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Fisher, Cynthia D

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# Boredom at work: a neglected concept

Cynthia D. Fisher

*Bond University*, [cynthia\\_fisher@bond.edu.au](mailto:cynthia_fisher@bond.edu.au)

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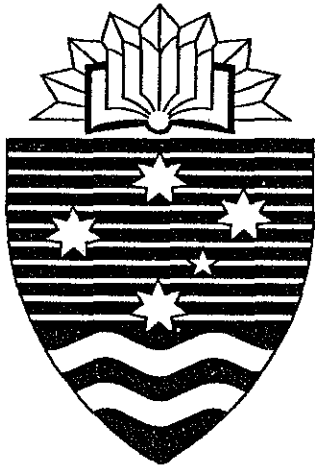
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School of Business

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PAPERS

"Boredom at Work: A Neglected Concept"

Cynthia D Fisher

DISCUSSION PAPER NO 19

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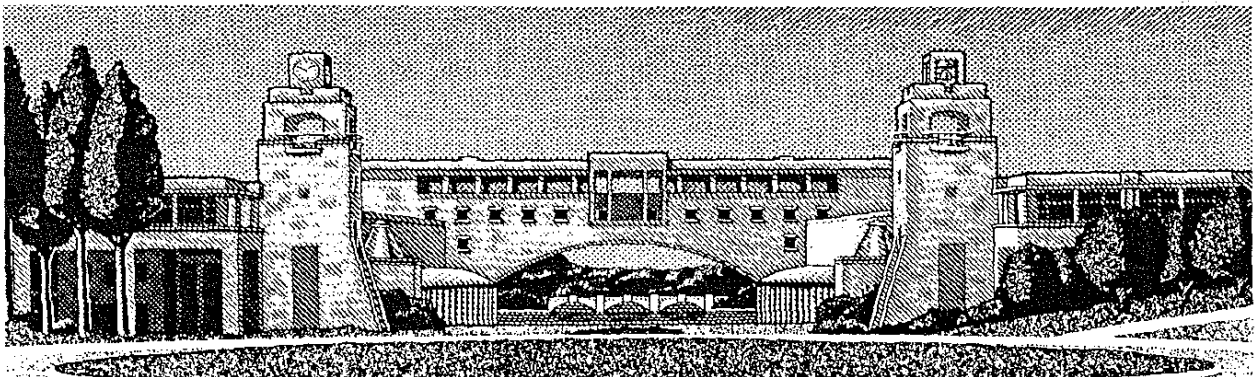
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B O N D U N I V E R S I T Y

# **Boredom at Work: A Neglected Concept**

Cynthia D. Fisher  
School of Business  
Bond University

## Boredom at Work: A Neglected Concept

Nearly everyone experiences episodes of boredom at work from time to time, regardless of the nature of their job. Previous research on vigilance and industrial monotony is unable to explain boredom on any but the simplest of tasks. A broader view of the causes of boredom, including attributes of the task, environment, person, and person-environment fit, is proposed. Likely consequences of boredom are considered, and research needs and implications are discussed.

Key words: boredom, job design, work attitudes, workload, current concerns, person-environment fit

## BOREDOM AT WORK: A NEGLECTED CONCEPT

Complaints of feeling bored are common both on and off the job. The experience of work boredom does not seem to be limited to blue collar and office workers performing repetitive or routine work. Practitioner and popular journals have featured articles on "managerial malaise" and boredom in the executive suite (Ginsburg, 1984; Kiechell, 1984). Guest, Williams, and Dewe (1978) interviewed three samples of British workers spanning all organizational levels, and found that 11 to 56% reported that they found their entire job boring, while 79 to 87% maintained that they sometimes felt bored on the job.

My interest in boredom was piqued by interviews with enlisted Marines several years ago. Life on a peace-time military base can be quite routine and inactive (Harris & Segal, 1985), and one might expect most enlisted men to complain of boredom. Instead, we found a wide range of opinions. The interviewees all experienced an identical environment (both in terms of work tasks and non-work entertainment opportunities available on base), yet some reported extreme boredom and others had no trouble keeping themselves interested and productively occupied. This suggests that task or environment based explanations of boredom may be incomplete, and that individual difference or person by situation interactions must be considered.

A review of the extant literature on boredom was relatively unsatisfying (Fisher, 1987), and it became clear that organizational researchers know very little about the phenomenon of boredom. There is no agreed definition of the construct or well-developed instrument for measuring it, there is no comprehensive theory of its causes, and there is uncertainty about its consequences and importance. This paper will attempt

to remedy some of these deficiencies by proposing a definition, a typology of causes, a discussion of likely consequences, and an outline of research needs.

Everyday experience suggests that boredom off the job is also a frequent complaint (Ramey, 1974). The focus of this paper will be on boredom at work, but much of what is suggested regarding causes of work boredom may have equal utility for understanding off-the-job boredom.

#### Toward a Definition

Davies, Shackleton, and Parasuraman (1983, p. 1) define boredom as an "emotional response to an environment which is unchanging or which changes in a repetitive and highly predictable fashion." Smith (1955, p.322) defines boredom as an "experience which arises from the continued performance of an activity which is perceived as either uniform or repetitious." Guest et al. (1978) criticize this type of definition for focusing exclusively on a limited class of environmental situations or events as sole causes of boredom. However, this approach is understandable because the purpose of the researchers cited was to explore performance in extremely low stimulation environments such as vigilance tasks and short-cycle repetitive jobs which may have minimized individual differences in the appraisal of the situation (Bowers, 1973). To explore boredom in a wider range of contexts, attention must be paid to both task and environmental situations and to the subjective appraisal of these tasks and situations by the individuals experiencing them.

The position taken in this paper is that boredom is a transient affective state, so it might be appropriate to first establish that boredom exists as a unique affective state. Smith and Ellsworth (1985) have done this by showing that boredom can be empirically distinguished from other emotions. These researchers first derived a typology of dimensions

underlying common emotional states, then asked subjects to describe recent situations in which they had experienced each of 15 emotions, and rate how they felt on each dimension at the time. The ratings showed that boredom was seen as unpleasant, but less so than anger, frustration, sadness, or contempt. Boredom was the only emotion that was both unpleasant and passive--all the other unpleasant emotions (such shame, guilt, fear, anger, frustration, sadness, etc.) required exertion or increased activation. Boredom was the lowest scoring emotion on the dimension "attentional activity", indicating that subjects reported diverting their attention from the cause of boredom, trying to ignore it rather than to increase attention to it. Finally, subjects describing boring incidents were very certain about their emotional state -- they were quite sure that they felt bored.

In sum, boredom is a transient affective state in which the individual feels a pervasive lack of interest in the current activity. It is often accompanied by the feeling that it takes conscious effort to maintain or return attention to the activity (Csikszentmihalyi, 1978; De Chenne & Moody, 1987; Leary, Rogers, Canfield, & Coe, 1986). Boredom arises from the subjective appraisal of the current activity or situation as deficient when compared to the amount of stimulation or type of activity desired. The amount of stimulation desired varies within persons over time, and also varies between people as a function of age, personality, and so on. Further, the level of stimulation perceived in a task or environment is not directly equal to the "objective" characteristics (i.e. intensity, variety, novelty) of the situation, but is dependent on attributes of the perceiver. Type of activity desired allows for interests, current concerns, and values to influence the experience of what is or is not boring, and is necessary to explain why boredom can be experienced in situations which may appear to offer high levels of

stimulation, or which produce boredom in an individual at one time but not at another time.

