MEETINGS AND THE DAILY WELL-BEING OF EMPLOYEES

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ABSTRACT

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Although meetings are a pervasive experience of organizational life, researchers have not examined their effects on the employee. By likening meetings to interruptions and daily hassles, this study proposed that the meeting experiences of an employee can affect his/her daily well-being. Participants were asked to maintain a daily work diary of their work meetings for a period of one week. They were also asked to complete daily self-reports of their well-being, which included measures of fatigue, negative mood, subjective workload, and feelings of productivity. Based upon the work diary, information about various aspects of the employee's daily meeting experiences were gathered, including: number of meetings attended, percentage of time they consumed, how they were scheduled, and their relevance to the employee's primary work goals.

Using HLM analyses, results showed statistically significant relationships between number of meetings attended and daily fatigue as well as subjective workload. The extent to which meetings helped employees achieve work goals and were relevant to their roles and responsibilities were positively related to daily feelings of productivity. Exploratory HLM analyses indicated that individual work stress significantly moderated several of the relationships between daily well-being and meeting experiences.

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INTRODUCTION

Meetings are an integral and pervasive experience of organizational life. As a forum in which employees communicate and coordinate the organization's goals and objectives, the meeting is a vehicle for many organizational activities, from problem-solving to interdepartmental interactions. As a metaphor for power relationships, the meeting also serves to sustain an organization's culture and organizational hierarchy (Schwartzman,1986; Tobia & Becker, 1990). Specifically, who gets invited to what meetings, whose time takes precedence during the scheduling of these meetings, and who dominates during these meetings are all factors that may indicate the status of individuals in the organization (Schwartzman, 1986).

Despite its critical function in organizations, the meeting has been overlooked as a topic of study in organizational research. In an extensive review of the literature, Schwartzman (1986) concluded that the meeting was a "neglected social form in organizational studies," and declared a research agenda to study meetings as a topic of investigation in their own right. She noted that meetings have often been the research tool for the study of other phenomena, such as decision-making processes, group conflict, communication, and other small-group dynamics; however, little research exists which examines the meeting as the primary topic of interest.

In my search of the extant literature, I found little to alleviate Schwartzman's original concerns about the meeting as a neglected topic in organizational studies. Much of the work done, as found in trade articles, has been speculative in nature (e.g., Jordan & Tipgos, 1987; Nave, 1983). The scarce empirical research that does exist is either narrowly focused on the format (e.g., Bluedorn, Turban, & Love, 1999) and structure of meetings (e.g., Volkema, &

Niederman, 1995), or is driven by other interests, such as technology (e.g., Kiesler & Sproull, 1992; Rawlins, 1990). No research, for instance, has systematically examined the impact that meetings may have on the employee. Considering reports of employee frustration with meetings and the inordinate amount of time they consume (e.g., Mosvick & Nelson, 1987; Tobia & Becker, 1990), one would expect that meetings should affect the employee in various ways.

The purpose of this study was to examine the negative effects of meetings on the daily well-being of employees. Specifically, I hypothesized that meetings can lower the employee's feelings of productivity as well as increase levels of fatigue, negative mood, and workload. Before I discuss the premises for my hypotheses, I will first present some further background information on the meeting as it was relevant to my study, beginning with a definition of the phenomenon.

THE MEETING

A definition

In 1961, Goffman provided the traditional definition of the meeting that has most often been cited by researchers – as a gathering of two or more people for the purposes of focused interaction. However, this definition is inadequate when discussing present-day organizational meetings. First, it fails to prevent purely social encounters at work from being considered meetings. As specified by Schwartzman (1986), the purpose of the meeting must ostensibly relate to the functioning of the organization or group. Second, Goffman had implied that meetings are necessarily face-to-face interactions (Schwartzman, 1986). Because the advent of technology has allowed individuals to meet while remaining at disparate sites, this definition would erroneously exclude meetings that occur via modalities alternate to the traditional face-to-face format, such as audio- and video-conferencing (Kiesler & Sproull 1992).

Finally, it is important to note that meetings may be scheduled appointments or unplanned encounters (Schwartzman, 1986). Scheduled meetings are those that have been scheduled in advance and which usually recurs over time (e.g., the weekly staff meeting). In contrast, unscheduled meetings are not planned in advance, and may be called because of a need to exchange information or to quickly make a decision (e.g., one co-worker stopping in another's office to informally discuss a current project). Although unplanned encounters are not typically thought of as meetings, they are rather prevalent (Mintzberg, 1973) and furthermore, may have a greater effect on the employee to the extent that time is not allotted for them. In light of these considerations, I forward the more contemporary and inclusive definition of the meeting which I will be utilizing in this paper—as a scheduled or

unscheduled gathering, via any modality, of two or more individuals for the purpose of a work-related focused interaction.

Prevalence of meetings

Due mainly to the increasing emphasis upon participative management and a growing interdependence of business units (Mosvick & Nelson, 1987), there has been a steady surge in meetings in the last few decades. Since a 1973 study by Mintzberg, which found that the majority of a manager's typical workday (69%) was spent in meetings, more recent surveys have reported that the number and length of meetings have steadily increased. Mosvick & Nelson (1987), for example, reported that a survey of 600 chief executives in the Chicago area revealed that the average executive participated in twice as many meetings as reported in an earlier survey in the 1960s. Tobia & Becker (1990) reported the statistics from a survey of 1,900 business leaders, showing that almost 72 percent of individuals currently spend more time in meetings than they did five years ago. In addition, more than 49 percent surveyed expect to be spending even more time in meetings four years from now.

Problems with meetings

A review of the popular literature reveals a great deal of anecdotal testimony regarding the problems that employees find with meetings. For instance, when asked to list their three most time-consuming activities, managers invariably named meetings as one of them (MacKenzie, 1972). Similarly, numerous titles such as "Making Meetings Work" (Bradford, 1976) and "Making the Most of Meeting Time" (Tobia & Becker, 1990) reveal the shortcomings of many meetings.

To assess meeting efficiency and their level of satisfaction with the meetings they attended, Mosvick and Nelson (1987) conducted a survey of 950 managers and technical

professionals. The results yielded only a 47-percent level of efficiency and similarly low ratings of satisfaction. In these surveys, respondents also listed their top problems with meetings, the most prevalent of which included "getting off the subject," "no goals or agenda," "too lengthy," and "time wasted" (Mosvick & Nelson, 1987). As implied by these responses, the lack of a meeting's success may be due to a host of reasons, from structural problems (e.g., "too many people") to interpersonal ones (e.g., "individuals dominate discussion") (Mosvick & Nelson, 1987). A prevalent source of inefficiency and dissatisfaction also appears to be related to the fact that meetings are a burden on the employee's time (e.g., "starting late," "too lengthy") (Mosvick & Nelson, 1987).

Given the prevalence and reported problems with meetings, it is disconcerting that, with the exception of a few studies and much anecdotal information, we have sparse well-founded, research-based knowledge about them. For instance, while meeting problems lead to employee dissatisfaction with the meeting itself, are there any other work-related implications for the individual? Specifically, given the amount of time that meetings consume of an employee's work day, can they increase fatigue, and negatively affect mood and productivity? Furthermore, what about the meeting is detrimental; is it the sheer number that one has to attend, or are there other aspects of the meeting (e.g., whether it is scheduled or unscheduled, how relevant it is to the job) that can lead to negative consequences? The present study attempts to answer these questions, by examining the daily meeting experiences of a sample of employees and how these meeting experiences affect how they feel at the end of each day. These outcomes, which I will refer to as daily well-being, include factors such as fatigue, mood, perceptions of workload, and feelings of productivity. These variables have been the criteria of interest in many studies on stress and psychological

well-being (e.g., Caspi, Bolger, & Eckenrode, 1987; DiLorenzo, Bovbjerg, Montgomery, Valdimarsdottir, & Jacobsen, 1999; Ganster & Schaubroeck, 1991; Jamal, 1990).

THE PRESENT STUDY

To examine whether meetings impact the daily well-being of employees, I put forth the argument that meetings exist as forms of daily hassles and interruptions for employees working in an individual-oriented workplace. Below, I discuss in greater depth these studies on interruptions and daily hassles. Then, I will present the rationale underlying my conceptualization of meetings as forms of interruptions and daily hassles. Finally, I will draw from this research to generate specific hypotheses regarding what aspects of an employee's meeting experiences (e.g., the amount of time they consume, how they are scheduled, etc.) account for any negative effects.

Daily hassles

Defined in the stress research literature as "annoying episodes in which daily tasks become more difficult or demanding than anticipated, " hassles have been found to predict stress symptoms better than most other predictor variables (Zohar, 1999). Although found to vary, from equipment malfunction to inappropriate behavior of co-workers (Zohar, 1999), such obstacles predict an array of stress-related effects, including burnout (Zohar, 1997), anxiety, depression, and other negative emotions (Koch, Tung, Gmelch, & Swent,1982; Motowidlo, Packard, & Manning, 1986).

