ENVIRONMENTAL COPING IN A PUBLIC SETTING

by

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Introduction

Most research in environmental psychology views the person-environment relationship as unidirectional. Studies examine the "effects of" environmental variables on people's behaviors and cognitions (environment $\longrightarrow$ person) rather than the reciprocal influences between environments and people (environment $\rightleftarrows$ person). As inspection of several environment-behavior literature reviews supports this conclusion (e.g., Altman, 1975; Baum & Epstein, 1978; Cohen, Glass, & Phillips, 1979; Cohen & Weinstein, 1981; Craik, 1973; Edney, 1974; Russell & Ward, 1982; Schmidt & Keating, 1979; Stokols, 1978). For example, Baum and Epstein's (1978) book focuses on the consequences of social and spatial density, rather than on the ways people actively manipulate their environment. Cohen and his associates (Cohen, et al., 1979; Cohen & Weinstein, 1981) are primarily concerned with the health and social effects of environmental stressors (e.g., noise, population density) on people. In addition, the majority of studies cited in Stokols' (1978) literature review demonstrate the impact of environmental conditions upon individuals. Despite the large number of studies conducted, empirical work examining the ways people attempt to change their environment when troubled by it is limited. An understanding of the ways people change their thoughts and feelings to lessen the impact of bothersome environmental events is also lacking (for exceptions, see Cohen, 1978; Lazarus, 1966; Monat, Averill, & Lazarus, 1972).

Environment-behavior researchers, however, are beginning to phrase their conceptualizations in terms of transactional models which explicitly address the reciprocal relationships among the environment, people's behaviors, and people's cognitions (Altman, 1978; Altman, Vinsel, & Brown, 1980; Geller, Winett, & Everett, 1982; Holahan, 1978, 1982; Ittleson, Proshansky, Rivlin, & Winkel, 1974; Lazarus & Cohen, 1977; Saegert, 1981; Stokols, 1978; Stokols & Shumaker, 1981). The emergence of transactional or reciprocal models in man-environment studies reflects a larger trend in psychology (Bandura, 1978; Endler & Magnusson, 1976; Lazarus & Launier, 1978; Pervin, 1968). Transactional models hold that the person is not only influenced by the social and physical environment but that the environment is influenced by the person.

The present study is in the spirit of this transactional perspective. It investigates several facets of environmental coping, defined as actions directed at reducing annoyance or stress due to environmental conditions. That people actively alter their environment, or actively manage their thoughts and feelings about experiences with their surroundings, is assumed.

Before discussing the details of the current study, a brief review of the relevant literature is necessary. There are three lines of research that provide the foundation for this investigation of environmental coping: (a) studies of clinical and/or architectural interventions designed to reduce or prevent environmental annoyance; (b) studies of the consequences of perceiving control over environmental

conditions; and (c) studies of people's spontaneous attempts to regulate, or cope with, their surroundings. A thorough examination of this literature brings to the fore the critical issues pertinent to this project.

Some empirical work has assessed the effectiveness of interventions designed to reduce or prevent environmental annoyances (i.e., environmental conditions which lead to a negative emotional state). Karlin, Katz, Epstein, and Woolfolk (1979) found that therapeutic interventions borrowed from cognitive-behavior modification, such as relaxation techniques, cognitive reappraisal of the situation, and induction of pastoral imagery, were generally effective in reducing the stress of crowding in a laboratory setting. Other investigators have demonstrated that feelings of being crowded can be prevented when personal space violations occur by distracting subjects from attributing their arousal to the presence of others (Worchel, 1978; Worchel & Teddlie, 1976). Baum and Davis (1980) prevented crowding stress among dormitory residents by partitioning the hallway on which they lived. This architectural manipulation altered group formation and social interaction patterns and thereby the experience of stress (also see Baum & Valins, 1979).

Not all studies using therapeutic or architectural interventions intended to reduce environmental annoyances have been successful. For example, Epstein, Teitelbaum, Karlin, Katz, and Aiello (1981) found distraction strategies to be relatively ineffective for reducing arousal levels and preventing bad moods among crowded laboratory subjects.

No significant differences were found between the two treatment groups (encouraged to talk with others/given a newspaper to read) and the control group (crowded—no intervention). In addition, Stokols, Smith, and Proster (1975) found that partitioning a public waiting area in a Department of Motor Vehicles office did not reduce perceived crowding. An explanation offered by the authors for the failure of the intervention was that people may have felt no control over being channeled into a maze-like partition system, and they may have experienced increased, rather than decreased, social stimulation. Perhaps one of the critical determinants of the success of an intervention rests on whether it enhances people's sense of control over their experience with the environment, a factor shown to be important in the next line of research to be addressed.

Whether or not one has or perceives control over one's experience with the environment is often critical in determining levels of stress and patterns of behavior (Averill, 1973; Baron & Rodin, 1978; Cohen & Sherrod, 1978; Lefcourt, 1973; Rodin & Baum, 1978; Seligman, 1975). Langer and Saegert (1977), for instance, found that providing subjects with preparatory information increased complex task performance and improved affective reactions in a New York City supermarket. It was proposed that this preparatory information led to cognitive control—"information that explains and validates arousal" (Langer & Saegert, 1977, p. 177)—thereby blunting aversive effects. Glass and Singer's (1972; Glass, Singer, & Friedman, 1969) work has shown that the perception of control over escape from aversive noise can

substantially reduce adverse aftereffects. Similarly, Sherrod (1974) demonstrated that tolerance-for-frustration was greater among persons who perceived that leaving a crowded setting was permitted than it was among persons not given the option to leave. In contrast to Glass et al.'s (1969) study, though, Sherrod (1974) did not find impaired task performance among persons in the no-control condition.

Other studies have examined the effects of a lack of control over social contacts resulting from a large number of people sharing common facilities (Baum, Aiello, & Calesnick, 1978), or from chronically high social density (Rodin, 1976). These studies indicate that such conditions lead to behavioral withdrawal and fewer attempts to control one's surroundings. Subjects often exhibited passivity and apathy, similar to those in learned helplessness studies (Seligman, 1975). For example, in Rodin's (1976) study, children from high-density residences did not choose to self-select candy rewards during a game as often as children from low-density homes did.

The studies discussed above demonstrate that it is sometimes possible to reduce or prevent environmental annoyances through various means imposed from without. However, none of these studies adequately address a basic issue: What do people spontaneously do to cope with a troublesome environment?

For years, psychologists have researched the coping process from a clinical perspective, investigating how people deal with intra- and interpersonal problems (e.g., Folkman & Lazarus, 1980; Lazarus, 1966, 1976). In contrast, there are few studies which examine the coping

process in the context of environmental problems. Exceptions include empirical investigations by Schmidt, Conn, and Greene (Note 1), Vinsel, Brown, Altman, and Foss (1980), and Walden, Nelson, and Smith (1981). Also, Milgram (1970) has offered some examples of coping strategies used by people in urban settings.

Schmidt et al. (Note 1) found that when apartment-dwelling students were bothered by a lack of privacy, they reported using indirect coping strategies such as leaving the setting or cognitively "tuning-out" their surroundings, rather than changing the source of the problem. In a study based upon Altman's (1975) conception of privacy regulation, Vinsel et al. (1980) found that dormitory residents who dropped out of school used fewer privacy mechanisms than did students who stayed in school. Vinsel et al.'s questionnaire contained mostly indirect coping strategies: Self ratings of privacy mechanisms were lower for dropouts than for non-droupouts. These results are thus consistent with Schmidt et al.'s (Note 1) findings in suggesting that indirect strategies are important in environmental coping.

Finally, Walden et al. (1981) found that college males reported that they tended to leave their dormitory and to devalue privacy when crowded, while females displayed the opposite pattern. Not only does this study highlight the different modes of coping responses which people may use in the context of environmental problems, but it also suggests that sex differences in affiliative tendencies may play an integral part in influencing the types of coping responses selected (cf. Epstein & Karlin, 1975; Schachter, 1959).