Note that boredom is not an attitude. It is a much more short-lived state. One may feel bored at one moment and not bored the next, or bored by a task one day and fascinated by the same activity another day. I suspect that the cumulative experience of incidents of boredom (and other transient affective states such as joy, anger, and frustration) at work would be related to relatively stable attitudes like job satisfaction, but the two are by no means synonymous.

As implied above, the traditional approach to boredom has assumed that boredom arises largely from causes outside the person. While this view will prove to be inadequate alone, there clearly are objective task and environmental conditions which have "main effects" on boredom. That is, they increase the likelihood that a situation will be experienced as more boring by more people. Task and environmental conditions which may have such main effects on boredom will be discussed below. A second approach suggests that the amount of boredom experienced by people is influenced by individual factors such as intelligence, personality, or mental health. These "person main effects" on boredom will also be discussed. Finally, a new view will be presented which suggests that individual differences in schemas and current concerns interact with the specific content of situations to produce boredom. The interactive approach seems most useful in explaining incidents of boredom which are experienced from time to time by many types of employees on a wide range of jobs. These proposed causes of boredom are summarized at the left side of Figure 1.

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Figure 1 About Here  
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### Task Main Effects on Boredom

Much of the research on boredom has focused on extremely low stimulation tasks such as repetitive and/or machine paced assembly operations, vigilance or inspection tasks, and continuous control activities like tracking, driving, or piloting. These tasks demand attention yet provide very little stimulation in return, and there is no question that prolonged exposure reduces physiological arousal and causes boredom in most people (Cox, 1980; Davies & Parasuraman, 1982; Davies et al., 1983; Smith, 1981; Thackray, 1981). More recently, the literature on job design has provided insights on task characteristics which are likely to be found interesting and engage the attention of performers. Tasks which are high in skill variety, task identity, task significance, autonomy, and feedback presumably should be less likely to be appraised as boring (Hackman & Oldham, 1980). If boredom is produced solely by extremely unstimulating tasks or the absence of task characteristics identified by job enrichment models, then the construct has little to add to what is already known. However, there is evidence that boredom has a number of antecedents which are not included in physiological arousal or job design theories.

In an attempt to identify the full range of tasks and environments that may result in boredom, Fisher (1987) conducted a qualitative study of reported incidents of boredom on and off the job. She asked 200 employed college students to write about a time when they felt very bored at work, and 340 students to describe an incident of off-the-job boredom. The incidents were sorted and several categories of antecedents of work boredom emerged.

The work situation which respondents mentioned most often as a cause of boredom was "having nothing to do", with 55% of the incidents falling into this quantitative underload category. Respondents involved in

retailing jobs reported feeling bored when there were no customers to wait on, while plant and office workers felt bored when there were no orders to fill, no phone calls to take, or no typing to be done. Some individuals noted that they were particularly bored when a very light workload followed a busy period in which they had become accustomed to a high level of activity. Caplan, Cobb, French, Harrison, and Pinneau (1975) offer the only relevant empirical data, reporting significant negative correlations in the .20s between a three item self report measure of boredom on the job and ratings of quantitative workload.

Quantitative underload and work load variability are not addressed by current theories of job design or measures of job characteristics (Hackman & Oldham, 1980; Sims, Szilagyi, & Keller, 1976). It is possible to envision a job requiring the use of several important skills, allowing autonomy as to how the job will be accomplished, and providing intrinsic feedback, but which can be accomplished in two hours per day. The Motivating Potential Score (Hackman & Oldham, 1980) of this job would be high, but it seems likely that the incumbent, if required to remain at work for eight hours every day, would report frequent episodes of boredom.

The second most frequently mentioned cause of boredom in Fisher's study was categorized as qualitative underload. Respondents said they were bored on jobs which were simple, repetitive, had low mental demands, were not challenging, did not utilize their skills, or required watching for infrequent events (inspection, life guarding). Caplan et al.'s (1975) large scale survey provides empirical verification, as they report a correlation of .59 between reported boredom and self ratings of underutilization of skills in a sample of individuals from 23 occupations. These findings are consistent with the early work on industrial monotony and vigilance, and with current research on job scope and job redesign.

A third task-based cause of boredom may be qualitative overload. In their reports of boredom off the job, Fisher's (1987) students gave numerous examples of feeling bored and having difficulty in keeping their attention on lectures and books on topics which they did not understand and regarded as too difficult. Tasks which confront incumbents with information which exceeds their capacity for understanding provide little meaningful stimulation and thus may cause boredom. The idea that an optimal level of challenge, neither too difficult nor too easy, is required for a task to engage attention and remain interesting is widespread in the psychological literature (c.f. Buck, 1988, Csikszentmihalyi, 1975; Deci & Ryan, 1985, Locke & Latham, 1990; White, 1959).

Qualitative overload has not been explicitly investigated by job design researchers, though the Hackman and Oldham Job Characteristics Model (1980) does suggest that requisite skills and abilities are one moderator of the relationship between job characteristics and employee reactions (Kulik, Oldham, & Hackman, 1987). However, a respondent who strongly endorses the Job Diagnostic Survey item, "The job requires me to use a number of complex or high-level skills" and strongly rejects the item, "The job is quite simple and repetitive" (Hackman & Oldham, 1980) may either possess an optimally interesting job, or one which is so complex that he or she is bored due to lack of understanding. Presumably, few people hold jobs which are totally above their ability for long, but many might be able to point to specific tasks within the job which they find so hard or so confusing that paying attention is difficult.

#### Work Environment Main Effects on Boredom

When the task itself provides little meaningful stimulation, the surrounding work environment probably becomes important in determining the extent to which the total work experience is appraised as boring. The

environment may either intensify boredom or help to reduce it. Two aspects of the work environment which may impact boredom include other people and organizational control practices.

### People

The early literature on boredom and monotony at work assumed that the presence of others would increase stimulation and reduce boredom. Further, decades of research on social facilitation has verified that the mere presence of others can increase physiological arousal, and often causes modest gains in the speed of performance on simple tasks (Bond & Titus, 1983). Undoubtedly, other people can sometimes provide direct (conversation, entertainment) or indirect (mere presence) stimulation in an environment which is otherwise stimulus-poor. In addition, many of Fisher's respondents reported off-the-job boredom when they were alone. Thus, one might hypothesize that jobs allowing contact with others would tend to be perceived as less boring than jobs without such contact, all other things being equal.

However, coworkers do not always offset boredom. Some of Fisher's (1987) respondents stated that they were bored because of uninteresting, unfriendly, or uncommunicative coworkers. Uninteresting coworkers were especially aversive when there was nothing to do or the task was very simple, so that respondents wanted and expected to be diverted by coworkers. Being with "boring people" was also frequently mentioned in the incidents of off-the-job boredom. Leary et al. (1986) present three pioneering studies on boredom in interpersonal situations, concluding that interaction partners may be perceived as boring because of the content of their speech (egocentric, banal) or the style of speech (slow, low affectivity).