In a recent study, Zohar (1999) examined the effects of occupational hassles on negative mood and exertion in a sample of parachute trainers. Work hassles faced by the participants (e.g., equipment failure, administrative hassles) were provided by experts in daily records. Meanwhile, the dependent variables of negative mood and effort exertion (as indicated by fatigue) were obtained via participant self-reports. Using pooled-time series analysis, in which participant cross sections and time series are combined then analyzed

using ordinary regression analyses, Zohar found that severity of hassles predicted end-of-day mood, fatigue, and subjective workload.

Several theories have been put forth to explain the effects of hassles. In his summary, Zohar (1999) suggested that these explanations can all fall under the rubric of action theory, which proposes that hassles cause negative effects because they prevent or delay the individual from reaching his/her goal. Specifically, when an on-going activity is interrupted by an external factor (i.e., a hassle), the individual must then exert greater effort in trying to overcome the obstacle. This greater exertion of effort then depletes the resources for the primary task, which may result in increased fatigue and negative mood. In addition, negative mood can also occur because the rate of progress toward completion of the primary task has been slowed. Based upon research showing that progress toward personal goals affects emotional reactions (e.g., Emmons, 1986, 1991), the premise of this explanation is that negative mood is induced when the rate of progress toward completion of a task is slower than anticipated. Hence, hassles are expected to produce negative moods because they impede the progress toward a goal.

Interruptions

Similarly, the work on interruptions suggest that they can lead also to various negative effects. Based upon the early work of Zeigarnik and her colleagues (see Butterfield, 1964 for a review), Kirmeyer (1988) was led to believe that the interruption of tasks may be a plausible predictor of role overload stress. Known as the "Zeigarnik effect," these early studies found that when participants were prevented from finishing a task, they resumed the task when given the freedom to do so. In addition, interrupted tasks were recalled more frequently than finished tasks (Butterfield, 1964). Kirmeyer (1988) found these findings as

indirect evidence that role overload can be caused by interruption, which she conceptualized as "an uncontrollable and unpredictable stressor that results in information overload and cognitive fatigue."

In her study, Kirmeyer (1988) utilized an observational recording system whereby the objective assessment of the workload of police radio dispatchers could be obtained. Observers recorded the activities of participants during their work shifts and obtained quantitative measures of volume of work, interruptions, and competing demands. In addition, participants completed a standard self-report measure of perceived role overload as well as a measure of the Type A pattern. The findings revealed that the volume of work did not have a direct effect on perceived role overload, but instead was mediated through interruption. Furthermore, Type A individuals were more likely to appraise interruptions as overloading. Based on these findings, Kirmeyer concluded that researchers should utilize objective measures of workload as well as look beyond volume of work as the only causal factor of perceived role overload.

In explaining the findings of her study, Kirmeyer relied upon the research of Cohen (1980) on attentional capacity. Cohen had proposed that stressors place demands on one's attentional capacity, which may result in cognitive fatigue after prolonged exposure. Based upon this theory, Kirmeyer suggested that interruptions cause employees to leave tasks unfinished, which then require further effort to inhibit attention to them while having to process new information put forth by the interruption. Consequently, this may result in perceptions of greater role overload as well as efforts to cope. Although, she did not examine stress-related effects, Kirmeyer suggested that interruptions may also have consequences on the psychological well-being, somatic health, and social relations of the individual.

In a more recent study the psychological consequences of interruptions were examined (Zijlstra, Roe, Leonora, & Krediet, 1999). In lab-based experiments, the researchers had a sample of office workers work on a simulated office for a period of two days. During the text editing tasks, participants in the experimental group were periodically interrupted by telephone calls from the researcher. Zijlstra et al. found that these interruptions resulted in quicker performance, but with psychological costs. Specifically, interruptions had a negative impact on emotion and well-being (i.e., increased negative mood and effort expenditure). In contrast to Kirmeyer's (1988) theoretical explanations , Zijlstra et al. explained his findings on the theory of activity regulation. Basically, this theory states that the execution of work tasks is a goal-directed activity, in which actions are produced by executing one's cognitive schemes. When an interruption occurs, the regulation of activity and cognitive schemes are disrupted because the individual has to modify his/her action plans. In addition, interruptions put an additional demand on the resources needed for action execution as well as regulation of all activities.

In summary, the theories and findings in the interruptions and daily hassles literature suggest that these are very similar phenomena. Zijlstra et al.'s (1999) theoretical explanation for the effects of interruptions (i.e., theory of activity regulation) and Zohar's (1999) theoretical explanation for the effects of daily hassles (i.e., action theory) both rest on the premise that activities are goal-directed, and that disruptions drain the resources for the primary task, which subsequently result in fatigue and negative mood. Although Kirmeyer's (1988) theoretical explanation of attentional capacity differs from that of Zohar's, her finding that interruptions also lead to role overload suggests that daily hassles and interruptions have similar consequences on the well-being of the individual. Below, I put forth the argument

that work meetings may occur as interruptions or daily hassles by disrupting the employee's primary tasks. Specifically, the present study likens work meetings to these other phenomena of daily hassles and interruptions and examines whether meetings may exert similarly negative effects.

Meetings as interruptions and hassles in the individual-based organization

Within any organization in which an employee is held accountable for work that is conducted aside from work done during meetings, the meeting can have a disruptive effect on his/her primary tasks. Although this is a distinct possibility in most all organizations, this study focuses on the particular nature of an individual-based organization, in which the effects of meetings on the individual may be stronger than in, say, a team-based organization. That is, if meetings are disruptive because they prevent the individual from completing his/her primary tasks and goals, then their effects on the employee would be stronger in an individual- than in a team-based environment. This is due to the fact employees within a team-based organization are likely to be responsible mostly for work that is conducted within meetings, whereas employees within an individual-based organization are held individually accountable for their primary tasks, in addition to any work conducted with others. Hence, the effects of meetings on the employee's time and primary work tasks and goals would be even more disruptive in a predominately individual-based organization.

In summary, the current study examines the outcomes of daily well-being as a result of daily meeting experiences within an individual-based organization. By likening meetings to interruptions and daily hassles, this study proposes that meetings may have similar negative effects on the employee. In order to gain fuller understanding of meetings, the current study specifically examines what it is about meeting experiences that affect well-

being. As suggested by anecdotal information and survey responses (e.g., Mosvick & Nelson, 1987), particular aspects of the meeting (e.g., their length, scheduling, etc.) serve as the common source of complaints. Based upon related research and partly exploratory in nature, specific hypotheses were generated regarding the effects of these various aspects of the employee's meeting experiences on daily well-being.

HYPOTHESES

High meeting demands

Given the statistics indicating the inordinate amount of meetings employees have to attend in the current workplace (Mosvick & Nelson, 1987; Tobia & Becker, 1990), I began by examining the impact of the sheer number of meetings on the employee. Although anecdotal information would suggest that high meeting demands can adversely affect the individual, no research, to my knowledge, has examined this issue. Here, I argue that because individuals have to attend meetings in addition to their individual work tasks, meetings have a disruptive nature in the way that daily hassles and interruptions do. Consequently, the more meetings one has to attend, the greater the negative effects. Hence, I hypothesize:

Hypothesis 1a: The number of meetings attended will be negatively related to the daily well-being of the employee.

Because meetings vary in the amount of time they consume, it is important to also look beyond their sheer number. That is, an employee may have, say, five short meetings that take up only two hours of his/her workday; whereas, another individual may have five long meetings that take up five hours. Given that role overload refers to having too much to do in the time available (Beehr, Walsh, and Tabler, 1976; Kirmeyer, 1988), the proportional amount that an employee spends in meetings in a day may be more responsible for increasing subjective workload than the sheer number of meetings attended. Furthermore, if, as suggested in the literature, hassles and interruptions are disruptive because they prevent completion of a primary task (Zijlstra et al., 1999; Zohar, 1999), then the more time an employee spends in meetings, the less time he/she has to complete these primary tasks.

Hypothesis 1b: The duration of total time spent in meetings will be negatively related to the daily well-being of the employee.

Relevance

As noted by Zijlstra et al.(1999), the disruptive effects of interruption are not only due to the mere change in activity, but also to how great of a change occurs between the interruption and the interrupted task. That is, an interruption may have a greater negative impact if its nature is more incongruent with the primary task at hand. This suggestion is consistent with the theory of attentional capacity (Kirmeyer, 1988), which proposes that, when an interruption occurs, effort is required to inhibit attention to the primary task as well as to process new inputs which arise from the interruption. In addition, the individual may have to expend greater effort (which may result in fatigue, etc.) in order to switch to a new cognitive schema when an interruption occurs (Zijlstra et al., 1999). Hence, I expect that the incongruency between meetings and the employee's primary tasks would enhance the negative effects of high meeting demands, which is the basis of my next hypothesis:

Hypothesis 2: The relevance of meetings to the employee's primary work will be positively related to his/her daily well-being.