A coherent system of categorizing and conceptualizing the range of environmental coping responses has not been used by researchers. The adaptation/adjustment distinction, originally raised by Sonnenfeld (1966) and later discussed by Wohlwill (1970, 1974) and Bell, Fisher, and Loomis (1978), may be useful for studying environmental coping responses in day-to-day settings. For the sake of clarity, "adaptation responses" will be renamed "self-directed responses"; "adjustment responses" will be called "source-directed responses". Self-directed coping responses are defined as cognitive or behavioral attempts to change one's interpretation or experience of environmental events. Self-directed responses are passive relative to the source of annoyance; they are not directed at the source of the problem. In contrast, source-directed responses are behaviors directed at influencing or changing the source of the annoyance. It is also important to note that the environmental coping responses are directed at achieving one or more outcomes, but obtaining an intended outcome is not a defining feature of the coping response. Aside from these two types of coping responses, people may do nothing when bothered by an environmental problem; they may not attempt to effect any outcome at all. When faced with persistently uncontrollable environmental events, people may give up attempting to cope. This inactivity may be related to the development of an expectation that actions and outcomes are independent (Seligman, 1975; Peterson, 1982).

Leaving one's residence when bothered by a lack of privacy or deciding to enjoy a neighbor's blaring stereo after having been bothered

by it are examples of self-directed coping responses. Regulating one's privacy by negotiating with roommates about times during which friends may visit or asking one's neighbors to lower the volume of their party are examples of source-directed responses. Staying close to the source of the problem while attempting neither to change it nor to change one's experience with it constitutes "doing nothing".

The source-/self-directed distinction is akin to Rothbaum, Weisz, and Synder's (1982) conception of primary versus secondary control. Since source-directed responses are directed at "changing the world" (Rothbaum et al., 1982), they represent attempts at primary control. On the other hand, self-directed coping responses represent attempts to regain control over one's experience with the environment without achieving primary control. In the sense that self-directed responses are aimed toward accommodating oneself to environmental conditions, they can be conceived as attempts at secondary control or "changing the self" (Rothbaum et al., 1982).

Folkman and Lazarus' (1980) distinction between problem-focused coping and emotion-focused coping also tends to parallel the source-/self-directed and primary/secondary control distinctions. One difference exists between Folkman and Lazarus' (1980) scheme and the others: Folkman and Lazarus include some cognitive coping strategies (e.g., plan-making) in the problem-focused category, but source-directed responses are conceived as strictly behavioral.

The present study will examine peoples' use of self- and source-directed environmental coping responses in a public setting. Two

confederates will talk near a library patron who is attempting to study. The patron's behaviors will be recorded according to a scheme which will be described later. When the intrusion has ended, the subject will be asked to complete a "library research questionnaire." This questionnaire is primarily designed to measure the subject's use of cognitive coping strategies during the intrusion. Other questions will measure the perceived outcomes of coping responses and attributions about the cause of the problem. Several demographic and background information items will also be included. The observational and self-report data will both be used to address the specific hypotheses (stated later).

The present study is important for several reasons. Questions of theoretical interest to person-environment researchers can be addressed directly. For example: Do people attempt to "change the world" or "change the self" when faced with an environmental problem (Rothbaum et al., 1982)? Do people attempt to optimize their environment, bringing it into maximal concordance with their goals (cf. Stokols, 1978), or do they try to accomplish their objectives without exerting much control over the environment? What sequences of environmental coping responses do people display? What psychological factors (e.g., causal attributions made about the problem, perceptions of outcomes) influence the selection and sequencing of coping responses?

The present study is also important because it is the first to employ behavioral observations of the environmental coping responses people use. Furthermore, questionnaire data will be collected

immediately after the intrusion ends. Previous research of environmental coping has relied on retrospective self-reports (Schmidt et al., 1982; Vinsel et al., 1980; Walden et al., 1981) which may be subject to distortions and biases. The present study will circumvent most of the problems inherent in using only retrospective self-report data.

Future studies can employ the methods used here to further our understanding of environmental coping in public settings. For example, it would be interesting to note whether or not people use similar strategies and sequencing of coping responses across different classes of settings (e.g., in social versus non-social environments, where goal-directed versus nongoal-directed behavior is the norm). Investigations may also be directed toward examining the coping responses people use when they are alone versus when they are members of small groups (e.g., would a work group control events in an office setting more effectively than an individual in the same environment?). In addition, the relationship of certain personal characteristics (e.g., assertiveness, need for social approval, locus of control) to the use of effective envrionmental coping strategies could be investigated. Ultimately, studies of environmental coping should be concerned with the links between the ways individuals deal with problems they experience and the quality of their personal and social lives.

Hypotheses

The following hypotheses are proposed, and each is followed by its rationale.

Hypothesis 1. In a public setting such as a library, people will direct their environmental coping responses toward "satisficing" (i.e., feeling better and perceiving that the problem is tolerable) rather than completely removing the source of the problem (i.e., optimizing). Thus, more self-directed than source-directed coping responses will be observed and few subjects will ask the people talking to be quiet.

This hypothesis is based upon a theoretical distinction. Stokols (1978) stated that people attempt "to create environments that are maximally supportive of their goals and activities" (p. 279). If this were true, one would expect that the last coping response would completely eliminate the environmental problem (i.e., an optimizing response) particularly when this response does not require a great deal of effort. Contrary to this view, Simon (1956, 1982) has proposed that people "satisfice", or make do, when faced with several alternative courses of action.

When people are trying to engage in a goal-directed activity which requires attention—studying in the library for example—it seems likely that they will use coping strategies which allow them to continue focusing on that activity (e.g., ignoring the problem, covering their ears). In addition, people studying in the library may perceive that coping strategies which require some form of social interaction with the people talking (i.e., source-directed strategies) may result in uncontrollable, unpredictable, and distressing outcomes (e.g., a bad reaction from the talkers). Therefore, subjects in the library

setting are more likely to use self- than source-directed coping responses.

On the basis of a similar rationale, the second hypothesis is proposed as an extension of the first:

Hypothesis 2. People will use a self-directed coping response first.

Most self-directed responses do not require the person to disrupt their studying. In addition to having this quality, however, all self-directed responses involve the subject's manipulating a known quantity: himself or herself. The possible consequences of self-directed coping responses are likely to be seen by the subject as more predictable and controllable than the potential consequences of dealing with strangers who are talking. If people are motivated to maintain the perception of control, as some researchers have suggested (cf. Baron & Rodin, 1978; Rothbaum et al., 1982), then subjects should choose a coping response first which is perceived as leading to the most controllable and predictable consequence possible. In this sense, the first coping response should represent the subjects' "best attempt" to regain or maintain some form of control. (See Averill (1973) and Rothbaum et al. (1982) for discussions of several forms of control.)

Hypothesis 3. Actions directed toward the source of the problem will not be used until self-directed responses have proven unsuccessful.

Once the person has found that he or she can no longer concentrate on his or her studies while using self-directed responses, a

switch in coping strategy will be necessary if his or her goal-directed behavior (i.e., studying) is to continue. Thus, the subject will attempt to directly influence the talkers' behavior.

Hypothesis 4. The choice of the initial response—self-directed coping, source-directed coping, or doing nothing—will be influenced by the attribution made about the major cause of the problem.

Specifically, attributions to external social causes (i.e., other people) are more likely to be associated with source-directed responses than are attributions to physical conditions (i.e., non-social circumstances such as architectural features of the library or a lack of institutional regulations; cf. Baron & Rodin, 1978). This prediction follows from the notion that other people's behavior is seen as more easily changed than the physical environment (Baron & Rodin, 1978). The furniture and architectural features in the library are not easily manipulable, so this assumption seems reasonable in the present study. Glass and Singer's (1972) work on reactions to bureaucratic "hassles" provides additional justification for this hypothesis: Subjects who attributed harassment to an obstinate clerk (i.e., another person) displayed reactance on later tasks. Subjects who attributed bureaucratic harassment to institutional regulations (i.e., non-social circumstances) complied with later requests.

Internal attributions such as seeing one's behavior or character as the cause of the problem will not be associated with source-directed responses. More precisely, attributions citing one's behavior as the cause of the problem (internal-behavioral attributions) will be linked

with self-directed responses. An example of an internal-behavioral attribution would be the subject saying: "I came to the library at a bad time." Attributions blaming one's character for the problems (internal-dispositional attributions) will be associated with doing nothing (helplessness responses; cf. Peterson, Schwartz, & Seligman, 1981). Internal-dispositional attributions involve citing one's character as the source of the problem (e.g., "I'm the type of person who always puts himself into crummy situations.")