In the job design literature, coworkers were emphasized by early approaches (Trist & Bamforth, 1951; Turner and Lawrence, 1965), but have largely disappeared from recent conceptualizations which focus exclusively on task characteristics (Hackman & Oldham, 1980). While the presence of others probably does not produce internal work motivation *per se*, it does affect the amount of stimulation potentially available, may well influence whether or not the job as a whole is experienced as boring, and should be considered when designing jobs.

A less direct means by which other people might affect experienced boredom is through social influence. Research on the perception of job characteristics indicates that when co-workers and superiors express opinions that a job is challenging or contains autonomy, for instance, they can influence both attitudes toward the job and perceptions of "objective" job characteristics by other workers (Griffin, 1983; Weiss & Shaw, 1979; Thomas & Griffin, 1983). Thus, the same job may be seen as interesting if others draw attention to the potential stimulation and complexity in job tasks, but as boring if they suggest that the job is routine and unchallenging. To produce a consensual definition of a task or work environment as boring, it may be necessary for only one or a few peers to initially but vocally express feelings of boredom. Certainly everyday experience suggests that boredom can spread like an epidemic through groups of teenagers or college classes. In short, boredom may sometimes be a social disease.

#### Organizational Control Practices

Another aspect of the work environment which may contribute to boredom is the extent to which organizational control practices place constraints on behavior. The perception of constraint - that one is not free to move around, choose activities, focus attention where one wishes,

or escape from a particular setting - has been cited in past literature as a contributor to boredom (Geiwitz, 1966; Guest et al., 1978), and some of Fisher's respondents mentioned that frustration and boredom were intensified by strong constraints. Organizational rules which prohibit talking, prescribe exact work procedures, or limit breaks may contribute to boredom directly by reducing the amount of stimulation and variety available in the work environment.

Indirectly, constraints and controls may affect the appraisal of a situation as boring by producing psychological reactance. Virtually all jobs impose some limitations on incumbents' freedom to choose activities, locations, and behaviors. According to reactance theory, threats to freedom of choice produce a desire to reassert freedom, and forbidden activities actually increase in valence simply because one is not free to choose them (Brehm & Brehm, 1981). Thinking about forbidden alternative activities may cause individuals to find required job activities less attractive by comparison, more difficult to attend to, and thus more boring.

Organizational control practices may also affect the appraisal of a situation as boring by the processes specified in theories of intrinsic motivation and self-perception. When individuals feel that their task behavior is caused by external factors, they tend to lose interest in the task, a phenomenon which attribution theorists have labeled "over-justification" (c.f. Lepper & Greene, 1978; and Staw, 1976). If one performs a task while plausible extrinsic reasons for doing so are present, then one need not infer that one is interested in the task, and may in fact conclude that one must not be, because others have felt it necessary to apply extrinsic control methods.

The more salient the extrinsic control, the less likely one is to notice any stimulating or intrinsically interesting features of the

activity itself. Manipulations as diverse as payment, evaluative feedback, surveillance, and imposed goals and deadlines have been shown to increase feelings of control by others and result in reduced intrinsic interest in a task (Amabile, deJong, & Lepper, 1976; Deci & Ryan, 1985; Harackiewicz, Abrahams, & Wageman, 1987; Lepper & Greene, 1975). Ryan (1982) has shown that even internally imposed controls, such as performing out of sense of duty or to avoid feelings of guilt, can reduce intrinsic interest. Thus, many work activities may be appraised as boring simply because salient external or internal pressures to perform are present and draw attention away from the activity itself.

The job characteristic "autonomy" seems to have something in common with the idea of constraint. Freedom to choose which task to do first and how to approach each task should reduce reactance and allow performers to change tasks or otherwise increase stimulation when they habituate to one task. However, the concept of autonomy does not consider the phenomenon of over-justification, which might make all work tasks seem less interesting if high performance or simply presence at work is coerced by extrinsic factors. Autonomy also ignores the possibility that boredom might be produced by internally generated controls on behavior. In fact, individuals with the greatest job autonomy (executives, professionals, the self-employed) probably also engage in the most self-imposed control, forcing themselves to continue working out of a sense of duty when they feel bored and would rather be doing something else.

#### Person Main Effects on Boredom

This section considers some individual differences which may have "main effects" on the appraisal of situations as boring. Individual differences which seem to have main effects on boredom include various aspects of capacity, personality, and mental health.

### Capacity

A small amount of research suggests that individual performance capacity may affect the degree to which different people experience boredom on the same task. Presumably individuals with higher capacity will find the same task relatively easier to perform and hence less challenging and stimulating than individuals of lower capacity. Early theorists suggested that more intelligent people were more likely to feel bored on a simple task, and there is limited evidence that this may occur (London, Schubert, & Washburn, 1972; Thompson, 1929). The idea of qualitative overload proposed earlier suggests that less intelligent people might report a higher incidence of boredom on complex tasks which exceed their abilities. However, boredom has seldom been measured when reactions to more complex tasks are assessed, so this prediction remains untested.

Drory (1982) measured capacity more broadly, as age, health, military rank, education, intellectual activities, tenure, and years since immigration. Except for age, which displayed the typical negative correlation with boredom (c.f. Smith, 1955; Stagner, 1975), all of the variables were positively related to the self-reported boredom of long haul truck drivers on a monotonous section of road. Together, the capacity variables accounted for 50% of the variance in boredom.

One might predict that over time the appraisal of a moderate complexity task would change as capacity changes. At the outset, the new task might be boring at times because it is too difficult and confusing to hold attention. After some experience, the task might be appraised as interesting because it is optimally challenging to the developing skills of the incumbent, while later still the task may be seen as boring if it becomes so well learned that it is performed automatically and without thought.

## Personality

Personality factors have also been investigated as determinants of reactions to repetitive tasks. Smith (1955) developed a self-report measure of "restlessness in daily habits and leisure" which predicted experienced boredom at work. Those who preferred structured and sedentary activities off-the-job were also less bored by routine tasks on-the-job. Individuals who are high on the personality dimension of extraversion appear to require more external stimulation to maintain optimal levels of arousal and activation (Eysenck, 1967). Consistent with this characteristic, they are also more likely to be bored on monotonous tasks than are introverts (Davies & Parasuraman, 1982; Gardner & Cummings, 1988; Guest, et al., 1978; Hill, 1975b; Smith, 1955; Smith 1981).

Zuckerman and his colleagues (1979; Zuckerman, Kolin, Price, & Zoob, 1969) have developed the Sensation Seeking Scale to measure individual differences in optimal arousal level. One 18 item scale is called Boredom Susceptibility. There has been no research on overall sensation seeking or on boredom susceptibility as correlates of reactions to specific jobs, but there is evidence that sensation seeking may play a role in job choice. For instance, medical and psychology practitioners who choose to work in crisis intervention situations (such as emergency rooms and rape crisis centers) are higher on sensation seeking than their peers who work in non-emergency settings (Best & Kilpatrick, 1977; Irey, 1974).