Scheduling

My third hypothesis concerns what Schwartzman (1986) termed as the meeting's continua of time, that is, whether it is a scheduled event or an unplanned encounter. Based upon the theoretical explanations offered for the effects of interruptions and daily hassles, it is reasonable to suggest that unscheduled meetings will have a greater negative impact than scheduled meetings. That is, if an interruption disrupts the individual's cognitive schema and regulated activity, as stated by Zijlstra et al. (1999), then the unexpectedness of an

unscheduled meeting should be more detrimental than a meeting for which the employee has known about in advance. In practical terms, an individual will likely plan his/her activities around scheduled meetings, which will reduce the likelihood that the meeting will disrupt a primary task or goal. Hence, I hypothesize:

Hypothesis 3: Unscheduled meetings (versus scheduled meetings) will be negatively related to the employee's daily well-being.

Individual-level variables

While the primary focus of this study was on the daily relationships between well-being and meeting experiences, also of interest were any individual-level variables that may account for the variance in daily-level outcomes. In other words, perhaps the effects of meetings on well-being may be stronger for some individuals than others. Individual-level factors, hence, may be moderators of the relationships between well-being and meeting experiences. Because this second purpose of the present study is largely exploratory, I do not propose any hypotheses. Individual-level variables that were examined included work stress and general demographics (e.g., gender, tenure, organizational and supervisory level).

METHOD

Participants

Of 121 individuals who were notified via regular mail about the study, 49 responded. Of these 49 individuals, 37 were selected to be in the final sample, based on the following criteria: 1) they had to have at least three meetings per the five-day period; and 2) to increase variability, the number of meetings had vary more than two levels across the five days (e.g., an individual with 2, 3, 0, 0, 2 number of meetings for day 1, day 2, and so forth would be included, but an individual with 3, 1, 1, 1, 1 number of meetings for day 1, day 2, and so forth would not be included). Participants were full-time employees working in a university-based setting. Based upon the following factors, the organization was determined to be mostly individual-based: primary work tasks were conducted individually; employees were held individually accountable for their work; the organization's hiring and performance appraisal practices were carried out at the individual (versus at the team) level; and the organization's reward system was individually-based.

The work performed by participants ranged widely but was primarily administrative work geared toward enhancing student campus life. Workdays were typically from 8 a.m. to 5 p.m. Participants were included in the study based upon the criterion that they must attend at least three work meetings per week, as well as have work, in addition to meeting-related tasks, that is conducted individually. Participants consisted of 21 females and 16 males between the ages of 24-60 ($\underline{M} = 37$). Average tenure with the organization was six years and average organizational level was 3 (on a scale of 1 to 5). The majority (85%) of participants reported having at least one direct report (the average number of direct reports was nine).

Procedure

Participants were told that this was a study about how employees feel about their work environment, so that the intentions of the study were not revealed. A prenotification letter from upper management was first sent to employees to express endorsement of the project. The researcher also then met with middle-managers to ask them to encourage their staff to participate. In order to increase participation, individuals who completed all questionnaires were entered into a lottery prize drawing for two cash prizes as well as given feedback at the end of the study.

At the beginning of the study, participants were asked to complete a measure of work stress as well as a set of general demographic questions. Participants were also instructed at this time on how to complete the daily work diaries. Basically, they were asked to complete a brief questionnaire after every work meeting they attended for a period of one week. In order to not inform participants that the primary topic of interest in this study was meetings, they were told that attending meetings was only one aspect of their work environment which was going to be examined in the study. Subsequently, the definition of a work meeting as a scheduled or unscheduled gathering, via any modality, of two or more individuals for the purpose of a work-related focused interaction was discussed and clarified with participants. They were told to use this definition to determine which of their work activities would qualify as a work meeting.

For a period of five full working days, participants completed their diary of work meetings and questionnaires of daily well-being. Although all participants completed a total of five diary days, these were not consecutive days for some individuals. To ensure better recall of events, participants completed a meeting questionnaire as soon as possible after they attended a meeting. Daily well-being questionnaires were not completed until the end of the

work day (usually 5 p.m.). To ensure a good response rate, the researcher contacted the participants several times throughout the data collection period to remind them to complete their work diaries, as well as to answer any questions.

Measures of Meeting Experiences

In order to obtain information about various aspects of the participants' daily meeting experiences, they were asked to maintain a daily work diary (see Appendix for all measures). Basically, this was a booklet that consisted of a set of questionnaires regarding work meetings and daily well-being. Below are various aspects of the participants' meeting experiences that were obtained from their work diaries.

Number of meetings. As noted above, participants were instructed to complete a questionnaire after every work meeting attended. The number of meetings per work day was simply determined by the number of questionnaires completed.

Duration of meetings. Participants had been instructed to indicate the starting and ending time of each meeting. The duration of meetings per day were then calculated by summing up the total number of minutes spent in meetings for each day.

Relevance. Relevance of meetings for each day was based upon responses to two items. For each work meeting, participants were asked to rate how relevant it was to their primary roles and responsibilities in their job (on a 5-point scale anchored 1, not at all, to 5, extremely), as well as how much the meeting helped them achieve their work goals (on a 5-point scale anchored 1, not at all, to 5, a great deal). The mean response to these two items across each day's meetings was used to calculate an index of daily meeting relevance. Inter-item reliabilities for this measure were high (alphas ranged from $\alpha = .77$ to .91 across the five

days). Using the mean of several events throughout a day to represent a daily index is consistent with other research which have examined daily processes (e.g., Zohar, 1999).

Scheduling. For each activity, participants were asked to indicate a "0" if the activity was unplanned and had just come up, or a "1" if it was scheduled earlier. An overall index of unscheduled meetings was obtained by calculating the ratio of the number of unscheduled meetings to the number of scheduled meetings. For example, a participant who has one unscheduled meeting and four scheduled ones received a daily index of 0.25 for this variable.

Measures of Daily Well-Being

Fatigue. Fatigue was measured with seven adjectives from the Fatigue Scale in POMS (Profile of Mood States; McNair, Lorr, & Droppleman, 1981). Participants were asked to rate how each of each of these adjectives (worn out, fatigued, bushed, exhausted, weary, spent, and tired) described them "at the present moment" (on a 5-point scale, anchored 1, not at all to 5, extremely). Studies have reported high validity and reliability for this measure. It has been found to be related to occupational hassles (Zohar, 1999) and emotional distress (DiLorenzo, et al., 1999) In my study, the scale demonstrated high internal consistency (alphas ranged from $\alpha = .94$ to $\alpha = .98$ across the five days).

Negative mood. Negative mood for each day was assessed with the brief measure of the PANAS-Mood scale (Positive Affect and Negative Affect Scales; Watson, Clark & Tellegen, 1988). Participants were asked to rate how each of 10 adjectives described them "at the present moment" (on a 5-point scale, anchored 1, not at all to 5, extremely). By asking participants to indicate their current state, negative mood was assessed as a state (versus as a trait). The scale has also been shown to be highly valid and reliable (Zohar, 1999). It has been reported to be related to self-reported stress, health complaints, frequency

of unpleasant events, and subsumes a variety of aversive mood states (Watson et al., 1988). In my study, the scale demonstrated high internal consistency (alphas ranged from $\alpha = .75$ to $\alpha = .89$ across the five days).

Subjective workload. Perceptions of work overload were adapted from a scale by Kirmeyer (1988). Participants were asked to rate the extent to which they felt (a) busy or rushed; (b) that the amount of work they did interfered with how well the work was done; (c) pressure in carrying out work duties; and (d) that the amount of work was more than expected (on a 5-point scale anchored 1, to no extent to 5, to a great extent). This measure has been demonstrated to be valid and reliable. It was found to be related to interruptions with a reported an internal consistency estimate (alpha) of .78 in Kirmeyer's (1988) study. In my study, the scale demonstrated high internal consistency (alphas ranged from $\alpha = .94$ to $\alpha = .98$ across the five days).

Feelings of productivity. Feelings of productivity were measured with a 4-item questionnaire. Participants were asked to indicate the extent to which they thought (a) their workday was productive; (b) they accomplished a lot at work that day; (c) their workday was a waste of time (reverse-scored); and (d) their time spent at work that day was useful (on a 5-point scale anchored 1, to no extent to 5, to a great extent). The scale demonstrated high internal consistency (alphas ranged from $\alpha = .85$ to $\alpha = .87$ across the five days).

Job stress

Work stress was measured using the Stress in General Scale (SIG; Stanton, Balzer, Smith, Parra, & Ironson, 1999). This is a 16-item measure, in which participants are asked to indicate whether particular adjectives describe their job. Sample items include demanding,

pressured, hectic, pushed, and hassled. This scale has been found to be highly reliable and valid. In my study, $\underline{\alpha} = .86$.