Method

Subjects and Selection Criteria

Thirty student-patrons of the Carol E. Newman Library at the Virginia Polytechnic Institute and State University served as observed subjects (see Table 1 for descriptive data on the sample). Ten subjects who met the selection criteria stated below were nonsystematically assigned to each of the three experimental groups: (a) 10 minute baseline/5 minute intrusion; (b) 5 minute baseline/ 10 minute intrusion; or (c) 15 minute baseline/no intrusion. The first person encountered on each floor who met the following criteria became an observation subject. (a) the person had to be sitting in a study carrel in the new section of the library, along an aisle, near the perimeter of the "curved shape"; (b) the person had to be sitting alone—no one could be sitting next to the person or in the carrel in front of him or her; (c) the person's face and body had to be visible from the observer's position (see procedure section below); and (d) the person could not be known to any member of the experimental team.

In addition to the 30 subjects who were observed, 30 other people were recruited to complete the "library use questionnaire" (described later). One person sitting several study carrels away from each observed subject was given the questionnaire.

Description of the Environment

The Carol E. Newman Library is the main library on the Virginia Polytechnic Institute and State University campus. Data were collected in the new wing of the building on the second, third, and fourth floors

Table 1

Descriptive Data on Observation Groups

Group	$\bar{X}$ Age	% Male	% Female	Average Length of Visit	Average No. Visits per Week	Average No. Hours per Week
10 minute baseline/ 5 minute intrusion	20.7	70	30	2.33	3.28	8.20
5 minute baseline/ 10 minute intrusion	21.2	70	30	3.03	3.44	10.75
15 minute baseline	22.1	70	30	3.05	2.94	9.22

Note.—Data were compiled from questionnaire responses. Age is reported in years. Average length of visit is reported in hours.

along the curved, outer perimeter of each floor. The floor plan and furniture arrangement on each of these floors are nearly identical. Most of the subjects were seated in 4-seat study carrels along the outer perimeter; the remaining subjects were seated in either 2- or 6-seat study carrels nearby.

Previous research indicated that the study carrels in this area receive proportionately more use than any other funiture type in the library (Schneekloth, Holtzman, Karnas, Greene, & Conn, Note 2). All subjects were seated in upholstered wood-framed chairs not attached to the carrels.

Data Collection

All data were collected on Mondays and Wednesdays between 10:00 a.m.-12:00 noon and 1:00-3:00 p.m. during the 4th, 5th, 6th, and 7th weeks of the winter 1983 quarter. These days and times were chosen for data collection to minimize the potential effects of varying background attendance levels on subjects' behavior. Previous research has shown that attendance levels during these times of day are comparable (Schneekloth et al., Note 2).

Instruments

Aristo Apollo hand-held stopwatches, calibrated to one-fifth of a second, were used to keep time. Observational data were recorded on sheets with a column designated for each of the nine behaviors and a row for each of the 30 second intervals.

Measures

Behaviors observed. The occurrences of nine behaviors, conceptualized as either source-directed or self-directed, were recorded (see Table 2 for definitions of the coping behaviors).

Library use questionnaire. This questionnaire contained items regarding the patron's use of the library, complaints about the library, demographic information, and several items designed to measure perceptions of coping responses and their outcomes. The primary purpose of this questionnaire were to provide information about subjects' cognitive coping strategies and to compare actual versus perceived coping (see Appendix A for a copy of the questionnaire used).

Experimental Team

On intrusion trials the field-experimental team consisted of one male conversationalist, one female conversationalist, an observer, a second observer on 30% of the trials (6 trials) for the purpose of interrater agreement checks, and a person who distributed the questionnaires after the intrusion. This five person team conducted six practice trials before the collection of data began. During these practice trials, the team focused on coordinating their timing. To check whether they were using the same criteria for recording, the two observers reviewed the behaviors noted after each trial. On the no-intrusion/control trials there was one observer and a questionnaire distributor.

Table 2

Definitions of the Nine Environmental

Coping Behaviors Observed

Self-Directed Coping Behaviors

1. Leaving without belongings—the subject got up and moved away from the study carrel but at least some of his or her personal effects (e.g., jacket, notebooks, papers, etc.) were left behind.

2. Leaving with belongings—same as above except the subject took all of his or her personal effects.

3. Leaning into carrel—the subject leanded at least 20° into the carrel from an original position of 90° or less.

4. Covering—the subject emitted any behavior such as cupping his or her hands over his or her eyes, ears, etc.

Source-Directed Coping Behaviors

1. Only staring at talkers—the subject looked at one or both of the conversationalists for 2 seconds or longer.

2. Staring while vocalizing—the subject looked at one or both of the conversationalists for 2 seconds or more and made sounds such as clearing his or her throat, mumbling, loud sighing, etc. This behavior is distinct from a direct request, where the subject said something intelligible to the conversationalists.

3. Vocalizing without looking—the subject made vocal sounds, other than talking, while not looking at the conversationalists.

4. Direct request—the subject asked one or both of the conversationalists to stop talking.

5. Tapping/rapping of objects—the subject made a loud noise by tapping a pen, tapping his or her feet, etc., for 3 seconds or longer.

Procedure

When a suitable subject was found (see selection criteria above), the observer positioned himself where he could see the subject's face and body clearly, yet not be so close as to be intrusive. On each trial, the observer was stationed between 4.6 and 7.6 meters away from the subject. The observer pretended to be browsing in nearby stacks, studying at a table, or using citation indices at a counter. One of the conversationalists then sat at the study carrel in front of the subject (i.e., over the divider). Once the conversationalist was seated, the baseline observation period began. The observer recorded any of the nine behaviors which occurred from this point onward. The behaviors were recorded within intervals on the recording sheet; each interval represented 30 seconds of elapsed time. Each time a distinct behavior began it was noted. Therefore, more than one occurrence of a particular behavior could have been recorded within each 30 second interval.

On trials when interrater agreement was assessed, the second observer positioned himself in a location where he could see the subject as clearly as possible. However, there was one constraint: The observers were positioned so they could not see each other's behavior while recording data. This was done to avoid an artifactual inflation of interobserver agreement due to proximity (previous research has suggested this problem [Reid (1970); Romanczyk, Kent, Diament, & O'Leary (1973)]). In addition, observers were less conspicuous when separate. When the baseline period began, one observer gave the other a

prearranged signal, such as a nod while peering between bookshelves or a series of coughs. Each observer had a stopwatch to use in keeping track of the 30 second intervals.

Approximately 2 minutes before the intrusion period began, the second conversationalist "happened" to be browsing in the stacks near the observer. Ten seconds before the onset of the intrusion period (either at the 4-minute 50-second or 9-minute 50-second mark), the observer gave the second conversationalist a non-verbal signal (e.g., head-scratching). The second conversationalist then ambled past the seated conversationalist, "happened" to notice him or her, and initiated a casual conversation. The conversation's general form was planned ahead of time to include several trivial topics (e.g., whether it snowed during winter vacation, friends they wanted to visit, etc.) which would not be of interest to the subject. The two conversationalists continued talking in a normal tone of voice—louder than the customary whisper used in libraries—until either the 15 minute period ended or the subject requested that they be quiet. While talking, the standing conversationalist faced the seated person from the carrel's outside divider, and he or she avoided eye contact with the subject. The only strategy the subject could use to silence the conversationalists was to ask them to be quiet.

When the 15 minute period ended the observer left the area, signaling the conversationalists that the intrusion period was over. One of the conversationalists then suggested to the other that they leave the library for a coffee break or lunch. Within a few minutes after

the conversationalists had left, the questionnaire distributor came into the area and asked the subject and one other person seated several carrels away to complete the "library use questionnaire" as part of a "library research project". A few minutes later, the questionnaires were collected. In the meantime, the observer and the two conversationalists had moved to the next floor where the entire procedure was repeated.

Trials began on either the seconf or fourth floors. If the trials began on the second floor, the sequence of movement from floor-to-floor was: 2nd, 3rd, 4th, 2nd, etc. within each session. Similarly, if the trials began on the fourth floor, the pattern was: 4th, 3rd, 2nd, 4th, etc. within each session. Therefore, no two successive trials were run on the same floor. The male and female conversationalists alternated sitting and standing from one trial to the next.