These findings suggest that there are stable individual differences in how much stimulation is desired or needed. Individuals whose optimal level of arousal (or characteristic level of activation) is low, or who can internally generate needed stimulation, may appraise a low stimulation setting as less boring, while those who need higher levels of stimulation

from external sources should be more likely to feel bored in the same work environment.

#### Mental Health

There is a small body of literature which indicates that prolonged or frequent feelings of boredom independent of immediate situational causes are pathological. Over the years, several theories of the causes of pathological boredom have appeared in the psychiatric literature (c.f. Bernstein, 1975; Fenichel, 1951; Gabriel, 1988; Hamilton, 1983). These theorists disagree about the exact roots and psychodynamics of chronic boredom, but all agree that pathologically bored individuals have either repressed or failed to develop their capacity to perceive the stimulation inherent in various activities in the way that normally adjusted people do. They also agree that most individuals who experience internally caused pathological boredom incorrectly but strongly attribute their feelings to deficiencies in the external environment. Thus, chronically bored employees are likely to blame the work environment for their unhappy state. If they do so vocally they may influence their peers to define the work situation, regardless of its actual characteristics, as one lacking in meaningful stimulation and thus likely to cause boredom. The possibility of organizational "Typhoid Marys" who influence otherwise healthy and happy employees with their pathology merits further research.

#### Person-Situation Fit and Boredom

The above main effect approaches add to our understanding of boredom, but are incomplete in themselves. Neither is broad enough to explain the episodes of boredom that are experienced from time to time by nearly everyone, including those with enriched jobs and personality and capacities appropriate to their work.

Locke and Latham (1990, p. 239) suggest that boredom occurs when the individual decides that "there is no value significance to the activity...there is nothing in it for me". To predict when there will be "something in it for me", an interactive approach utilizing a more sophisticated view of both the situation and the person is needed. On the situation side, it is necessary to consider not just the level of stimulation, complexity, or variety, as has been done in past research, but also its specific content. On the person side, a more fine-grained understanding of preferences and values for different types of content is needed. When there is a match between what the situation offers and what the person wants and can appreciate, boredom should be at a minimum.

Surprisingly, the literature on boredom seldom considers that individuals vary in their interests and needs, and that situations which do not match interests or meet needs will probably be appraised as more boring than those which do. A situation may be objectively complex and stimulating, but not be interesting or meaningful to a particular individual at a particular point in time (Hill & Perkins, 1985). I propose two related views of why this may happen; the first based on knowing, the second on caring. More specifically, the first draws on the research on schema complexity and has to do with perceiving and understanding the variety and stimulation potentially available in a task, while the other relies on Klinger's ideas about how current concerns (what one cares about most at the moment) affect attentive processes and thought content.

#### Schema Complexity

One individual difference which interacts with the specific content of a situation to affect boredom may be the complexity of an individual's schema for perceiving and interpreting that type of situation (Linville, 1982). A complex or "expert" schema allows a perceiver to understand and

appreciate more of the information and variety in a situation, while a simple or nonexistent schema for that type of situation produces subjective monotony or sameness, and thus feelings of boredom. As an example, consider the task of watching an American football game. An individual with a complex schema for this task will be able to perceive, judge, enjoy, and recall the subtleties of play choice and the expertise of execution by players in different positions. A viewer with a simple or nonexistent schema for football will see 22 men running around and falling down, a sight which quickly loses its ability to charm.

The only evidence to date for a link between schema complexity and boredom comes from a study by Perkins and Hill (1985). These researchers found that on the same task (rating photos of different types of motorcycles), subjects who spontaneously generated more constructs along which to rate and made finer distinctions among the photos reported being less bored. More constructs and finer distinctions are indicative of the use of a more complex schema for processing information about the task.

Objective measures of task characteristics (Hackman & Oldham, 1980) or stimulus complexity (Wood, 1986) would suggest that different tasks with equal scores should be equally interesting to performers. For novel lab tasks on which subjects do not have pre-existing schemas, this is probably true. However, in more complex real life activities, individuals who have learned to see and appreciate the variety in one activity should find it less boring than an equally complex activity about which they know little. The bored football viewer may be much more knowledgeable about baseball and find this equally slow-paced sport full of interesting nuances. Alternatively, the bored football viewer may simply not care much about football. Klinger's work on current concerns addresses the latter idea.

## Current Concerns

Eric Klinger's research has perhaps the most to contribute to the understanding of boredom in a variety of settings. Klinger (1977; 1987a) has pursued an extensive program of research relating to thought content, attention, and motivation. He suggests that life has meaning for people because of the incentives or goals they choose to pursue. Having committed to achieving a goal (be it long term such as career success or short term such as getting lunch), one is in a state of current concern until the goal is either reached or forsaken. Current concerns have a great deal of influence on the content of thought. Thoughts and images which "pop into one's head" while one is relaxed or which intrude during ongoing activities are usually related to current concerns, especially when the concern is important, will soon be realized, has a high probability of being realized, or has become problematic (Klinger, Barta, & Maxeiner, 1980). Pre-attentive gatekeeping processes screen in cues related to current concerns and reject others, thereby increasing the representation of current concerns in moment to moment thoughts.

Activities which are not related to current concerns will be harder to attend to. "A person working on a mental task who is in the grip of a very strong concern about something else will have trouble keeping his or her mind on what he or she is doing--he or she will be fighting a lot of mind wandering." (Klinger, 1977, p. 61). Job activities which are not somehow related to a current concern probably will not be perceived as interesting, and the individual will be readily distracted from them by thoughts about current concerns. Even when a job is typically experienced as interesting and related to a current concern, other concerns can become stronger and intrude from time to time. For instance, a fairly relevant and engaging task may begin to pale when lunch time approaches and the imminent satisfaction of an increasingly important food concern becomes

salient. Likewise, the ability to attend to work may be compromised by intrusive thoughts from a more important current concern such as a problem at home or an impending positive or negative event. Thus, whether a work task is able to hold a performer's attention depends both on its direct relevance to the current concerns of the person, and on the relative strength of unrelated concerns which can intrude and distract attention. Virtually any task on any job may at times be perceived as boring or irrelevant, compared to a temporarily more salient concern.

Working within Klinger's framework, Hackman and Oldham's (1980) concept of Growth Need Strength (GNS) might be viewed as a measure of the importance of challenging work as an ongoing concern to the performer. GNS is the extent to which challenge and growth on the job are goals or incentives to which the performer is committed. High GNS performers should experience the positive affect that accompanies progress toward a goal (Klinger, 1977) when they work in enriched jobs, but will find this concern frustrated and be open to intrusive thoughts when placed on an unchallenging job. Lower GNS performers should receive less intrinsic satisfaction from a challenging job, and may find themselves distracted by off the job concerns which are more pressing than their relatively weak concern about growth and development on the job. Research has shown that GNS moderates responses to enriched jobs in a manner which is outwardly consistent with this interpretation (Kulik et al., 1987). However, to fully verify these predictions would require the use of Klinger's (1978) "thought sampling" techniques to find out what high and low GNS performers actually think about from moment to moment while working on enriched and unenriched jobs. One would predict that low GNS individuals would be more likely to daydream or otherwise think non-job-related thoughts than high GNS people while working on an enriched task.