ANALYSES

The data were arranged in a 37 x 5 (Subjects x Days) design. Analysis of the hypotheses warranted attention at two levels: the day and individual. As noted by Bryk & Raudenbush (1992), hierarchical linear modeling (HLM) is the preferred analytical technique when data structures are nested, such as persons nested within organizational units (e.g., schools), or as in this study, repeated observations nested within persons. Although HLM was used to analyze the current dataset, it may be informative to briefly discuss other analytical methods in order to justify the appropriateness of HLM in this situation.

First, one can analyze the dataset using ordinary least-squares (OLS) regression on the 37 X 5 = 185 observations, whereby individual-level variables are essentially ignored. As indicated by West and Hepworth (1991), this approach is certainly appealing because it increases the effective sample size and statistical power. However, this technique is inappropriate given the assumptions of OLS that nested data structures do not meet. First and foremost is the assumption of independence, which would be violated by the fact that daily observations of the same individual are statistically dependent. Using traditional linear model analysis on datasets where observations are dependent could result in estimated standard errors that are too small, which may in turn lead to inflation in the Type I error rate, and spurious findings (see Bryk & Raudenbush, 1992; Vancouver, Millsap, & Peters, 1994; West & Hepworth, 1991). A second problem in using this approach is that we cannot detect potential individual differences in the relationships between meeting experiences and daily well-being (Vancouver, Millsap, & Peters, 1994).

Another possible analytical approach is to aggregate all daily observations to the individual level. In the current dataset, for example, the aggregate or mean of daily well-

being would be calculated across the five days for each individual. Note that utilizing this approach would not be erroneous in the sense that using OLS is because aggregation does not violate any statistical assumptions. However, the aggregation approach is not ideal mainly because aggregation would result in ignoring all within-subjects (i.e., daily) variance (Bryk & Raudenbush, 1992). Consequently, relationships between aggregated variables tend to be stronger, and misinterpretation could occur if these results were used to understand the relationships between variables at the daily level (Bryk & Raudenbush, 1992). One other disadvantage in employing aggregate-level analysis is lower power, due to the subsequent decrease in the number of observations (i.e., sample size) since all daily-level relationships are aggregated to the individual-level.

Contrary to these other approaches, hierarchical linear modeling (HLM), also referred to as multilevel modeling, allows us to partition variances into within- and between-subjects components so that data may be considered from multiple levels. Similar to traditional linear analysis, basic assumptions of linearity, normality, and homogeneity of variance still have to be met (and are met in the current dataset). The hierarchical nature of HLM allows us to examine the behavior of a level-1 outcome as a function of both level-1 and level-2 predictors (Singer, 1998). Specifically, in the current dataset, we can study the influence of daily-level predictors (i.e., meeting experiences) on daily-level outcomes (i.e., well-being). Without yet including any level-2 predictors (e.g., work stress or demographic variables), this is referred to as the random-coefficients regression model (Singer, 1998). In this model, we are supposing that each of the individuals has a different regression model, with its own intercept and slope. Because individuals are also sampled, this model assumes that the

intercepts and slopes are a random sample from a population of individual parameters (see Bryk & Raudenbush, 1992).

Since the parameters modeled for each day are allowed to vary across individuals, we can examine variation in these parameters by including level-2 variables, within a second model built at the individual level. In the current dataset, for instance, we can examine variation in individual slopes by looking at the influence of any individual-level variables (e.g., work stress) on daily outcomes, after controlling for daily-level predictors. This model, generally referred to as the Slopes-as-Outcomes Model (see Bryk & Raudenbush, 1992), can be likened to a moderated regression approach in traditional linear analysis (see Vancouver et al., 1994). By including an individual-level variable, we can see if any of these level-2 variables moderates the relationships between the daily-level variables found in the random-coefficients model. The gammas (γ) derived from this analysis are essentially the regression weights for the individual-level variables on the slopes of the relationships between the daily-level variables.

Random coefficients regression model

The dependent variables of daily well-being (i.e., fatigue, mood, subjective workload, and feelings of productivity) were treated as univariate measures. The statistical model was as follows:

$$Y_{it} = \beta_0 + \beta_{it}(X_{it} - \overline{X}) + r_{it}$$

where Y is the dependent variable (e.g., fatigue, negative affect, subjective workload, feelings of productivity) for participant i on day t, β_o is the intercept, β_{it} is the regression coefficient or slope for participant i on day t, X is the independent variable (e.g., number of

meetings, duration of meetings, relevance of meetings, each subtracted from its grand mean $\overline{X}$;and scheduling of meetings) for participant i on day t, and r_{it} is an error term.

Slopes-as-Outcomes Model

As noted above, this model allows examination of individual variation in the slopes due to the influence of any individual-level variables. The statistical model was as follows:

$$Y_{it} = \gamma_{00} + \gamma_{10}(X_{it} - \overline{X}) + \gamma_{11}(Z)_i (X_{it} - \overline{X}) + r_{it}$$

where Y is the dependent variable (e.g., fatigue, negative affect, subjective workload, feelings of productivity) for participant i on day t, γ_{00} is the intercept, γ_{10} is the regression coefficient or slope for participant i on day t, X is the independent variable (e.g., number of meetings, duration of meetings, relevance of meetings, each subtracted from its grand mean $\overline{X}$; and scheduling of meetings) for participant i on day t, γ_{11} is the regression weight of the individual level variable Z on the slopes of the daily-level relationships, Z is the individual-level independent variable (e.g., demographics, work stress) for participant i, and r_{it} is an error term.

RESULTS

Descriptive statistics and covariation among dependent variables

Participants reported that the primary purpose of most meetings was to solve problems or analyze ideas. Most meetings were face-to-face interactions. Descriptive statistics for daily meeting experiences are shown in Table 1. Participants had, on average, three meetings per day. The average duration of meetings for each day was two and a half hours long (157.94 minutes). The obtained average of 1.18 for the number of unscheduled to scheduled meetings may be misleading because it gives more weight to instances in which unscheduled meetings exceeded scheduled meetings (the high standard deviation of 1.43 also indicates that the mean warrants further examination). That is, this average suggests a one-to-one ratio of these two types of meetings. A look of the frequencies shows a more complete picture: 50% of the days had more scheduled than unscheduled meetings; the number of unscheduled equaled to the number of scheduled meetings (i.e., a one-to-one ratio) for 12% of the days, and 33% of the days had more unscheduled than scheduled meetings. In short, a frequency count shows that there were comparatively more scheduled than unscheduled meetings.

Descriptive statistics for daily well-being are also shown in Table 1. Also shown in Table 1 are descriptive statistics for the work stress measure. Table 2 displays the intercorrelations among the dependent variables at the aggregate level., in which each observation is the mean across the five days for each individual

Random-coefficients regression results: Testing daily-level hypotheses

Note that due to issues of power, a simple regression approach was taken such that only one dependent and one independent variable were included at a time in each analysis.

In all, 25 analyses were conducted. Table 3 displays results of each of these HLM analyses in which only level-1 (i.e., daily-level) variables were included. As regression equations are assumed to vary across individuals, these estimated parameters represent the average intercept and slope of the 37 X 5 = 185 observations. Hence, the intercept indicates the estimated average daily well-being (e.g., fatigue, subjective workload, etc.), when the meeting experience (e.g. number of meetings, duration, etc.) is equal to the grand mean. For example, the average level of fatigue for all individuals was 2.01 when there were three meetings.

Similarly, the regression coefficient indicates the estimate average slope representing the relationship between particular meeting experiences and daily well-being. Results showed some support for my first hypothesis that high meeting demands are negatively related to daily well-being. Specifically, number of meetings was related to greater fatigue, $\beta = 0.088$, $p < .05$, and greater subjective workload, $\beta = 0.06$, $p < .05$. However, number of meetings was not related to negative affect or feelings of productivity (see Table 3). The other indicator of high meeting demands, which was the duration of meetings, was not found to be related to any of the measures of daily well-being (i.e., fatigue, negative affect, subjective workload, and feelings of productivity).

HLM analyses also showed some support for my second hypothesis that the relevance of meetings are positively related to daily well-being. Specifically, meetings that were perceived to be more relevant were positively related to greater daily feelings of productivity, $\beta = 0.194$, $p < .05$ (see Table 3). These effects of meeting relevance were not seen with fatigue, negative affect, and subjective workload. My third hypothesis that scheduling of meetings is negatively related to daily well-being was, however, not supported. HLM

analyses indicated that the ratio of unscheduled to scheduled meetings were not significantly related to any measures of daily well-being (i.e., fatigue, negative affect, subjective workload, and feelings of productivity).

Aggregated level analyses: Gauging effect sizes

As noted above, aggregating all variables to the individual level is not the ideal approach because we would be ignoring within-subjects variance. However, examining the correlations between aggregated variables may give a sense of the effect sizes, as understood in traditional linear analysis, of these relationships. Pearson correlations were calculated for the relationships that were found to be significant in the above random-coefficients analyses. For the relationship between number of meetings and fatigue, and number of meetings and subjective workload, $r = .423$ and $r = .306$, respectively. Pearson correlation was $r = .606$ for the relationship between the relevance of meetings and feelings of productivity.