Results

Manipulation Checks

In order to assess the subjects' awareness of the conversationalists, two manipulation checks were made. The first was the number of subjects who glanced up (looked for less than 2 seconds) or stared at (looked for 2 seconds or more) the talkers during the 1-minute interval after the intrusion began. If any subject in the 15 minute baseline (i.e., control) group looked in the direction where a talker would have been during the 5-6 minute or 10-11 minute intervals, a note was made of the behavior. Therefore, it is possible to compare each of the "intrusion" groups to the control group on this behavior. Sixty percent of the subjects in the 10 minute baseline/5 minute intrusion group glanced up at the talkers in the 10-11 minute interval. In the 5 minute baseline/10 minute intrusion group, 60% of the subjects glanced up and 10% stared at the conversationalists. Twenty percent of the subjects in the 15 minute baseline group glanced up during the 5-6 minute interval and none looked up during the 10-11 minute interval. Comparing each of the intrusion groups' behavior to the control group's behavior during the appropriate intervals yields the following: both intrusion groups differ significantly from the control group (5 minute intrusion versus control, 60% versus 0%; $z = 2.927$, $p < .002$ one tailed; 10 minute intrusion versus control, 70% versus 20%, $z = 2.283$, $p < .02$ one tailed).

The second manipulation check was a question on the questionnaire that asked the subjects to indicate which one of the six possible

problems they had experienced most recently in the library (see Appendix A). Of the 18 subjects in the intrusion conditions who answered the question, 12 (67%) indicated that "people talking" had bothered them, while six (33%) indicated that they had encountered one of the other five problems. Of the 19 persons who were sitting in the same general area of the library as the intrusion subjects, yet were not the target of an intrusion, nine (47%) indicated "people talking" had been a problem for them, while 10 (53%) endorsed one of the other five problems. The data collected from control subjects (n = 19) on non-intrusion trials show a similar pattern (47% people talking, 53% other problem). A chi-square analysis using the intrusion subjects and their controls (n = 37) shows that the two groups' pattern of responses were not significantly different (X^2 = 1.403, n.s.). Possible reasons for the failure of this manipulation check will be discussed in more detail later.[1] The conversationalists' talking, for example, may not have been a potent intrusion. Since an insufficient number of intrusion-group subjects identified "people talking" as a problem, their reported coping responses were not analyzed.

Interrater Agreement

Two observers recorded intrusion subjects' behaviors on six trials (three in the 5 minute intrusion group; three in the 10 minute intrusion group). Three measures of interrater agreement were employed (cf. Bijou, Peterson, Harris, Allen, & Johnston, 1969; Hersen & Barlow, 1976): (a) agreement on the occurrence of specific behaviors; (b) agreement on the nonoccurrence of any behaviors in each 30 second

interval; and (c) agreement on the total number of behaviors observed. These indices were computed as follows:

$$\text{(a)}\quad \frac{\text{no. of agreements on the occurrence of specific behaviors}}{\text{no. of agreements + no. of disagreements}}$$

If one observer recorded a behavior in one 30 second interval and the other observer recorded the same category of behavior in the next 30 second interval, it was counted as an agreement. Doing so was justified because: (a) given the low-frequency occurrences of most behaviors, the likelihood was low that two distinct behaviors could occur in adjacent time intervals with one observer missing one, and the other observer missing the other; and (b) in instances where an observer felt the behavior occurred on the "border" of time intervals, he recorded it in one and drew a symbol in the recording sheet indicating that the behavior "bridged" the intervals.

$$\text{(b)}\quad \frac{\text{no. of 30 second intervals in which nothing was recorded by both observers}}{\text{no. of agreements + no. of disagreements}}$$

Intervals in which both observers agreed a behavior had occurred were not included when computing this index. When one observer recorded one or more behaviors in a 30 second interval, but the other observer did not, a disagreement was counted.

$$\text{(c)}\quad \frac{\text{no. of behaviors recorded by one observer (smaller no.)}}{\text{no. ob behaviors recorded by other observer (larger no.)}}$$

First, each of these indices was computed for the six subjects across behaviors; then an average for each index was computed across subjects. The average agreement on the occurrence of specific behaviors (index a) was mediocre ($\bar{X}$ = 58.3%; range 42%-100%). The average agreement on

nonoccurrence of behaviors (index b) was fair ($\bar{X}$ = 75%; range 69%-93%). The average agreement on the total number of behaviors observed (index c) was also fair ($\bar{X}$ = 75%; range 36%-100%).

These three indices of interrater agreement were also computed for each of the nine behaviors observed subject-by-subject. The averages of these indices were then computed for each behavior across subjects (see Table 3). The levels of agreement on these behaviors range from abysmal to excellent. Note, however, that most of these figures are based on low-frequency behaviors. Therefore, the observers' agreeing or disagreeing on the instance of one particular behavior could radically change the interrater agreement index obtained.

Descriptive Data on Subjects

Descriptive data were compiled on the basis of subjects' responses to questionnaire items (see Table 4). For economy of presentation, data are presented under three general groupings: (a) intrusion subjects (persons who were observed while the conversationalists talked for either 5 or 10 minutes); (b) control subjects on intrusion trials (people who were not observed yet received a questionnaire; and (c) nonintrusion trial subjects (15 minute baseline observation group and others nearby who received questionnaires). The intrusion subjects, control subjects on intrusion trials, and subjects on nonintrusion trials exhibit similar demographic profiles. The average age in each of these groups was nearly identical ($\bar{X}$ = 20.9, 21.8, and 21.3 respectively). Most subjects reported that they go to the library to study or use library materials but do not go to meet friends or socialize.

Table 3

Interrater Agreement on the Occurrences of

the Nine Coping Behaviors Observed

Index Computed	Behaviors								
	LWOB [a]	LWB	LI	CV	SO	SWV	VWOL	DR	T/R
Agreement on specific behavior	100% (n=2)	-	67% (n=4)	42% (n=4)	50% (n=3)	-	0% (n=1)	-	13% (n=2)
Agreement on nonoccurrence	99% (n=6)	100% (n=6)	90% (n=6)	95% (n=6)	98% (n=6)	100% (n=6)	99.5% (n=6)	100% (n=6)	97% (n=6)
Agreement on total no. of behaviors	100% (n=2)	-	75% (n=4)	42% (n=4)	50% (n=3)	-	0% (n=1)	-	13% (n=2)

[a]The following is a key for the column headings above:

LWOB = Leaving without belongings
LWB = Leaving with belongings
LI = Leaning In
CV = Covering
ST = Staring only
STV = Staring while vocalizing
VWOl = Vocalizing without looking
DR = Direct Request
T/R = Tapping/Rapping

Table 4

Descriptive Data:

Subjects' Questionnaire Responses

Group	$\bar{X}$ Age	% Male	% Female	No. Hours on Average Visit	Average No. Visits per Week	Average No. Hours per Week	% Study	% Use Materials	% Socialize
Observed Intrusion (n=18)	20.9	71	29	2.68	3.39	9.50	89	59	0
Unobserved Intrusion (n=20)	21.8	74	26	3.28	4.50	15.00	100	58	5
Control Trials (n=19)	21.3	58	42	2.73	3.50	10.25	95	83	6

Note.--The data were compiled on the basis of questionnaire responses.
Age is reported in years.

The average number of hours subjects in each group spend in the library per week ranges from 9.5 to 15. Furthermore, an inspection of the observation tally sheets shows that the proportion of males to females (70% to 30%) in each of the three observed groups (5 minute, 10 minute, and no intrusion) reflects the proportion in the larger sample.

Inferential Data Analyses Relevant to the Hypotheses

The data recorded by the observer who observed all 30 subjects are presented in this section. Of the subjects in the intrusion groups, 79% made a self-directed behavior as their first response following the onset of the intrusion. When this proportion is tested against a standard of 50%, the resulting difference between the proportions is statistically significant (n = 19 because one subject did not emit any of the nine coping behaviors; z = 2.64, $p < .005$ one tailed). This statistic was computed on the assumption that 50% was the correct standard for comparison; by chance the first responses could have been either a source- or self-directed response if there were no patterns to the coping behaviors.

Too few behaviors were displayed by subjects in the 5 minutes intrusion group to allow a statistical analysis of shifts from self- to source-directed coping strategies (or vice versa). In the 10 minute intrusion group, however, all 10 subjects displayed at least three behaviors in sequence. McNemar's test of the difference between correlated proportions was used to test the hypothesis that a sequential shift from self-to source-directed coping responses would be observed. This

shift was statistically significant from the first to second behavior (z = -.178, $p < .037$ one tailed). This shift, however, was not significant from the second to third behavior (z = 1.00, n.s.). Another datum is of special note: Not one person in either intrusion group made a "direct request".

For descriptive purposes, Tables 5 and 6 present the sequences of individual subjects' behaviors within the 5 minute and 10 minute intrusion periods respectively. Figures 1 and 2 display the proportion of self-directed behaviors for each serial position during the two intrusion periods within each group.