Klinger's framework can accommodate much of the earlier research on task and work environment causes of boredom if current concerns are treated as a filter or standard against which incoming stimulation is judged. For example, simple and repetitive tasks are often perceived as boring because they are irrelevant to the important concerns of most people. Further, performing such tasks may actively frustrate the pursuit of more important concerns and invite disrupting thoughts from these concerns. Enriched jobs are less boring on average because they have relevance to the longer term concerns of most people for personal growth, achievement, or career success. Friends, social relationships, and feeling loved and wanted were very important concerns for 70-90% of a sample of college students polled by Klinger (1977), so Fisher's (1987) finding that work situations lacking in congenial coworkers were sometimes cited as boring is not surprising. Salient external controls on behavior may frustrate and invite intrusion by the important and widely shared concerns for independence and self-direction postulated by reactance theory, and thus contribute to boredom.

The schema complexity view also fits well with the current concerns framework. Individuals should be more likely to develop complex schemas for activities which interest them and are related to ongoing concerns, and which they thus spend a great deal of time thinking about. Expert schemas about football are seldom developed by people who find the sport utterly irrelevant to any of their concerns.

However, it is not necessary to embed all possible causes of boredom in the current concerns framework. For instance, social influences on the perception of a task as boring need not operate through current concerns. Further, boredom probably does have physiological roots in declining reticular activation at extremely low levels of stimulation (Gardner & Cummings, 1988; Scott, 1966). While thresholds vary from person to person (with characteristics such as extraversion), it seems likely that there is

some minimal level of stimulation which is necessary to hold attention and maintain brain function, regardless of the relevance of the stimulation to current concerns. In practice, most incidents of boredom probably have multiple causes involving the level of stimulation available and perceived in a situation, and the relevance of the stimulation to concerns. For instance, a moderately complex job might become unendurably boring even to a high GNS incumbent on the first fine day of Spring when the constraint of remaining at one's desk all afternoon becomes highly frustrating to the suddenly more pressing concern of catching some rays.

Regardless of the exact cause, boredom is experienced as an unpleasant state, one which is likely to trigger various kinds of consequences as well as behavior intended to remediate the discomfort. These will be described in the next section.

#### Immediate Consequences of Boredom

Boredom may have two levels of consequences. First, at the time that it is being experienced, a variety of immediate responses and consequences may occur. Second, frequent and long duration feelings of boredom, perhaps operationalized as the "typical" level of boredom experienced at work, may have aggregate effects on attitudes, behavior over time, and even physical health.

#### Performance

One immediate consequence of boredom may be decrements in performance. When meaningful stimulation from a task is very low, physiological arousal begins to decline and a person experiencing boredom may begin to feel sleepy. However, long before the performer actually goes to sleep, performance is impaired. Individuals experience lapses of attention, take longer to notice and correct errors, and have accidents

more frequently after working on a monotonous task for a period of time (Cox, 1980; Drory, 1982; O'Hanlon, 1981).

#### Behavioral Self-Management

In the case of self-paced or less structured work, individuals may respond to boredom with efforts at self-management (c.f. Manz, 1986). First, they may force themselves to attend to the task, regardless of their current feelings about it. In the case of tasks with a reasonable level of inherent stimulation, forced attention may be necessary only at the outset, as the performer becomes absorbed in the task after a short period of effort. A second strategy is to set a definite goal for task accomplishment. Several studies have found that specific and difficult goals seem to reduce boredom, especially on simple tasks (Locke & Bryan, 1967; Mossholder, 1980). Locke and Latham (1990) suggest that this may happen because goals give a sense of purpose and engage generalized values (concerns) for achievement and competence. Goals also add uncertainty to an otherwise predictable situation (will I or will I not reach the goal?), break an unending repetitive task into meaningful segments (a goal for each hour, day, or week), give utility to any feedback which is available, and may stimulate the development of new performance strategies and experimentation with nonhabitual ways of accomplishing the task.

Third, if relative concern for a work task is low because of intrusive thoughts from a more relevant concern, Klinger (1982) suggests that an appropriate solution is to reduce the urgency of the competing concern. This can be accomplished by stopping the work activity temporarily and doing something toward achieving the more pressing concern. Short term concerns can be achieved in their entirety (making the phone call one keeps thinking about, getting lunch), while more distal concerns may be reduced in urgency by making plans or taking some preliminary steps

toward achieving them. Then, having reduced the importance of the intruding concern and thereby increased the relative importance of the work task, one will be free to refocus on the original task with fewer intrusive thoughts.

#### Seeking Additional Stimulation

Because boredom is aversive, individuals often try to reduce the feeling by seeking additional stimulation (London, et al., 1972; Scott, 1966). Bryant and Zillmann (1984) clearly documented this tendency in a laboratory study. Half their subjects were made to feel bored by working on a repetitive task for a long period of time, while the other half were aroused by working on a difficult task under high performance pressure. Subjects were then allowed to choose from among 6 television programs for 15 minutes of viewing. Subjects exposed to the repetitive task overwhelmingly preferred the three exciting programs to the three relaxing, tranquil programs (13.2 minutes versus 1.2 minutes). Subjects who had experience high levels of arousal under the stressful performance condition showed equal preferences for the two types of programs.

**Increasing Stimulation on the Same Task.** Efforts to reduce boredom can occur while performing the original task, or by substituting another activity for the original one. In the first case, individuals may engage in what Kishida (1977) has called "subsidiary behaviors," such as daydreaming, singing, talking to nearby coworkers, playing mental games, fidgeting, and looking around. Gardner (1990) found that subjects working on a low complexity task performed more of these non-task-related and self-stimulating behaviors (gazing, stretching, yawning, and arm, head, and torso movements) than subjects on a moderate complexity task which inherently provided more stimulation.

Klinger (1987b, p. 38) has noted that "workers in boring jobs often use daydreams to keep themselves stimulated and awake. In studying lifeguards and truck drivers, I found that over 80% occasionally launch into vivid daydreams deliberately to ease the boredom." Klinger has also found that two thirds of daydreams are about current concerns, so this method of increasing stimulation also allows one the satisfaction of redirecting attention to matters which are personally relevant.

The effects of seeking additional stimulation on performance seem to vary with the amount of attention required for task performance. If continuous attention to the task is required (as in an inspection task), most kinds of subsidiary behavior seem to reduce performance (Kishida, 1977). However, additional stimulation received through a channel not needed for performance, such as listening to music or white noise while engaged in a strictly visual task, can help to maintain alertness and reduce boredom (Davies et al., 1983; McBain, 1961; Warm, 1986).

A final method of increasing stimulation while continuing to perform the same task is to vary the pace or method of work (Runcie, 1980). Hill (1975a) found that on a repetitive task, extraverts spontaneously introduced more variation in the way they performed the task. This is consistent with the research suggesting that extraverts need more stimulation from the environment to maintain their characteristic level of activation.

Increasing Stimulation by Activity Change. A different means of seeking additional stimulation is to change activities. This may mean taking a break, getting something to eat, making a personal phone call, visiting a coworker in another part of the building, or simply changing to a different work task. O'Hanlon (1981) notes that performance on the original task recovers markedly after a short break, so limited amounts of these alternate activities could well prove to be functional.