Slopes-as-outcomes model results: Exploring individual-level variables

Recall that the random-coefficients regression (i.e., level-1) model estimates average regression models across individuals, with the assumption that parameters can vary. Based upon this assumption of parameter variation, this level-1 model also provides covariance parameter estimates which tell us about the variances of the random effects. Table 4 displays the estimated variance of the slopes (τ_{11}) among the 37 individual regression equations. As noted by Singer (1998), significance tests of these estimates are not very reliable; however, these indices do give an indication of how variable the regression coefficients are across individuals.

To further examine any variation in the slopes, individual-level variables were included in a slopes-as-outcomes (level-2) model. Table 4 displays results of the analyses

when demographic variables (e.g., gender, organizational level, tenure, supervisory level) and work stress served as the level-2 predictors. The gammas (γ) are the regression weights for the individual-level variables on the daily-level relationship's slopes. Standard errors are reported and used to detect significance. A significant gamma indicates that the individual-level (i.e., level-2) variable is moderating the relationship between the daily-level variables. Note that, as with multiple regression in traditional linear analysis, the gammas reflect the partialed covariances of the within-person (i.e., daily-level) variables.

Demographic variables. Results did not indicate that the strength of the relationships between meeting experiences (i.e., number of meetings, duration of meetings, meeting relevance, and the ratio of unscheduled to scheduled meetings) and daily well-being (i.e., fatigue, negative affect, subjective workload, and feelings of productivity) were associated with any of the demographic variables (see Table 4). In other words, neither gender, tenure, organizational level, nor supervisory level significantly moderated any of the daily-level relationships.

Work stress. Significant gammas did indicate that work stress moderated several of the relationships between meeting experiences and daily well-being. Specifically, work stress was found to moderate several relationships, between: 1) scheduling of meetings and daily fatigue, $\gamma = .011$, $p < .01$; 2) relevance of meetings and daily negative affect, $\gamma = .016$, $p < .01$; and 3) scheduling of meetings and daily negative affect, $\gamma = .006$, $p < .05$. Work stress was also examined as a potential moderator of all other daily-level relationships, but no significant relationships were found.

Given the significance of work stress as a moderator in some of the daily-level relationships, simple effects for high versus low work stress groups were examined.

Following procedures used in other studies that have employed multilevel modeling (e.g., Jex & Bliese, 1999) as well as recommendations for examining moderators in regression (see Aiken & West, 1991; Cohen & Cohen, 1983), a fixed value for high stress (1 SD above the mean) versus a fixed value for low stress (1 SD below the mean) was entered into the equation $\beta = \gamma_{10} + (\text{fixed value})\ \gamma_{11}$ to obtain the simple effect for each group (see Bryk & Raudenbush, 1992). Note that β is the essentially the regression coefficient for the relationship between the daily meeting experience (e.g., scheduling) and the daily well-being variable (e.g., fatigue) for either the high or the low stress group; γ_{10} is the partialled main effect of the level-1 variable; and γ_{11} is the regression weight of the level-2 variable from the slopes-as-outcomes model (see Bryk & Raudenbush, 1992).

For high stress individuals, the relationship of fatigue to the ratio of unscheduled to scheduled meetings was positive, $\beta = .147$ [i.e., $\gamma_{10} + (34.418)\ \gamma_{11} = -.247 + .394$]. In other words, for individuals who were experiencing high work stress, the more unscheduled meetings they had (to scheduled meetings), the greater fatigue they felt. On the other hand, the relationship between fatigue and scheduling for low stress individuals was negative, $\beta = -.126$ [i.e., $\gamma_{10} + (10.582)\ \gamma_{11} = -.247 + .121$]. It appears that for individuals who were experiencing low work stress, the more unscheduled meetings they had, the less fatigue they experienced.

Stress was also found to moderate the relationship between scheduling and negative affect. For high stress individuals, $\beta = .098$ [i.e., $\gamma_{10} + (34.418)\ \gamma_{11} = -.095 + .193$]. Although this coefficient indicates a weak slope, it does appear that individuals who were experiencing work stress felt greater negative affect when their ratio of unscheduled (to scheduled)

meetings increased. This relationship for low stress individuals was negligible, however, for low stress individuals, $\underline{\beta} = -.036$ [i.e., $\gamma_{10} + (10.582)\ \gamma_{11} = -.095 + .059$]

Finally, stress moderated the relationship between meeting relevance and negative affect. For high stress individuals, this relationship was positive, $\underline{\beta} = .20$ [i.e., $\gamma_{10} + (34.418)\ \gamma_{11} = -.365 + .565$]. Individuals who were experiencing high stress felt greater negative affect when their meetings were more relevant. In contrast, this relationship was negative for low stress individuals, $\underline{\beta} = -.191$ [i.e., $\gamma_{01} + (10.582)\ \gamma_{11} = -.365 + .174$]. Low stress individuals felt less negative affect when the relevance of their meetings increased.

DISCUSSION

The primary objective of this study was to examine how particular meeting experiences may affect the daily well-being of employees. It was proposed that high meeting demands, relevance of meetings, and scheduling of meetings would be related to daily well-being variables such as fatigue, negative affect, workload, and feelings of productivity. Below, I discuss the findings in regard to each meeting experience that was examined in the current study. Although I will focus on the daily-level variables, I will also discuss in conjunction with these meeting variables, the individual-level (i.e., demographics and work stress) variables that were explored in this study as potential moderators of the relationships between meeting experiences and well-being. In addition, I will discuss the research and practical implications of the current findings, the limitations of this study, and propose areas for future research.

High meeting demands

Number of meetings. Number of meetings per day was hypothesized to be negatively related to daily well-being, based upon the idea that high meeting demands are potential interruptions or hassles to the employee. HLM analyses found that the number of meetings an employee had per day was related to increased daily fatigue as well as greater subjective workload. These findings are essentially consistent with previous studies on daily hassles and interruptions, which found that these phenomena had similarly adverse effects upon the individual.

Theoretically speaking, explanations for the finding that number of meetings was related to greater fatigue can be drawn from Zijlstra et al.'s (1999) theoretical explanation for the effects of interruptions (i.e., theory of activity regulation) and Zohar's (1999) theoretical

explanation for the effects of daily hassles (i.e., action theory), both of which rest on the premise that activities are goal-directed, and that disruptions drain the resources for the primary task, subsequently resulting in greater fatigue. Given that participants in the current study were working in an individual-based organization in which they were held individually accountable for their work, having to attend meetings was likely a disruption of their primary tasks. Hence, having more meetings increased this disruptive effect, further draining resources for their primary tasks, and resulting in greater fatigue. If these meetings that the employee had to attend were not part of his or her primary roles and responsibilities, then this disruptive effect would be obvious. However, it could very well be that these meetings were part of the employee's primary work. Their effects may nevertheless be salient, to the extent that the individual was disrupted from the task at hand (i.e., whatever he or she was working on at the time he or she had to attend the meeting).

The theoretical explanation underlying the relationship between number of meetings and increased subjective workload can be drawn from Kirmeyer's (1988) theoretical explanation of attentional capacity to explain how interruptions lead to role overload. Based upon this theory, having to attend meetings would cause individuals to leave tasks unfinished, which then require further effort to inhibit attention to these tasks while having to process new information put forth by the meetings, resulting in perceptions of greater role overload. Having to attend more meetings throughout a day, then, would cause not only more tasks to be left unfinished but also more new information that needs to be processed. This would then require even greater effort to inhibit attention to one's primary tasks while having to process even more new information, thereby increasing perceptions of workload.

Contrary to expectations, number of meetings was not related to negative affect. One plausible explanation for this null finding may be due to the fact that there was little variation in daily feelings of negative affect, with few individuals reporting that they experienced negative moods greater than a little extent. Perhaps participants, despite the instructions provided, were interpreting negative affect as a "trait" versus as a "state" and hence were hesitant about endorsing the negative adjectives. This restriction in range may have suppressed what could have been otherwise strong correlations between negative affect and meeting experiences.

Number of meetings was also not related to feelings of productivity. Whereas the theories underlying the effects of interruptions and hassles would predict that number of meetings affects negative affect, it is not surprising that there was a null finding with feelings of productivity. That is, action theory and the theory of activity regulation and attentional capacity suggest that the disruptive nature of meetings results in drained emotional or mental resources and subsequent fatigue or negative affect, but does not imply much about how a disruption would cause an individual to feel about how much he or she has accomplished. It is as reasonable to suggest that disruptions decrease feelings of productivity (because the individual feels that his or her primary tasks are not completed) as it is to suggest the reverse, that disruptions increase feelings of productivity (because the individual experiences an increase in activity or information). In short, it appears that feelings of productivity is conceptually different from the other dependent variables of daily well-being, such that it is not a consequence of the resulting emotional or psychological drain of resources that occurs from disruptions, as are fatigue and negative affect.