Descriptive Data on Behaviors Displayed by Subjects in the Three Observation Groups

As Tukey (1977) notes, ". . . exploratory and confirmatory [data analyses] can—and should—proceed side by side" (p. vii), particularly in new areas of inquiry where the phenomena of interest have not yet been fully delineated. Since the present study is in one of these new areas of inquiry, it is important to examine all facets of the data. This examination may reveal information which might have been overlooked if only inferential statistics had been used. By using both exploratory and confirmatory data analyses, our understanding of environmental coping may be enhanced. In this section, the patterns of behavior displayed by subjects in the 10 minute baseline/5 minute intrusion, 5 minute baseline/10 minute intrusion, and 15 minute baseline (control) groups are described.

Table 5

Sequences of Individual Subjects' Responses

Within the 5 Minute Intrusion Group

Subject Number	Ordinal Position of Response			
	1	2	3	4
1	SF	SF	SF	
2	SF	SF	SO	
3	SF	SF	SO	
4	SO	SF		
5	SO	SO	SO	
6	SF	SF		
7	SF			
8	SF	SF	SF	SF
9	SF			

Note.--SF = self-directed coping response; SO = source-directed coping response. Behaviors are displayed for only 9 of the 10 subjects in this group because one person did not emit any behaviors.

Table 6

Sequences of Individual Subjects' Responses

Within the 10 Minute Intrusion Group

Subject Number	Ordinal Position of Response								
	1	2	3	4	5	6	7	8	9
1	SF	SO	SO	SF					
2	SF	SF	SF	SF					
3	SF	SF	SO	SF	SO	SF	SO	SF	
4	SF	SO	SF	SO	SF				
5	SF	SF	SF	SF					
6	SF	SF	SF	SO	SF	SO	SF	SF	
7	SF	SO	SF	SF	SF				
8	SF	SO	SF	SF	SF	SF	SF	SF	SF
9	SO	SF	SF	SF					
10	SO	SO	SO	SO					

Note.--SF = self-directed coping response; SO = source-directed coping response.

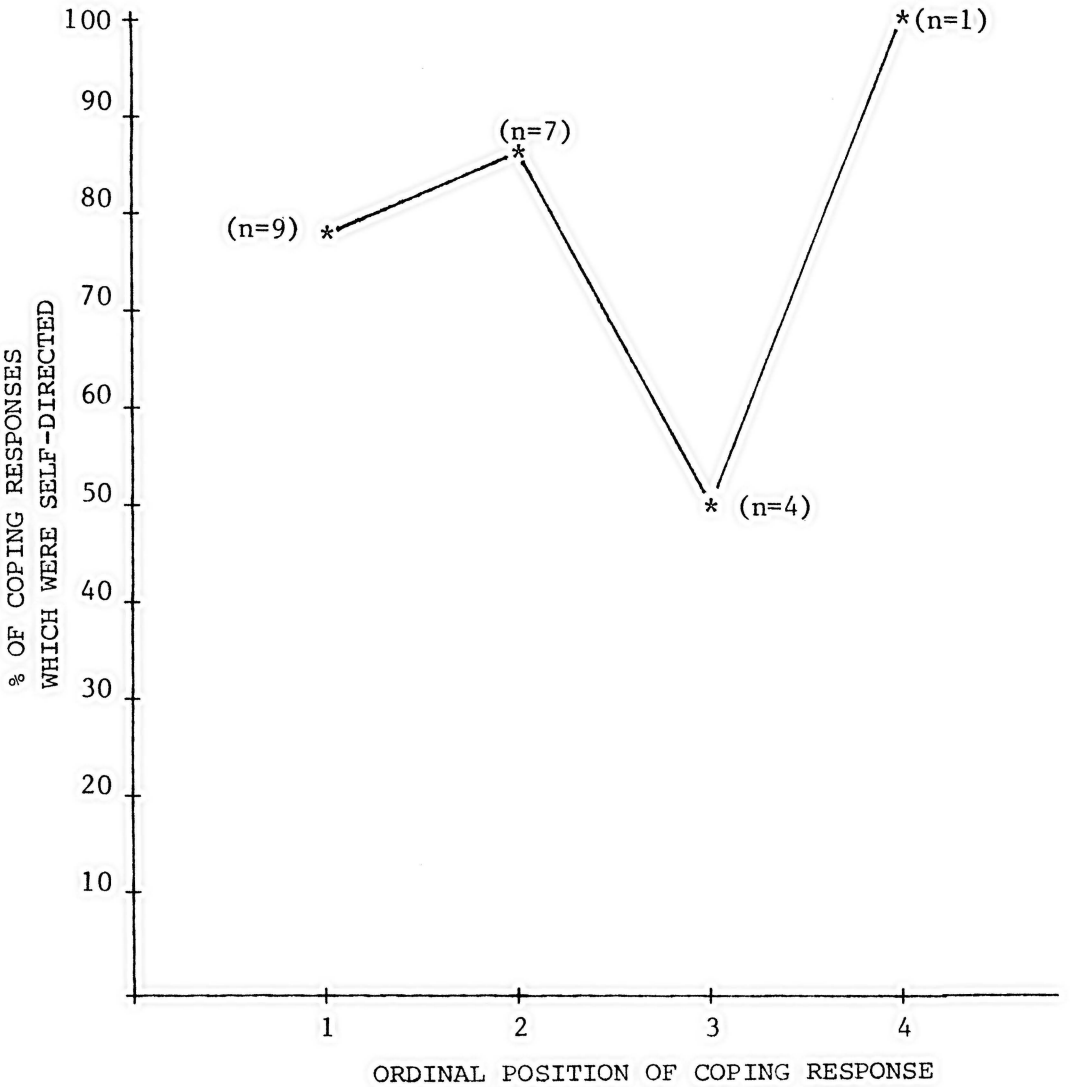

Figure 1. Proportion of coping responses which were self-directed at each sequential position: 10 minute baseline/5 minute intrusion group.