When Fisher (1987) asked her respondents how they had reacted to being bored at work, quite a number said that they performed non-work activities such as reading novels or writing letters to friends. However, these non-work activities were chosen mainly when incumbents were bored by quantitative underload. Because there was no work to be done, these activities did not damage productivity per se, but simply made more enjoyable time which would have been unproductive in any case.

Twenty-four percent of the respondents said they tried to relieve episodes of boredom by engaging in desirable work-related behaviors, such as taking more interest in clients, asking for more work or training, finding additional tasks to do on their own, and helping other employees with their work. Recent research on "organizational citizenship behavior" (OCB) has focused attention on this type of positive extra-role activity (Organ, 1988). OCB researchers have found up to three factors within lists of positive extra-role behaviors (Smith, Organ, & Near, 1983; Williams, Podsakoff, & Huber, 1986). One of these factors, labeled altruism or helping behavior, includes activities such as giving extra assistance to coworkers and superiors and volunteering for additional tasks; the type of actions that Fisher's respondents took to reduce boredom. There is evidence that helping another person can be pleasurable in its own right (Harris, 1977), and helping is sometimes undertaken by individuals in bad moods to improve the way they feel (Morris & Reilly, 1987; Schaller & Cialdini, 1988). Thus, helping behaviors may be especially effective at reducing boredom, both because they allow a change of activity and are directly satisfying. In addition, extra-role behaviors are by definition entirely voluntary, so their interestingness is not compromised by reactance or over-justification.

The other OCB dimensions have been labeled compliance and/or attendance. They include behaviors such as arriving at work early and

staying late, taking few breaks, scrupulously obeying the rules, not spending time in idle conversation, and so on. These behaviors probably would not be effective in reducing boredom, as they minimize the chances to increase stimulation and variety. Thus, it seems reasonable to predict that boredom with job activities should lead to most kinds of helping behaviors but be negatively related to the compliance and attendance dimensions of OCB.

### Dysfunctional Responses

With the exception of performance decrements, most of the above consequences of boredom are fairly neutral or even functional for the organization, particularly if they are effective in reducing the feeling of boredom. However, some responses to boredom may be far from benign. Kiechell (1984) notes that bored executives often "start to bug people" by attempting to micro-manage subordinates, or may be tempted to acquire another company just for the excitement. Boredom has long been thought to be a factor in juvenile delinquency, and there is evidence that self-reports of boredom are related to truancy, alcohol consumption, and other deviant behaviors in teen-agers (Hamilton, 1983; Orcutt, 1984; Robinson, 1975; Wasson, 1981). High sensation seekers, who presumably feel bored more frequently, are more likely than others to gamble, volunteer for unusual psychology experiments, engage in risky sports, and experiment with drugs and sex (Zuckerman, 1979). In the work setting, boredom may provoke drug use, unsafe work practices, excessive horseplay, sabotage, or employee theft. These activities may reduce boredom by creating a change of pace, reasserting personal freedom of choice, or providing the excitement of risking injury or discovery.

If none of the above means of reducing boredom are feasible or effective, boredom may escalate to a stronger negative emotional state.

Robinson (1975) has pointed out that when individuals are unable to escape or increase stimulation when they experience boredom, they may "become restless, agitated, and emotionally upset" (p. 141). O'Hanlon (1981) reviewed several studies in which pilots became quite hostile after long and monotonous flight simulations. These stronger negative emotions could conceivably lead to undesirable impulsive behavior such as aggression toward coworkers, clients, or equipment. Although we did not specifically set out to assess boredom, our interviews with enlisted Marines tended to suggest that those who drank to excess and got into fights were also the ones who complained of boredom.

#### Longer Term Consequences of Frequent Boredom

Research on mood shows effects for both immediate, transient mood state and for longer term measures of "typical mood" (George, 1989; Kraiger et al., 1989). To the extent that boredom has been assessed in organizational field research, it has usually been conceptualized as the latter, with individuals reporting how bored they typically feel or how boring they perceive their jobs to be. Possible consequences of a high level of typical boredom are described in this section.

#### Job Satisfaction

Because boredom is an unpleasant emotion, it seems likely that frequent feelings of boredom on the job would contribute to job dissatisfaction, at least with the facet(s) held responsible for the experienced boredom. Emotions experienced at work are one of several contributors to job attitudes, and boredom is only one of several emotions which should impact overall satisfaction with the job. For instance, the frequency and intensity with which anger, frustration, and joy are experienced at work should also contribute to satisfaction.

One might wonder to what extent existing measures of job satisfaction explicitly reference boredom. Only two of twelve scales of overall job satisfaction reviewed in The Experience of Work (Cook, Hepworth, Wall, & Warr, 1981) mention boredom. Of the facet satisfaction scales reviewed, only the Job Diagnostic Inventory (Smith, Kendall, & Hulin, 1969) uses the term "boring" on a work itself subscale. Both the JDI and its managerial clone (the Managerial Opinion Scale by Warr and Routledge, 1969) use "boring" as a descriptor in their satisfaction with coworkers subscale.

Although there have been no serious efforts to develop generally applicable, construct valid indices of either transient or typical work boredom, there is some data on the relationship between responses to ad hoc typical boredom scales and overall job satisfaction. O'Hanlon's review found several studies in which the boredom - satisfaction relationship was nonsignificant, while Caplan et al. (1975) found a highly significant relationship of  $-.63$ . The extent to which typical boredom level impacts overall job satisfaction may vary with the salience and level of other job facets. The number of antecedents of boredom present may also have an effect. For instance, if an employee feels bored because of quantitative and qualitative underload, constraints on remedial behaviors, and unstimulating coworkers, one might expect greater dissatisfaction than if only one of these conditions prevailed.

#### Absenteeism and Turnover

Reported boredom is sometimes, but not always, related to absenteeism (c.f. O'Hanlon, 1981; Saito, Kishida, Endo, & Saito, 1972). Being absent from work would seem to remedy many possible causes of boredom, in that one escapes an environment perceived as unstimulating, clearly asserts one's freedom from external control, and is potentially able to substitute non-work activities which are more relevant to current concerns.

Actual observed relationships may be weak for three reasons. First is the difficulty of clearly distinguishing between voluntary absenteeism/abuse of sick leave which may be an attempt to escape boredom or other unpleasant work experiences, and absence due to genuine illness or other unpreventable causes. Second, the jobs most likely to contribute to boredom due to qualitative underload and strong external constraints are also those in which sanctions for unexcused absence tend to be most severe, that is, unskilled hourly jobs. While incumbents on these jobs may strongly wish to be absent, they may not be willing to risk the consequences of acting upon their preferences. Third, individuals who are bored because of internally imposed controls on behavior are unlikely to be absent. The same sense of duty or guilt which robs their work of interest also forces them to attend faithfully.

There is very little research on typical boredom level as a contributor to turnover, but certainly changing employers is one way to escape tasks and a work environment perceived as unstimulating. Even if the new job is as ultimately as unstimulating as the old one, it will be interesting until it is well learned and the novelty has worn off. Conceivably, feelings of boredom could facilitate turnover in several ways. According to traditional models of turnover, this could occur if boredom impacts the level of satisfaction with the present job. However, boredom may also directly increase thoughts of quitting and the valence of alternative jobs as follows. Low stimulation jobs (either quantitative or qualitative underload) create free mental time at work. While thinking about how bored they feel, employees may amuse themselves by the subsidiary behaviors of fantasizing about quitting, daydreaming about better jobs they could hold, and actually planning a job search strategy. Further, when constraints are salient, any alternate activity, including a different job, might be perceived more attractive than the current situation.