Duration of meetings. While number of meetings was related to several aspects of daily well-being, the duration of these meetings did not exhibit any significant relationships. The null finding in regard to duration, although contrary to my hypothesis, is actually more consistent with the research literature on interruptions. Zijlstra et al. (1999), in finding that it is the frequency of interruptions and not the amount of time they consume that leads to negative consequences, had concluded that "being interrupted several times has a greater effect than one interruption that takes longer."

Theoretically speaking, if meetings place increased demands on the individual's attentional capacity by causing them to inhibit attention to current tasks in order to process new inputs (Kirmeyer, 1988), then number of meetings should generate more new inputs that have to be processed than the length of these meetings. Practically speaking, five meetings would generate more and a greater variety of issues, ideas, and concerns which demand the individual's attention than one long meeting that consumes the same amount of time. In summary, although the role overload literature suggests that duration of meetings can have effects on the individual, the null findings in regard to this variable are more consistent with the research literature on interruptions.

Although the analyses were exploratory, the lack of significant findings regarding work stress as a potential moderator between high meeting demands and daily well-being is rather surprising. Given the disruptive nature of high number of meetings, for instance, it is to be expected that individuals who were experiencing high work stress would be more negatively affected by these high meeting demands than those who were experiencing low work stress.

It should be noted that data points were plotted to test for nonlinear effects, and it was assumed that the relationships between meeting demands (as well as all other variables) and daily well-being were linear. It is possible, however, that a threshold not detected in the current study may exist for well-being and number or duration of meetings. In other words, perhaps, well-being does not decline until an employee has more than, say, five meetings per day or more than four hours of meetings. Due to limited observations, this possibility was not examined in the current study. Future research should examine the possibility of a threshold effect of high meeting demands.

Relevance of meetings

HLM analyses showed that the relevance of meetings, in terms of how meetings helped achieve work goals and were relevant to the employee's primary work roles and responsibilities, was positively related to daily feelings of productivity. As noted above, none of the theories underlying interruptions and hassles speak much to how meeting experiences would affect how much an individual feels he or she has accomplished because feelings of productivity is not a consequence, per se, of drained mental or emotional resources. Practically speaking, however, it makes logical sense that employees would feel that they have accomplished more if the meetings they have had to attend were related to their primary work goals. In other words, individuals were able to get at least some of their primary work done at these meetings, thereby causing them to feel productive at the end of the day.

Relevance of meetings was not found to be related to the other daily well-being variables of fatigue or subjective workload. This may indicate not only that, as noted above, feelings of productivity is a conceptually different variable from the other well-being

variables, but also that meeting relevance has a different relationship to the dependent variables than other aspects of the meeting (e.g., high meeting demands). That is, as discussed above, meetings which are relevant can nevertheless be disruptive to the extent that their mere existence disrupts the primary task at hand (i.e., the task the individual was working on at the time he or she had to attend the meeting).

Perhaps we are seeing two levels of "primary work": the task at hand and the employee's essential duties and functions. It appears that the disruptive nature of meetings affects fatigue and workload because, according to the theories underlying interruptions and hassles, meetings disrupt the individual's task at hand and drain subsequent resources, resulting in expended exertion and negative emotions (Zijlstra, 1999). In other words, there may be a temporal nature to the effects of interruptions (see Zijlstra, 1999) such that disruption occurs in regard to immediate tasks. Meetings can be relevant to the individual's primary roles and responsibilities, but if their occurrence affects the completion of a task at hand, they are inevitably disruptive and result in increased fatigue and workload. (It should be noted that this is only a conjecture since multiple regression analyses of meeting relevance and other meeting experiences were not conducted). In short, relevance to the employee's roles and responsibilities is not pertinent to fatigue, negative affect, or workload because these variables are related to the disruption of the task at hand. In contrast, the more "essential" level of meeting relevance to the employees' roles and responsibilities would affect how productive they feel simply because these meetings allowed them to accomplish more.

HLM exploratory analyses of individual-level variables as potential moderators of the relationships between meeting relevance and daily well-being yielded additional interesting

findings. It was found that work stress was a significant moderator, such that individuals with high work stress experienced increased negative affect when their meetings were more relevant; in contrast, individuals with low work stress felt less negative affect when their meetings were more relevant. A plausible explanation for these findings may be that individuals who were already experiencing high stress perceived those meeting that are work-oriented (i.e., relevant to their primary roles and responsibilities) to be an unpleasant indication of more work.

On the other hand, individuals who were low in work stress felt less negative affect when their meetings were more relevant perhaps because these meetings further helped them achieve their work goals. It should be noted that these results only tell us that the relationships between meeting relevance and negative affect are different between individuals of different stress levels, but they do not tell us that these effects of meeting relevance on negative affect are significantly different from zero. Hence, the proposition that negative affect occurs as a result of disruption of the task at hand, regardless of meeting relevance, is not necessarily discounted.

Scheduling of meetings

Before discussing the relationships of scheduling to daily well-being, it should be acknowledged that the limitation of the findings in regard to scheduling may lie in how it was operationalized in the current study. Scheduling was determined by an index ratio of the number of unscheduled meetings to the number of scheduled meetings. Due to the lack of the number of only unscheduled meetings, this was the most feasible operational definition. Hence, caution should be taken in interpreting the results to the extent that the findings may be partially skewed by this definition.

Although the main effect of scheduling of meetings (the ratio of the number of unscheduled to scheduled meetings) on daily well-being was not found, scheduling did exhibit some interesting relationships with daily well-being variables with work stress as a moderator. First, individuals high in work stress experienced greater fatigue as well as greater negative affect when the ratio of unscheduled (to scheduled) meetings increased. This finding is consistent with the study by Kirmeyer (1988), in which she found that Type A individuals were more likely to appraise interruptions as overloading.

In light of the research literature on the Type A pattern and stress (e.g., Burnam, Pennebaker, Glass, 1975; Spence, Helmreich, & Pred, 1987), which states that individuals who exhibit the Type A pattern are characterized by time urgency, impatience, and greater preoccupation with deadlines, and consequently, are at greater risk for stress-related disorders, the moderating effect of work stress on the relationship between unscheduled meetings and daily well-being is quite interesting. It appears that the uncontrollable and unpredictable nature of the interruption which makes it a stressor (see Kirmeyer, 1988) is felt only by those who are already high in work stress. Although it may be mere conjecture since Type A pattern was not measured in this study, it may be that these high stress individuals are also characterized by the Type A pattern. Subsequently, having more meetings for which they had not planned or known about in advance resulted in decreased daily well-being (i.e., increased fatigue and negative affect). It should be noted that the effect of unscheduled meetings on fatigue was greater than on negative affect for these high stress individuals. As noted above, this may be because of low variance in the variable of negative affect, which was perhaps due to how it was perceived by participants (i.e., as a trait versus as a state).

In contrast to high stress individuals who exhibited decreased daily well-being when their ratio of unscheduled (to scheduled) meetings increased, individuals who reported low work stress had the opposite relationship. That is, low stress individuals felt less fatigue when they had more unscheduled meetings. (There was no effect upon negative affect, possibly due to lack of variance in the dependent variable, as discussed above.)

One plausible explanation for this finding may be that for individuals who were experiencing low levels of work stress, the unexpected nature of unscheduled meetings served as a certain stimulant. Based upon the concept of arousal, Frankenhaeuser and Gardell (1976) posited that there is a curvilinear relationship between workload and well-being and behavioral efficiency. At low levels of arousal (i.e., work underload), individuals tend to be inattentive and bored; at very high levels of arousal (i.e., work overload), the individual experiences tension, decline in performance, due to impaired selectivity of responses. In the current study, reported low stress may be an indicator of work underload. Hence, having more unpredictable events (i.e., unscheduled meetings) during the workday may well serve as a positive form of arousal for those who are experiencing low workload. In other words, lower fatigue may arise from this greater arousal. Individuals feeling bored and inattentive from work underload, aroused from their boredom by unplanned meetings, may then feel less fatigue when they are aroused from their boredom.

This is not to say, however, that unscheduled meetings actually increased the individual's workload or how much he or she accomplished. That is, the arousal from unscheduled meetings was likely, in essence, psychological or emotional. Hence, the null findings in regard to work stress as a potential moderator between scheduling and subjective

workload and scheduling and feelings of productivity do not contradict this relationship between lowered fatigue and a greater ratio of unscheduled meetings.