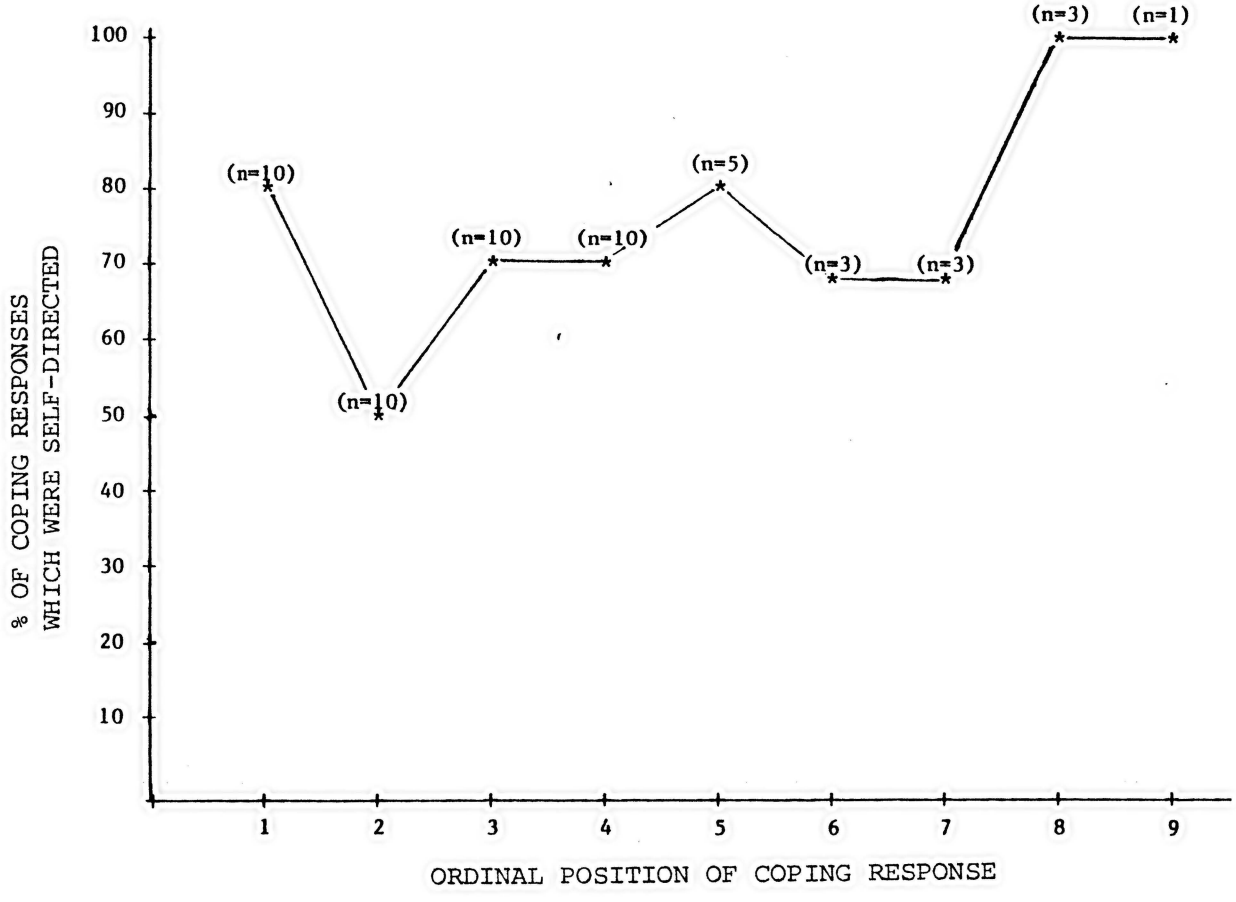

Figure 2. Proportion of coping responses which were self-directed at each sequential position: 5 minute baseline/10 minute intrusion group.

Tables 7, 8, and 9 present the minute-by-minute record of the nine behaviors observed for the 10 minute baseline/5 minute intrusion, 5 minute baseline/10 minute intrusion, and 15 minute baseline (control) groups respectively. For the most part, source-directed behaviors were not displayed by subjects in either "intrusion" group until after the conversationalists began talking. (Note that these behaviors would have been recorded if they occurred during the baseline periods.) The 15 minute baseline group did not evidence any source-directed behaviors. The pattern for self-directed behaviors was not as clear-cut. "Leaning-in" and "covering" behaviors were emitted throughout the 15 minute observation period by all three groups. Subjects in the two intrusion groups who got up and left did so after the conversationalists began talking, but a similar number of subjects left during the control group observations. Table 10 presents the data in a different form. The average number of each of the behaviors emitted per minute during the baseline and intrusion periods are reported for the intrusion groups. Comparable figures for the control group are also given.

Table 7

Minute-by-Minute Record of the Number of Coping Behaviors Observed:

10 Minute Baseline/5 Minute Intrusion Group

Time Interval by Minute	Behaviors								
	LWOB[a]	LWB	LI	CV	ST	STV	VWOL	DR	T/R
1	-	-	1	-	-	-	-	-	-
2	-	-	2	-	-	-	-	-	-
3	-	-	1	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-
5	-	-	3	1	-	-	-	-	-
6	-	-	-	-	-	-	-	-	1
7	-	-	3	-	-	-	1	-	-
8	-	-	4	2	-	-	-	-	1
9	-	-	4	-	-	-	-	-	-
10	-	-	1	-	-	-	-	-	-
Intrusion**********									
11	1	-	3	-	-	-	1	-	-
12	-	1	2	-	-	-	-	-	-
13	-	-	3	1	2	-	1	-	1
14	-	-	2	-	2	-	-	-	-
15	-	-	2	1	-	-	-	-	-

[a]The following is a key for the column headings above:

LWOB = Leaving without belongings
LWB = Leaving with belongings
LI = Leaning in
CV = Covering
ST = Staring only
STV = Staring while vocalizing
VWOL = Vocalizing without looking
DR = Direct request
T/R = Tapping/rapping

Table 8

Minute-by-Minute Record of the Number of Coping Behaviors Observed:

5 Minute Baseline/10 Minute Intrusion Group

Time Interval by Minute	Behaviors								
	LWOB[a]	LWB	LI	CV	ST	STV	VWOL	DR	T/R
1	-	-	2	-	-	-	-	-	-
2	-	-	1	1	-	-	-	-	-
3	-	-	1	1	-	-	-	-	-
4	-	-	1	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-
Intrusion**********									
6	-	-	5	3	1	-	-	-	-
7	-	-	2	1	1	-	-	-	-
8	-	-	5	1	1	-	-	-	-
9	1	-	2	-	-	-	1	-	-
10	-	-	3	1	1	-	1	-	-
11	-	-	2	-	2	-	-	-	-
12	1	-	2	1	1	-	1	-	2
13	1	-	2	1	-	-	-	-	2
14	-	-	3	1	1	-	-	-	-
15	-	-	1	1	1	-	-	-	-

[a]The following is a key for the column headings above:

LWOB = Leaving without belongings
LWB = Leaving with belingings
LI = Leaning in
CV = Covering
ST = Staring only
STV = Staring while vocalizing
VWOL = Vocalizing without looking
DR = Direct request
T/R = Tapping/rapping

Table 9

Minute-by-Minute Record of the Number of Coping Behaviors Observed:

15 Minute Baseline/No Intrusion Group

Time Interval by Minute	LWOB[a]	LWB	LI	CV	ST	STV	VWOL	DR	T/R
1	-	-	1	-	-	-	-	-	-
2	-	-	4	1	-	-	-	-	-
3	-	-	5	-	-	-	-	-	-
4	-	-	-	1	-	-	-	-	-
5	-	-	3	2	-	-	-	-	-
6	-	-	5	-	-	-	-	-	-
7	-	-	3	-	-	-	-	-	-
8	-	-	2	1	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-
10	1	-	1	-	-	-	-	-	-
11	-	-	1	-	-	-	-	-	-
12	-	-	2	-	-	-	-	-	-
13	1	-	4	-	-	-	-	-	-
14	-	-	1	-	-	-	-	-	-
15	-	-	1	-	-	-	-	-	-

[a]The following is a key for the column headings above:

LWOB = Leaving without belongings
LWB = Leaving with belongings
LI = Leaning in
CV = Covering
ST = Staring only
STV = Staring while vocalizing
VWOL = Vocalizing without looking
DR = Direct request
T/R = Tapping/rapping

Table 10

Average Number of Behaviors Observed per Minute During Baseline and Intrusion Periods

Group and Time Interval	Behaviors								
	LWOB[a]	LWB	LI	CV	ST	STV	VWOL	DR	T/R
5 minute intrusion group/ first 10 minutes	0	0	1.9	.3	0	0	.1	0	.2
No intrusion group/ first 10 minutes	.1	0	2.4	.5	0	0	0	0	0
5 minute intrusion group/ last 5 minutes	.2	.2	2.4	.4	.8	0	.6	0	.2
No intrusion group/ last 5 minutes	.2	0	1.8	0	0	0	0	0	0
10 minute intrusion group/ first 5 minutes	0	0	1.0	.4	0	0	0	0	0
No intrusion group/ first 5 minutes	0	0	2.6	.8	0	0	0	0	0
10 minute intrusion group/ last 10 minutes	.3	0	2.7	1.0	.9	0	.3	0	.4
No intrusion group/ last 10 minutes	.2	0	2.0	.1	0	0	0	0	0

[a]The following is a key for the column headings above:

LWOB = Leaving without belongings
LWB = Leaving with belongings
LI = Leaning in
CV = Covering
ST = Staring only
STV = Staring while vocalizing
VWOL = Vocalizing without looking
DR = Direct request
T/R = Tapping/rapping

Discussion

Three topics are addressed in this section. First, the hypotheses are evaluated. Second, the methods used in this study are criticized and refinements suggested. Finally, directions in which future work can proceed are outlined.

Evaluation of Hypotheses

The first hypothesis—that people would not "optimize" their surroundings (cf. Stokols, 1978) but would attempt to "satisfice" (cf. Simon, 1956, 1982)—seems to be supported. Some subjects used source-directed coping strategies; however, no one asked the conversationalists to be quiet. If we assume that subjects came to the library to study (as the questionnaire data indicate), and that they were aware of and bothered by the intrusion (as the other behavioral data suggest), then their failure to put an end to the talking by making direct requests represents a failure to bring the environment in line with their goals (cf. Rothbaum et al., 1982). It is unfortunate that we cannot conclude that subjects felt better (an outcome of satisficing) as a result of the coping strategies they used because the self-report data on the outcomes of coping responses were lacking. In addition, it is possible that subjects would have "optimized" if the intrusion had continued for more than 10 minutes. Using a longer intrusion period in a field-experiment to address this issue, however, may raise some ethical issues (see Webb, Campbell, Schwartz, Sechrest, & Grove, 1981). Nevertheless, it is clear that optimizing is not a library patron's first response to others talking nearby.