## Physical and Mental Health

Cross-sectional designs comparing different occupational groups provide some evidence that workers on repetitive, machine paced jobs (which presumably result in greater levels of typical boredom for most people) experience more physical health problems than those on less repetitive jobs (c.f. Caplan et al., 1975; Frankenhaeuser & Gardell, 1976; Samilova, 1971). Two Swedish studies found that the monotony level of occupations was one of the strongest predictors of the occurrence of fatal heart attacks in men under age 45 (Alfredsson, Karasek, & Theorell, 1982; Orth-Gomer, Hamsten, Perski, Theorell, & de Faire, 1985).

A clear causal link between the actual frequency and intensity of boredom experienced at work and health, both measured at the individual level and controlling for other job characteristics, has not been established (Thackray, 1981). However, O'Hanlon (1981, p. 69) concludes that, "Although physical health impairment has not been related to boredom per se, the striking incidence of psychosomatic disease in occupations where severe boredom is prevalent, reasonably leads one to infer that relationship."

Morris and Reilly (1987) note that negative moods sometimes sap energy and reduce the will to try to change the feeling or the situation causing the feeling. Prolonged exposure to a very monotonous task with many constraints on coping mechanisms may result in learned helplessness and passive tolerance. This idea is consistent with Kornhauser's classic study of autoworkers (1965), which concluded that simple, repetitive, and presumably boring work reduced the mental health of workers, and with Kohn and Schooler's (1978, 1982) findings that low complexity and high routinization in work eventually reduced the intellectual flexibility of job incumbents.

Aside from the above studies which tie work characteristics (rather than the experience of boredom per se) to mental functioning in general, there is virtually no research which considers off-the-job consequences of a high level of typical boredom at work. The above studies might suggest a "spillover effect" in which boredom at work contributes to boredom after work as well. On the other hand, the Marine Corps interviews might suggest a "compensatory effect" in which boredom on the job leads to intense thrill seeking off the job. Clearly, this is an area which merits further research by those interested in work - life interactions.

#### Boredom: Research Directions

As discussed above, the experience of boredom at work seems to 1) be common, 2) be unpleasant and have a number of consequences, and 3) have many causes that have not been well researched. This suggests that boredom may be a useful concept as both a dependent and an independent variable, and that it is deserving of more systematic research than it has received in the past. A number of hypotheses have been suggested in the paper thus far. Additional thoughts about research needs follow.

The first step in researching boredom must be to learn more about how the phenomenon is perceived by those experiencing it. Qualitative studies in which individuals are asked to describe aspects of their work which they find boring, or time/situations in which they were bored, will help to more clearly define the construct and suggest additional causes. I imagine that this process will produce indications that intrusive thoughts from other concerns often accompany incidents of boredom, though it would still be necessary to determine whether intrusive thoughts cause boredom with the present task, or whether boredom allows/invites thoughts about unrelated current concerns.

The next step will be to develop operational measures of the construct of boredom. In the past, researchers have measured boredom with home-made scales or single items which varied widely from study to study. In some cases, boredom has been considered an internal feeling state; in others, a property of the job. In a fair number of studies, experienced boredom has not even been directly measured, but has been inferred based on work cycle time in repetitive tasks, or frequency of target appearance in vigilance tasks. Only Drory (1982) has made a serious effort to develop a valid self-report measure of boredom, but his instrument is specific to the job of truck driver.

At least two measures are needed. One would assess immediate feelings of boredom. Since this instrument would have to be administered frequently, be filled out quickly before feeling states change, and avoid too many demand characteristics, a brief adjective checklist or semantic differential scale covering the experience of several emotions (not just boredom) might provide the best format. This type of measure is truest to the conceptualization of boredom as a transient affective state triggered by the appraisal of an event, situation, or environment being currently experienced.

A second type of measure should focus on typical boredom level. Items might ask about the intensity and frequency of feelings of boredom experienced in the past week or month, extent of difficulty in keeping attention on tasks, problems with mind wandering, awareness of desire to do something else, etc. Typical boredom could be assessed with respect to the entire work situation or separately for different tasks within the job. If possible, both instruments should be designed to assess boredom either on or off the job, with only minor changes in instructional set.

Given valid measures of boredom, further studies of the possible consequences of boredom should be next on the agenda. Transient boredom

measures should correlate with immediate performance, accidents, subsidiary behaviors, altruistic OCBs, thoughts of quitting, intrusive thoughts from other concerns, and emotions like hostility, while typical boredom should predict aggregate measures of these responses over time, plus longer term consequences such as job satisfaction, reported quality of work life, absenteeism, turnover, and possibly health and quality of life in general. If boredom measures do consistently relate to a variety of undesirable outcomes as expected, then a more thorough study of individual and work event/environment precursors to boredom will be warranted.

In studying event/environment antecedents of boredom, it may be useful to develop scales for assessing the "boredom potential", or alternatively "stimulation potential" of situations. Current measure of job characteristics could be augmented with subscales such as repetitiveness and attention demand of the task, duration of work session on the same task, quantitative underload, qualitative overload, constraint, availability of co-workers, and feasibility of subsidiary behaviors as sources of additional stimulation. Both incumbents and superiors could be used as raters on these scales. An alternative approach to environmental precursors of boredom would be to use highly objective measures of "task based stimulation", such as the number of sensory modalities stimulated and the variability and intensity of stimulation for each modality, as suggested by Schwab and Cummings in 1976. Wood (1986) has proposed a highly objective method of measuring task complexity by analyzing the number of distinct, non-redundant acts and information cues required to complete a task, the amount of coordination between acts, and the degree of variability in cue validity over time. When combined with existing measures of job scope, these measures should predict much of the situational variance in boredom. The possibility of a curvilinear

relationship also exists, if overloads of stimulation or complexity become meaningless and thus boring to the perceiver.

Because there is some evidence that boredom or boredom proneness may be a stable trait of individuals (Hamilton, 1983; Orcutt, 1984; Smith, 1955), further work on a measure of chronic boredom across settings may prove fruitful. Existing measures of personality constructs which seem related to boredom (such as sensation seeking and extraversion) could also be explored as predictors of reactions to jobs of differing levels of stimulation. The possibility that boredom is socially transmitted is also worthy of field research. Studies of the variability in reported boredom within and between groups of employees performing identical jobs might suggest whether or not a social component is operating in the perception of boredom.

The role of current concerns in boredom needs further exploration. Thought sampling techniques could be used to see if intrusive thoughts covary with experienced boredom on simple and moderately stimulating tasks, or if intrusive thoughts and boredom vary with the relevance of the task to enduring concerns. In addition, boredom could be measured while subjects work on a task after being primed or not primed to think about salient non-task concerns. If intrusive thoughts cause boredom, the primed group should report greater boredom.

