1989; Zajonc, 1980). The degree to which environments (situations) lack legibility and offer cover for threats from the environment, offenders, and wildlife they would elicit situational concerns. Thus, for forest trails, we expect that exploratory characteristics and visibility to relate to situational concern, and environmental evaluation, such that as exploratory characteristics or visibility improve, situational concern, perceived fear and danger will increase, and preference will decrease.

Although *danger* and *fear* seem similar, their connotations differ. Danger implies a cognitive appraisal, whereas fear can be physiological, cognitive, behavioral or some combination of the three (Hugdahl, 1981). A cognitive aspect of fear is the association of feared objects with the places and situations in which they may be encountered (Bixler, Carlisle, Hammitt, & Floyd, 1994; Bixler, Floyd, & Hammitt, 1995). Additionally, unlike fear, in some situations, people may seek out perceived danger (such as a roller coaster ride), and some people may tolerate higher levels of danger than others (Andrews & Gatersleben, 2010). Thus, while most people would avoid steep cliffs, climbers may seek them out.

From an evolutionary perspective, people favor prospect and refuge, where *prospect* offers an open view that allows a person to anticipate what's ahead, and *refuge* refers to protection behind or around the person, as does a cave (Appleton, 1975). Appleton also argued that people would prefer *secondary* prospect and *secondary* refuge. These occur when a person sees a place ahead that might afford them prospect (an open view) or might afford them refuge (a place of protection). While research has found support for a preference for primary prospect and refuge (Nasar et al., 1993), it has found different results for secondary prospect and refuge. People fear and dislike hiding places ahead, which could afford an attacker or predator refuge and prospect (Fisher & Nasar, 1992; Stamps, 2005a, 2005b). People may perceive such places as affording an attacker the ability to see without being seen, while leaving them in open sight without being able to see. These qualities of places receive negative evaluations (Wang & Taylor, 2006). In sum, people tend to like prospect (open views) and dislike places of concealment ahead. This should apply to forest settings. Close foliage may hide a potential threat ahead (Woodcock, 1984), and more broadly, obstructions to vision or movement may make a forest a more threatening place. Thus, for natural elements in urban settings, Nasar and his colleagues found that people may fear and avoid places having dense vegetation that blocks their view or movement

(routes to escape) (Fisher & Nasar, 1992; Nasar & Fisher, 1993; Nasar et al., 1993; Nasar & Jones, 1997). Similar findings emerged for parks, where research found high visibility and developed park features enhanced perceived security (Schroeder & Anderson, 1984). Naturalistic woodlands may have visual impermeability (blocked visibility) from their multilayered structure and a dense edge of woodland shrubs (Jansson, Fors, Lindgren, & Wiström, 2013; Jorgensen, Hitchmough, & Calvert, 2002).

Obstructions to vision and movement can make a place feel more menacing. Theory and research has considered evaluation as it relates to visibility and locomotion in natural settings. They have different meanings (Stamps, 2005b). Visibility, also called visual access refers to the degree to which the person can see all parts of a setting without obstructions. For forest settings without pathways, it varies primarily with depth (Herzog & Kutzli, 2002). A review 53 studies (1972–2006) in Finland, Sweden and Norway of preferences for forest landscapes found that semi-open forests provide a clearer view and greater sense of safety than dense forests (Gundersen & Frivold, 2008). Locomotive access refers to the ease with which a person can move within or through a setting, or find a way to move. In natural environments, ground cover and shrubs may impede movement. Locomotive access might have as much relevance to a dangerous situation as visibility (Herzog & Kutzli, 2002; Herzog & Kropscott, 2004; Fisher & Nasar, 1992).

The present study crossed these two factors, noted by Stamps (2005b) to consider high visual and locomotive access, low visual and locomotive access, high visual and low locomotive access, and low visual and high locomotive access. Note that environments can differ in locomotive and visual access. For example, a plate glass window allows visual access but blocks locomotive access, while a field after dark may allow locomotive access but block visual access.

The study also considered two exploratory variables (Kaplan & Kaplan, 1982, 1989). From an information processing perspective, people should prefer environments that involve them and allow them to progress to making sense to them. As the involving properties invite exploration, they are called “exploratory” variables. For two-dimensional views, people should favor environments that offer complexity (for involvement) and coherence (for making sense). For three-dimensional environments arising ahead, people should prefer mystery, or the promise of new information ahead (for involvement) and legibility (for making sense). Thus, complexity and mystery are exploratory variables. Research has generally confirmed that preference increases with complexity up to a point (cf. Herzog & Kropscott, 2004; Herzog & Leverich, 2003; Kaplan, Kaplan, & Ryan, 1998; Nasar, 1994) but the findings for mystery are less consistent (Stamps, 2004). Furthermore, because mystery (in particular, the deflected vista) limits prospect and can offer concealment, it depresses preference (Herzog & Kirk, 2005; Herzog & Kropscott, 2004; Herzog & Kutzli, 2002). Research confirms that depending on the situation, mystery can increase preference or decrease it and increase perceived fear and danger (Herzog & Flynn-Smith, 2001; Herzog & Miller, 1998). Thus, for forest scenes, we expect that as complexity increases preference will increase up to a point after which perceived danger and fear may increase, depressing preference; and we expect that as mystery increases fear and danger will increase and preference will decrease.

In sum, the present study considers for forest scenes four kinds of variables: exploration variables (complexity and mystery), visibility (visual and locomotive access), situational concerns (from the environment, criminals, wildlife, or getting lost), and evaluations (preference, danger, and fear). We expect to find that:

- (1) Exploratory characteristics have positive correlations with situational concern perceived danger and fear and inverse correlations with preference;

Download English Version:

<https://daneshyari.com/en/article/7461556>

Download Persian Version:

<https://daneshyari.com/article/7461556>

[Daneshyari.com](https://daneshyari.com)