OVERALL SUMMARY AND IMPLICATIONS

The current study has potentially major implications for the organization and its employees. Results show that particular meeting experiences are significantly related to the employee's level of fatigue, workload, and mood. Indeed, there may be a grain of truth to the anecdotal information voicing employee dissatisfaction and burnout with their work meetings. It appears that having to attend generally more meetings is related to increased daily fatigue and perceptions of workload. In taking heed of these findings, organizations should limit the number of meetings employees are required to attend. While the scope of the current study suggests only daily-level negative outcomes from having more meetings, these negative effects may compound over time, resulting in decreased satisfaction, poor performance, absenteeism, and even turnover.

Organizations should also attempt to ensure that meetings are scheduled ahead of time. Current findings showed that having to attend more unscheduled meetings than scheduled meetings can increase fatigue and negative affect for individuals who are already experiencing high work stress, but result in less fatigue for those experiencing low stress. Given that high stress individuals are more vulnerable, it would be more prudent for the organization to address the concerns of this group. Additionally, in consideration of the literature on time management, it seems illogical to recommend that organizations have meetings for which employees have not planned their time. If, as proposed above, low stress individuals are experiencing less fatigue with unscheduled (to scheduled) meetings because the unplanned nature of unscheduled meetings sparks an otherwise low level of arousal, then a more practical suggestion would be perhaps to increase the employee's workload or to give him or her more interesting work.

On a positive note, the current findings also show that not all meetings are detrimental to the individual's daily well-being. Specifically, meetings which are relevant to the individual's primary roles and responsibility are positively related to his or her feelings of productivity. Although this outcome was measured only for a short-time period, feelings of productivity may very well lead to more stable outcomes such as employee satisfaction. In addition, if feelings of productivity are indicative of actual productivity, then relevant meetings can ultimately affect the bottom line of the organization. In light of these factors, the current study suggests that organizations should ensure that meetings are relevant to employees' primary roles and responsibilities and help them achieve their work goals. Some possible ways to increase relevance are to have a meeting agenda, to have well-facilitated discussions in order to limit digressions, and to invite only those who are impacted by the purpose of the meeting.

The current findings reveal a more complex regarding the relevance of meetings and its relationship to negative affect. As expected, individuals low in work stress experience less negative affect when relevance increases; however, individuals experiencing high work stress experience more negative affect when the relevance of meetings increases. This latter finding does not, however, nullify the recommendation that organizations ensure that meetings are relevant. First, the main effect of relevance on feelings of productivity is quite compelling. Second, in terms of the efficient use of resources (i.e., staff and time), it is illogical to suggest that organizations make their meetings irrelevant to the employee's work. If, as proposed above, individuals high in work stress are experiencing increased negative affect because they perceive highly relevant meetings as increasing their workload, then organizations should keep in check the amount of work employees are given. Decreasing the

relevance of meetings for high stress employees would likely not result in any positive outcomes.

In summary, the current study suggests that organizations take heed of the quantity and quality of the meetings their employees have to attend because meetings can result in negative psychological outcomes. It is suggested that organizations limit the number of meetings employees have, ensure that these meetings are scheduled, and that they are relevant to the employee's primary work. Obviously, organizations should also keep other aspects of the employee's work life in check (e.g., his or her workload and level of work stress) as meetings do not occur in a vacuum and its effects may depend upon individual factors.

The present study also has implications for research. First, by drawing parallels between the research on interruptions and daily hassles, the present study indicates that these are similar phenomena which may be examined on common theoretical grounds. Future research which examines any of these phenomena should pull together and reference previous research on hassles and interruptions as a single body of literature. Additionally, the present study introduces the meeting as a potential disruption, further contributing to the research literature on hassles and interruptions by including the meeting as one more type of hassle or interruption that can occur for individuals. This study also contributes to the extant research on work stress, by suggesting that the meeting may be a potential stressor and predecessor of work overload. Furthermore, the current findings suggest that general work stress may serve as a significant moderator between a specific stressor (in this case, meeting experiences) and its outcomes. In other words, an individual may experience a general or global level of stress, which then affects how he or she reacts to micro-stressors.

LIMITATIONS AND FUTURE RESEARCH

There are several limitations to the current study. The first few are related to statistical, sampling, and methodological issues. First, due to issues of power, a simple regression approach was taken such that only one dependent and one independent variable were included at a time in each analysis. As a result, I was not able to examine the predictors simultaneously. Hence, the current study failed to indicate which meeting experiences would account for the most variance in daily well-being. Future research should attempt to collect more data points within each individual (i.e., daily observations) so that multivariate regression analyses can be conducted.

Second, the generalizability of the current findings to other samples and organizational settings may be limited. That is, participants in the current study were generally administrative employees working in a university setting. It is reasonable to suspect that meetings and hence, their effects, would vary across different types of organizations and employees. For instance, the adverse effects of meetings may be more salient in areas of work that entail a greater deal of time pressure (e.g., hospital emergency room), especially if we are to think of meetings as impeding upon the individual's primary resources (i.e., time) to perform his or her primary tasks. A potential area for future research is to examine the effects of meetings upon the employee in other settings and with other samples.

Third, the methodological limitation of the current study lies in its use of self-report questionnaires to measure all the variables. As expressed by critics of self-report measures (see Crampton & Wagner, 1994), the general concern regarding the use of self-reports is that measures of covariation are artificially elevated, producing percept-percept inflation.

Although this is a valid concern, it is not highly likely that the significant results of the current study are due to this artifact for the following reasons. First, not all expected relationships were found to be significant. In other words, if percept-percept inflation were to occur, one would expect that measures of covariation for all relationships would be elevated, resulting in all expected relationships to be significant, and not only a few as seen in the current study.

Additionally, some of the variables in the current study were "objective" measures (i.e., number and duration of meetings). As recommended by researchers of work stress (Greiner, Krause, Ragland, & Fisher, 1998), measures assessed independently of the individual's perception and interpretation may be used to help remedy the problem of confounding. It is also noteworthy that measures in the current study were completed at different times. For instance, meeting variables (e.g., relevance) were completed immediately after each meeting occurred (this varied throughout the day); daily well-being variables were completed all at once at the end of each day; and work stress was completed at the very beginning of the study. In summary, percept-percept inflation is a valid concern whenever self-reports are used; however, given the above reasons, this is an unlikely explanation for the significant findings in the current study.

The fourth limitation of the current study is due to the fact that the only criterion of interest was daily well-being, which was comprised of fatigue, negative affect, subjective workload, and feelings of productivity. Although the conceptualization and measurement of this criterion were based upon relevant previous research, future research may want to expand the current study's notion of well-being as well to examine any other variables upon which the meeting may have effects. For instance, physiological consequences on the

individual may be examined, given that meetings can be a potential stressor. Relatedly, it should be acknowledged that daily well-being may be related to various other factors besides meetings. For instance, the employee's physical health, home life, or even whether or not he or she had a good night's sleep the day before may affect his or her well-being above and beyond the effects of meetings. Hence, future research should examine the effects of meetings upon well-being within the context of these other factors.

The fifth limitation of this study lies with the fact that many other aspects of the meeting, which were not included, can have effects on the individual. For instance, the process of the meeting in terms of its format or how it was conducted, may be examined in future research to see how they may affect employee perceptions and subsequent factors such as performance or well-being. Bluedorn et al. (1999), for instance, examined the effects of stand-up versus sit-down meeting formats and found that participants were more satisfied with sit-down meetings, although these meetings did not produce higher quality decisions.

Another format-related aspect of the meeting that may have effects on the individual is whether the meeting was conducted via the traditional face-to-face interaction, email, teleconferencing, videoconferencing, or other electronic means. Studies on group decision-making (see Guzzo & Dickson, 1996) have found that computers do affect group outcomes and performance. This research literature on groups also suggests other meeting aspects which warrant examination (see Levine & Moreland, 1985; Martens, 1970) For instance, perhaps the number of attendees at the meeting and the extent to which the individual participated in the meeting may affect well-being and other outcomes.

Relatedly, although not a limitation, the current study provided participants with a rather broad definition of the meeting. Based upon feedback from participants after they

completed their work diaries, it was learned that individuals tended to consider interactions that were rather substantive in nature to be meetings and did not consider casual encounters. Future research should further refine the definition of the meeting such that a universal definition can be referred to in this body of research. Furthermore, specifying various kinds of meetings may shed light upon their different effects on the employee.

The sixth limitation of this study lies with the fact that the meeting experience was examined at a daily level. This was done because of a primary interest in daily well-being. As such, the current study is more focused on an average perception of several meetings throughout an individual's day, and variation between meetings within each day were missed. Future research may want to look at the meeting at the meeting-level. This more micro-examination would shed greater light on the meeting itself. For example, the outcomes arising from a meeting (e.g., participant satisfaction, quality of decisions, etc.) may be related to factors which would not be meaningful to average across a day's meetings, but which must be examined at the meeting-level (e.g., who called or ran the meeting, whether the meeting started or ended on time, etc.). Although no research exists, it is reasonable to expect, for instance, that a meeting that does not start or end on time would result in lowered satisfaction with that meeting.