#### Implications of Research on Boredom

A thorough research effort devoted to the causes and consequences of boredom might produce a number of practical applications. For instance, the areas of job design, selection, placement, training, and socialization might be impacted. There has already been a great deal of research on job design. However, even this preliminary review of the concept of boredom suggests possible additions to the practice of job design. For instance,

organizations might arrange to provide stimulation through unneeded sensory channels to maintain an optimal level of alertness, or might reduce unnecessary constraints and highly visible means of control. Systems such as flexitime would both enhance personal control and allow work time to be more closely matched to actual workload. The increasingly popular autonomous work group idea also should be highly effective in reducing boredom. Members of these groups not only perform more varied tasks under less external control, but also engage in social interaction as they manage their group. In some cases, work groups are allowed to select their own new members, thus increasing the chances that coworkers will be compatible, congenial, and entertaining.

A number of self-initiated remedial responses to boredom seem possible, so jobs might be designed to allow more subsidiary behavior, self-scheduled breaks or changes in activity, and freedom to attend briefly to pressing current concerns. Shrank (1978) has suggested that allowing blue collar workers the same freedom as white collar employees to engage in these kinds of behaviors when desired might reduce dysfunctional stimulation seeking activities such as theft and sabotage.

Recognition of the fact that having nothing to do (quantitative underload) is a frequently occurring problem may lead to better scheduling of employees, the creation of a backlog of tasks or training experiences which can be undertaken when immediate demand is low, or the removal of prohibitions on performing enjoyable non-work behaviors at work when time permits. This may be especially important in the rapidly growing service sector. As several organizational theorists have pointed out, many services must be performed on-demand, while the client is present. To avoid lost sales, service organizations must staff to meet their less-than-perfectly-predictable peak demand periods (Chase & Tansik, 1983; Mills & Margulies, 1980). This means that service employees may be particularly

likely to experience boredom due to quantitative underloads, and to the sharp contrasts between periods of full workload and slack times.

Because boredom depends in part on individual factors, selection and placement processes might be adjusted to take relevant individual differences into account. The chronically bored or those who are very high on sensation seeking or extraversion could be passed over for all but the most stimulating or risky jobs. Individuals with a particularly high tolerance, or even a preference, for routine work could be selected for repetitive jobs, and the interest/need/value match to job content could be given more weight in job assignment decisions. Individuals with a high ability to entertain themselves might be chosen for jobs in which the workload is often low. Placement processes which match the long-term concerns and values of employees to job demands should reduce the incidence of boredom due to intrusive thoughts from other concerns. Training might be useful to decrease boredom due to qualitative overload, or to the application of overly simple schemas to jobs which contain unrecognized variety and complexity.

If boredom is socially transmitted, organizations would wish to avoid placing chronically bored individuals in work groups in which others might model their reactions. Further, as Griffin (1983) has successfully demonstrated, supervisors can be trained to point out interesting aspects of the job to their subordinates. In addition, the organization can promote the idea that "the job is as interesting as you make it", shifting responsibility to the incumbents to entertain themselves. Relaxing rigid job descriptions and modeling organizational citizenship behaviors would open up new ways in which individuals could productively find more stimulation in their jobs, and come to consensually define the work setting as full of interesting opportunities rather than boring tasks and unnecessary constraints.

Interest in work boredom began in the 1920s with the wide spread adoption of assembly lines and the simplification of many jobs. As we enter the post-industrial information age, it is again necessary to ask how humans will be affected by the changing nature of their work. In so far as it is possible to predict, it seems that some jobs will become more likely to cause boredom and many will become less likely to cause boredom as computers and automation play a larger role in the workplace. Grose (1989) points out that humans evolved to act, not to passively monitor, hence the tendency of understimulated brains to stimulate themselves by daydreaming, or even hallucinating in the case of extreme sensory deprivation. In some jobs, there will be less and less for people to do. Monitoring the process of a nuclear power plant, computer controlled refinery, automated mail sorting machine, or roboticized assembly line are examples. When humans must monitor critical processes, it would be wise to include unmistakable visual and auditory warnings when processes start to go awry, in order to call attention back to a task which is hard to concentrate on for long.

Quite a number of jobs may become less boring because of computers and automation. Already, robots are freeing auto workers from repetitive tasks involving painting, welding, and installation of some parts. Word processors have certainly reduce the amount of mindless retyping that used to be necessary when changes in documents were needed. Quinn and Paquette (1990) give a number of examples of how computers are revolutionizing the service industry, and making jobs more interesting as a side effect. Domino's Pizza, for instance, has provided store managers with a program to relieve them of much of the drudgery of "ordering, payroll, marketing, cash flow, inventory, and work control functions. This frees store executives to perform more valuable supervisory... activities--expanding and elevating their management roles" (Quinn & Paquette, 1990, p. 70). These authors also note that computers and networks "empower" lower level service

providers, freeing them to "concentrate their attention on the more conceptual or personalized tasks only people can perform", and to provide sophisticated forms of service that would otherwise be impossible at their level of experience and training (p. 70). It is not the purpose of this paper to explore the effects of changing technology on boredom in any depth, but this is certainly an interesting area for research.

Social changes may also affect the extent to which boredom at work is a problem in the future. For instance, leisure, family, and other non-work pursuits seem to be increasing in legitimacy and importance in our society. If greater concern for these spheres reduces relative concern for work related activities and goals, then episodes of intrusive thoughts and boredom on the job may become more frequent. In addition to value changes which affect the type of stimulation which is considered important, there may also be changes in the absolute level of stimulation desired by workers in the future. The individuals who will soon be entering the labor force have grown up with an unprecedented level of environmental stimulation, such as MTV, Walkmans, and Nintendo. It is possible that these individuals will find most work tasks unstimulating by comparison, and so will be more bored than their predecessors.

The existing research on boredom provides a foundation for further work, but is woefully inadequate to address the problems of boredom in the workplaces of today and tomorrow. Lab studies of unrealistically simple tasks and field studies of repetitive assembly operations (fast becoming obsolete) have been the source of most existing knowledge. Field research on boredom in less extreme situations is almost nonexistent. In short, a great deal more research will be necessary to test and expand upon the suggestions made in this paper about who will be bored, when, and why; how boredom affects organizationally and personally relevant outcomes; and how individuals and organizations can manage and reduce boredom.

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**Figure 1**  
**Possible Causes and Consequences of Boredom**

**Causes**

**Task-Based**

Repetitive work  
Vigilance work  
Quantitative underload  
Qualitative underload  
Qualitative overload

**Environment-Based**

No coworkers  
Uninteresting coworkers  
Constraints  
Extrinsic rewards

**Person-Based**

Capacity (high)  
Age (low)  
Extraversion  
Sensation-seeking  
Chronic pathological  
boredom

**Person X Situation**

Schema complexity related to  
task  
  
Current concerns ( relevance  
to task, relative strength of  
unrelated concerns)

**Consequences**

**Immediate Consequences**

Performance decrement  
Self-management efforts  
Seeking additional stimulation on task  
Seeking stimulation by activity change  
Destructive/deviant behavior  
Anger, hostility, restlessness

**Long Term Consequences**

Dissatisfaction  
Absenteeism  
Turnover  
Physical/mental health problems