As predicted in the second hypothesis, the inferential data analyses show that library patrons chose self-directed rather than source-directed coping behaviors first. The third hypothesis stated that a sequential shift from self-directed to source-directed coping responses would be observed. Within the 10 minute intrusion group, subjects did exhibit this shift.

When the descriptive data on behaviors displayed by subjects in the three observation groups are examined, however, these conclusions must be qualified. When the two intrusion groups' data are compared to the control (15 minute baseline) group's data, it is not clear that all of the self-directed behaviors were being used just for coping with the intrusion. For example, control subjects emitted nearly as many "leaning-in" behaviors as the 5 and 10 minute intrusion group subjects did during comparable time intervals. Furthermore, the self-report data needed to address Hypotheses 2 and 3 were lacking. Therefore, the support for Hypotheses 2 and 3 is weak at best. The fourth hypothesis—that the subject's attribution of the cause of the problem would influence his or her choice of initial coping response—could not be addressed because the questionnaire data were inadequate.[1]

On a more fundamental level, it is possible that the conversationalists' talking was not perceived as an intrusion by the subjects. Perhaps library patrons are well adapted to background noise and the presence of others (cf. Wohlwill, 1974). They may have well-developed strategies for screening out ambient sound, particularly when they frequently visit the library (see the descriptive data on hours/week

spent in the library). Their thresholds for perceiving surrounding events as problems may be quite high. Furthermore, some of the subjects may have found that eavesdropping on the conversation provided a refreshing break from boring reading. In sum, the conversationalists' talking may not have constituted a potent intrusion, which would account for the subjects' failure to endorse "people talking" as the most recent problem experienced (see results). In the absence of a perceived environmental problem the behaviors displayed may not, by definition, have been coping responses.

Critique of Methods

There are several possible reasons for the failure to obtain extensive data from the questionnaire responses. The format of the items—particularly questions regarding coping actions and their outcomes—may have been confusing to the subjects. However, similar formats had been pretested in other settings and subjects had no difficulty completing the questionnaire. Why then did library patrons fail to respond appropriately? Four possible explanations come to mind: (a) the conversationalists' talking did not bother the subjects; (b) since the subjects were in the library to study, and since they had no incentive to complete the questionnaire properly, they may have seen the "response-cost" as too high; (c) perhaps subjects in the intrusion group were displaying psychological reactance (Brehm, 1966); "hassles" atrributed to a specific person may result in the subject not complying with a later request (Glass & Singer, 1972); and (d) subjects in the intrusion groups may have been experiencing "attentional overload"

(Cohen, 1978) as a result of the conversationalists talking nearby. The distraction caused by the talking could have required subjects to marshal their attentional capacities for the purpose of studying. As a result, intrusion group subjects may have had less "energy" to expend on the questionnaire, thereby resulting in a task-deficit.

If explanation "a" or "b" were true, the intrusion- and control-group subjects would have given uniformly few responses on the questionnaire. If either explanation "c" or "d" were true, however, intrusion-group subjects would have "performed" worse on the questionnaire than control-group subjects. One way of evaluating these explanations is to examine the number of open-ended responses given by intrusion- versus control-group subjects on questions regarding coping actions and consequences (see Appendix A). No difference exists on this measure ($\bar{X}$ = 2.5 for intrusion subjects, $\bar{X}$ = 2.8 for control subjects from the same session; t (36) = .45, n.s.). Therefore, the "response-cost" or "lack of intrusion" explanations seem to be the most plausible. There is no clear way to differentiate between these two explanations in this study. Future studies of environmental coping should only attempt to use self-report data when subjects find them convenient, and when the researcher is sure that subjects are expending the effort required to respond accurately. Perhaps a shorter questionnaire format than the one used would have yielded more complete data.

Several methodological refinements of the present study can be suggested. First of all, a more potent intrusion should be used. Second, basic work is needed to establish which behaviors are being

used as coping responses by subjects. Some of the behaviors observed in this study may not have been intended as coping responses. Thus, the researcher's conceptions may not have reflected the facts-of-the-matter well. Perhaps a more adequate set of behavioral categories could be developed through pilot studies. Subjects could be asked to describe which actions they would take to cope with a given problem in a particular situation (e.g., "Others are talking in the library when you are trying to study. What would you do?"). A behavioral code for observational categories could then be developed from such data. This approach is reasonable if people are aware of their coping behaviors. Follow-up observational studies could be conducted to verify that the categories developed from subjects reports capture the range of behaviors which differ in occurrence between no-intrusion and intrusion periods.

Methodological refinements are also needed in obtaining inter-rater agreement. In the present study, the observers viewed subjects from different angles. This was done to reduce the conspicuousness of the observers and to avoid inflations in agreement due to seeing each other's scoring. However, the second observer may have missed some of the more subtle behaviors since he was in a less optimal position than the first observer. In addition, the different vantage points may have resulted in the observers using different criteria to judge whether or not a behavior had occurred. For example, when a subject leaned into his or her carrel one observer watched the person from the side. The other observer, however, was positioned slightly behind or in front of

the subject. Thus, the cues he would use to determine whether or not the person had leaned in may have differed from the first observer's.

One solution to this methodological problem is to videotape the occurrence of the same behavior from several different angles (e.g., using an actor and three videotape cameras) and then train the observers to use cues from the different viewing angles in such a way that they ultimately can agree on the occurrence of a behavior in a field setting.

A second solution to the problem is to assess the observer's capacity to agree on the occurrence of representative behaviors displayed on videotape. After a high degree of agreement is obtained, one person could collect observational data in the field setting. Thus, the problem of differing angles of sight in the field setting would not arise.

A third solution is to videotape secretly subjects' behaviors in the field setting and then have two observers independently view the tapes. This solution would eliminate the line-of-sight problem and provide a permanent record of behaviors. However, the subjects' right to privacy would have to be considered before this approach was used (see Webb et al., 1982). Since subjects could be identified on videotape—which is not true of the recording scheme used in this study—it may be important to obtain their consent to retain the tape for research purposes.

Future studies of environmental coping are faced with difficult methodological problems. Foremost among these is the assessment of

cognitive coping strategies. It may be impossible to measure these coping responses in some field settings (e.g., when follow-up reports are not avialable). Past research of spontaneous coping attempts in real-world settings (e.g., Folkman & Lazarus, 1980; Schmidt et al., Note 1; Vinsel et al., 1980; Walden et al., 1981) has relied on retrospective self-report data. None of these studies have assessed cognitive coping strategies immediately after the subject has experienced a particular problem. Thus, the data may be distorted by the subjects' ability to recall coping actions used. Furthermore, subjects may not be aware of using coping strategies such as redirecting or narrowing attention (cf. Cohen, 1978). Perhaps this latter class of cognitive strategies can only be inferred from task performance in controlled laboratory experiments (see Cohen, 1978).

An innovative method described by Meichenbaum and Butler (1980) may provide a partial solution to the problem of assessing cognitive coping strategies. During the intrusion, the subject can be videotaped. Immediately afterward, he or she can view the tape and give a running account of what he or she was thinking and feeling. This method may be useful in eliminating memory artifacts in self-reports of coping responses. In addition, the subject can specify which behaviors were intended as coping responses. Future work, however, is necessary to determine whether self-reports obtained in this way are veridical rather than distorted reconstructions (Meichenbaum & Butler, 1980; see also Nisbett & Wilson, 1977). Nevertheless, this method should prove superior to the use of questionnaires.

Future Research

Research on environmental coping is in its early stages, and there are many directions in which it can go. Before executing studies, however, researchers should consider some basic principles around which these studies could be organized. The self-versus source-directed distinction discussed earlier may be one of these useful organizing principles. It also seems important to note the situation in which the person—environment transaction is occurring, as well as the person's goals (or lack of them) when he or she encounters an environmental problem. Altman's (1975) scheme for distinguishing among types of territories (primary, secondary, and public) or Stokols' (1976) primary versus secondary environment categorization could provide another guideline for this research. Indeed, the "style" of coping a person uses in a public setting when engaged in a goal-directed activity (e.g., trying to get to work on the New York City subway system at 7:30 a.m.; cf. Milgram, 1970) may differ markedly from environmental coping strategies used in a private setting (e.g., at home when the neighbor's stereo is blaring). Not only are the problems different in these instances, but the setting and activity factors can act together to result in different coping strategies.

Empirical research of the environmental coping processes can range from laboratory analogue studies of attentional processes (cf. Cohen, 1978) to questionnaire or interview studies of naturally-occurring intrusions. For the research to yield fruitful information, it should address these central issues: What do people spontaneously

do to cope with a bothersome environment, and why do people select particular coping strategies? By keeping these questions and the guiding principles mentioned above in sight, meaningful studies of environmental coping can be conducted. For instance, the researcher can look for instances of people talking in the library and observe what others nearby do in response. After the intrusion ends (or is put to a halt by someone), the "subjects" could be interviewed to assess the cognitive coping strategies they used. Meichenbaum and Butler's (1980) method, using videotape playbacks, could be useful in this type of study. A study of peoples' response to noise in their home (a primary environment) can be conducted as follows: On Friday night the researcher can drive around a large apartment complex, making notes of places where noisy parties are occurring. The following day, other apartments in the same buildings can be visited and the occupants asked (a) if they were bothered by the clamor and (b) what they did about it. An interesting investigation of responses to unpredictable and uncontrollable noise in a natural setting can be accomplished by enlisting as subjects people who live near fire sirens or fire department buildings. Not only can environmental coping responses be examined, but the long-term health outcomes resulting from the success or failure of their coping attempts can be assessed. Similarly, the social consequences of various coping strategies used in response to unwanted contact with other people can be studied in open-plan versus traditional closed office settings.

Conclusion

To study adequately the range of environmental coping responses people use when faced with environmental problems, we must be able to measure both behavioral and cognitive actions (cf. Folkman & Lazarus, 1980; Lazarus, 1966, 1976; Meichenbaum & Butler, 1980; Rothbaum et al., 1982). It is clear that creative approaches to the study of this phenomenon need to be developed. Traditional research methods can be useful, even though they have their flaws (McGrath, Martin, & Kulka, 1982), but we will have to go beyond their capacities to study environmental coping property (cf. Proshansky, 1976). When adequate methods are employed, we can address the important theoretical issues in this area of research.

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Footnote

[1]Anecdotal reports from the people distributing the questionnaire indicated that the subjects may not have taken great care when completing the questions. Although most people complied with the request to take the questionnaire, the research assistants reported that subjects did so reluctantly. In addition, the subjects appeared to complete the questionnaires hastily. It is possible that questions which required thought and effort—the open-ended questions—may have been neglected.

APPENDIX

APPENDIX A

LIBRARY RESEARCH PROJECT QUESTIONNAIRE

Library Research Project

Consent Form

We are conducting a library research project. In this project, we are asking people about their use of the library, and about things that have bothered them in the library. In addition, we want to find out what people do about the things that bother them. We ask you to help us by completing the attached questionnaire.

Your answers are anonymous. They will never be associated with your name. You may cease participation at any time should the questions prove distressing, although we hope they will not. If you have any questions, comments, or complaints, please speak to the researcher or to one of the individuals listed below.

If you wish to participate, please sign this form,detach it from the questionnaire, and give it to the researcher.

Thank you very much.

I certify that I have read the above statement, and that I consent to participate in the research under the conditions described.

_____ _____

signature date

_____

researcher's signature

Michael Conn
Christopher Peterson x5716
Research Directors

Richard Winnett x6275
Human Subjects Committee

General Instructions. Please answer all questions as accurately and completely as possible. The answers you give are very important for furthering our understanding of the use of the library.

Library Use Patterns. Think of your use of the library when school is in session.

Approximately how many books do you check out per month?_____
How long is your average visit to the library?____hours____minutes
How many times a week do you visit the library?_____

Circle the days of the week on which you typically use the library:
Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Circle the times of day you usually use the library:
Morning Afternoon Evening(after 6 P.M.)

Do you usually come to the library to:
1) Study your own materials (e.g., notes, etc.) ____Yes____No
2) Use library materials(e.g., stacks, etc.) ____Yes____No
3) Meet friends/ Socialize ____Yes____No

Library User Complaints.
Briefly describe your one major complaint about the library:

Below we've listed six common complaints made by library users. Please circle the one which has bothered you most recently.
1) Too stuffy/ hot in study areas.
2) People talking.
3) Elevators too slow.
4) Can't find books in stacks.
5) Others smoking nearby.
6) Lighting inadequate.

How severe was this particular problem?(circle one number)

Not at all			Moderately			Extremely
1	2	3	4	5	6	7

How controllable was this problem?

Not at all			Moderately			Extremely
1	2	3	4	5	6	7

What was the one major cause of this problem? (please describe)

(Library user complaints, continued)

Please describe what you did to deal with the problem you circled.
Tell us what you did in order of occurrence.
After describing what you did, make the appropriate ratings.

---

1)_____

To what degree was the problem eliminated by this action?

not at all			tolerably			completely
1	2	3	4	5	6	7

How did you feel afterward as a result of this action?

much worse			no change			much better
1	2	3	4	5	6	7

---

2)_____

Problem eliminated?

not at all			tolerably			completely
1	2	3	4	5	6	7

Feel afterward?

much worse			no change			much better
1	2	3	4	5	6	7

---

3)_____

Problem eliminated?

not at all			tolerably			completely
1	2	3	4	5	6	7

Feel afterward?

much worse			no change			much better
1	2	3	4	5	6	7

---

4)_____

Problem eliminated?

not at all			tolerably			completely
1	2	3	4	5	6	7

Feel afterward?

much worse			no change			much better
1	2	3	4	5	6	7

(continued on next page)

5)_____

Problem eliminated?

not at all			tolerably			completely
1	2	3	4	5	6	7

Feel afterward?

much worse			no change			much better
1	2	3	4	5	6	7

If you did more than five things to deal with the problem, list them below and write down the appropriate ratings:

(questionnaire continued on next page)

Refer back to the actions you described.

What was the one major consequence of each action you took to deal with the problem?
Please decribe the consequences in order, and make the appropriate ratings.

---

1)_____

Was the consequence predictable?

extremely unpredictable			neither			extremely predictable
1	2	3	4	5	6	7

Was the consequence under your control?

extremely uncontrollable			neither			extremely controllable
1	2	3	4	5	6	7

---

2)_____

Consequence predictable?

extremely unpredictable			neither			extremely predictable
1	2	3	4	5	6	7

Consequence controllable?

extremely uncontrollabe			neither			extremely controllable
1	2	3	4	5	6	7

---

3)_____

Consequence predictable?

extremely unpredictable			neither			extremely predictable
1	2	3	4	5	6	7

Consequence controllable?

extremely uncontrollable			neither			extremely controllable
1	2	3	4	5	6	7

(continued on next page)

(consequences, continued)

4)_____

Consequence predictable?

extremely unpredictable			neither			extremely predictable
1	2	3	4	5	6	7

Consequence controllable?

extremely uncontrollable			neither			extremely controllable
1	2	3	4	5	6	7

5)_____

Consequence predictable?

extremely unpredictable			neither			extremely predictable
1	2	3	4	5	6	7

Consequence controllable?

extremely uncontrollable			neither			extremely controllable
1	2	3	4	5	6	7

If you did more than five things to deal with the problem, list their consequences below and write down the appropriate ratings:

(questionnaire continued on next page)

General Information.

How old are you?_____

Are you: ____male ____female

Please indicate your status at Va. Tech:

____undergraduate
____graduate student
____faculty
____other

Do you live:
____on campus
____off campus

(fold and tear to detach)

If you'd like to receive a brief summary of the results of our research project, delivered to you by mail, fill in the information below.

NAME_____

ADDRESS_____

TOWN_____ STATE_____

ZIP CODE_____

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ENVIRONMENTAL COPING IN A PUBLIC SETTING

by

Michael Kevin Conn

(ABSTRACT)

This study investigated several facets of the environmental coping process. Environmental coping was defined as any behavioral or cognitive attempt to reduce annoyance resulting from bothersome environmental conditions. In this study, library patrons using study carrels were observed while two people talked nearby. The library patron's behaviors in response to this event were recorded. In addition, self-report data were collected by means of follow-up questionnaires.

Drawing on the literature from areas of research such as environmental stress, the coping process, and the effects of perceived control, four hypotheses were proposed. In summary, these hypotheses proposed that people would attempt to deal with the intrusion created by others talking nearby through indirect means first, and that people would attempt to "make do" (satisfice) rather than exert control over environmental events (optimize). Due to methodological difficulties, no definite conclusions could be drawn. Suggestions for methodological refinement in this area of research were offered and conceptual issues discussed.