Finally, another limitation of the current study lies in the fact that only certain individual-level variables were examined as potential moderators. This was done because level-2 predictors were a secondary purpose of this study. However, some of the significant findings suggest that future research should examine these and other variables in greater depth. For instance, potentially important moderators such as the Type A pattern and perhaps some personality variables (e.g., the Big Five) might have significantly moderated

the relationship between meeting experiences and daily well-being. As discussed above, the significance of work stress as a moderator in the current study suggests that the Type A pattern may be a potential moderator. One could also speculate, for instance, that the personality dimension of agreeableness would moderate the relationship between meeting experiences and daily well-being, such that highly agreeable individuals are less likely to be negatively affected by frequent, longer, and irrelevant meetings than individuals who are low in agreeableness

Another individual-level variable that warrants further research as a potential moderator is based upon the idea that perhaps individuals all carry with them a general attitude toward meetings. In a study which examined respondent noncompliance to employee attitude surveys, Rogelberg, Luong, Sederburg, & Cristol (2000) proposed that an individual's overarching attitudes about the value of survey research and his or her feelings toward the actual act of completing surveys may affect whether he or she is going to comply to respond. Similarly, individuals may have an overarching negative or positive attitude toward meetings which may affect how they react to meetings themselves or various aspects of the meeting. Although no extant research exists which has looked at attitudes toward meetings, anecdotal information (see MacKenzie, 1972; Tobia & Becker, 1990) suggests that a general attitude toward meetings may very well exist. This attitude may then moderate meeting experiences and daily well-being. For instance, perhaps individuals with a general negative attitude toward meetings are more likely to feel fatigue when they have to attend more meetings than those who have more positive feelings about meetings.

CONCLUSION

As one of the few systematic efforts to examine the work meeting, the current study is one of the few to take heed of Schwartzman's (1986) call to study meetings as a topic of investigation in their own right. By lending validity to the primarily anecdotal information that does exist which suggests individual dissatisfaction with meetings, the present study systematically examined specific aspects of the meeting and their effects on daily well-being. The findings that meetings do occur frequently and their occurrence can have negative consequences for the individual should invoke researchers to examine in greater depth the variables that were explored, as well as to examine other aspects of the meeting that may account for any significant effects on the individual. In conclusion, the present study provides unique insight into the daily effects of meetings on the employee, and serves as an impetus for conducting further research on a prevalent organizational phenomenon.

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APPENDIX A. MEASURES

Please answer the following questions regarding yourself and your job. Place an X in the blank or write in the space provided.

1. What is your gender? __Male __Female

2. What is your age? _____ years

3. How long have you been with the current organization? ____ years ____ months

4. What is your current job title? _____

5. Assume there are 5 levels within your organization, with 1 being the lowest and 5 being the highest. At what level is your job?
   __1 __2 __3 __4 __5

6. Do you supervise others? If yes, how many individuals are under your *direct* supervision?
   ___No ___Yes; number of individuals:_____

7. What are your main responsibilities? List and describe, for instance, your top 3 responsibilities.

YOUR STRESS AT WORK

Do you find your job stressful? For each of the following words or phrases, circle: 1 for "Yes" if it describes your job, 2 for "No" if it does not describe it, or 3 for "?" if you cannot decide

	Yes	No	?
Demanding	1	2	3
Pressured	1	2	3
Hectic	1	2	3
Calm	1	2	3
Relaxed	1	2	3
Many things stressful	1	2	3
Pushed	1	2	3
Way too busy	1	2	3
Irritating	1	2	3
Under control	1	2	3
Nerve-wracking	1	2	3
Hassled	1	2	3
Comfortable	1	2	3
More stressful than I'd like	1	2	3
Smooth-running	1	2	3
Overwhelming	1	2	3

This following scale consists of a number of words that describe different feelings and emotions. Read each item and then write in the number that indicates the extent to which the word describes your feelings right now, that is, at the present moment. Example: If you feel a little happy right now, you would write "2" next to the word "happy."

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

___interested
___distressed
___excited
___upset
___strong
___guilty
___scared
___hostile
___enthusiastic
___proud
___worn out
___bushed
___weary
___tired

___irritable
___alert
___ashamed
___inspired
___nervous
___determined
___attentive
___jittery
___active
___afraid
___fatigued
___exhausted
___spent

Using the 5-point scale provided below, please answer the following questions. Circle the number that best corresponds to your response.

	To no extent	To a little extent	To a moderate extent	To a good extent	To a great extent
To what extent did you feel busy or rushed today?	1	2	3	4	5
To what extent did you feel that the amount of work you did interfered with how well the work was done?	1	2	3	4	5
To what extent did you feel pressure in carrying out your work duties?	1	2	3	4	5
To what extent did you feel that the amount of work you had was more than expected?	1	2	3	4	5
To what extent do you feel your work day today was productive?	1	2	3	4	5
To what extent do you feel that you accomplished a lot today?	1	2	3	4	5
To what extent do you feel that much of today was a waste of time?	1	2	3	4	5
To what extent do you feel that the time you spent at work today was useful?	1	2	3	4	5

MEETING # _____ DAY # _____ Today's date: _____ Please answer the below questions either by writing in the space provided, or by placing an X in the blank next to your response.

1. What was done at the meeting?

2. What time did the meeting start? _____ What time did it end? _____

3. What was the *primary* purpose of the meeting?
   __Brainstorming/Problem-solving - problem(s) were analyzed or solved, ideas or concepts were generated
   __Demonstration/Presentation - a product, idea, service, or project was presented or explained
   __Ceremonial - an individual or event was honored, e.g., a co-worker's birthday was celebrated
   __Other, please specify: _____

4. Was this a meeting that:
   ___Was unscheduled, just came up
   ___Was scheduled (you knew about it when you came in to work today)

5. What was the format of this meeting? __Face-to-face __Via telephone
   __Via video-conferencing
   __Other – Please specify: _____

6. Think about your primary role(s) and responsibilities in your job. How relevant was this meeting to these roles and responsibilities?
   ___1 = Not at all relevant
   ___2 = A little relevant
   ___3 = Somewhat relevant
   ___4 = Considerably relevant
   ___5 = Extremely relevant

7. Think about your primary work goals. How much did this meeting help you achieve these goals?
   ___1 = Not at all
   ___2 = A little
   ___3 = Somewhat
   ___4 = Considerably
   ___5= A great deal

APPENDIX B. TABLES

Table 1

Descriptive Statistics of Daily Meeting Experiences, Well-Being, and Work Stress

Daily meeting experience variables		M	SD
Number of meetings		3.00	1.96
Duration of meetings (in minutes)		157.94	130.06
Relevance of meetings[1]		3.76	0.80
Ratio of unscheduled to scheduled meetings		1.18	1.43
Daily well-being variables			
Fatigue[2]		2.04	1.02
Negative mood[2]		1.26	0.42
Subject workload[3]		2.25	0.96
Feelings of productivity[3]		3.59	0.78
Stress in General[4]	(Range 0-48)	22.50	11.92

[1]Responses on a 5-point scale anchored 1, not at all, to 5, extremely for relevance to roles and responsibilities question; anchored 1, not at all, to 5, a great deal for helping to achieve primary work goals question.
[2]Responses on a 5-point scale anchored 1, very slightly or not at all, to 5, extremely.
[3]Responses on a 5-point scale anchored 1, to no extent, to 5, to a great extent.
[4]Responses on a 3-point "Yes", "No", or "?" scale (Yes= 3, No = 0, and ? = 1) as to whether words or phrases describe the situation. Responses are summated not means.

Table 2

Intercorrelations of Dependent Variables

Variable	1	2	3	4
1. Fatigue	--	.492**	.404*	-.134
2. Negative affect		--	.512**	.025
3. Subject workload			--	.199
4. Feelings of productivity				--

*p<.05, **p<.01

Note: N = 37. These are aggregate-level correlations, taken to the individual level. Each observation is the mean across the five days for each individual. Hence, daily-level variances are ignored.

Table 3

HLM Random-Coefficients Regression Results

	Meeting experiences							
	# of mtgs.		Duration		Relevance		Scheduling	
Daily well-being	β_0	β_{it}	β_0	β_{it}	β_0	β_{it}	β_0	β_{it}
Fatigue	2.01	.088*	2.03	.001	2.05	-.018	2.06	-.016
Negative affect	1.25	.034	1.23	.000	1.27	-.016	1.24	.026
Subjective workload	2.24	.060*	2.26	.000	2.27	-.020	2.25	.006
Feel. prod.	3.57	.045	3.58	.000	3.59	.194*	3.59	-.003

*p< .05

Note: N=37. β_0 = intercept. β_{it} = regression coefficient or slope. # of mtgs. = Number of meetings. Duration = Length of meetings. Relevance = Relevance of meetings. Scheduling = Ratio of unscheduled to scheduled meetings. Feel. prod. = Feelings of Productivity.

Table 4

HLM Slopes-as-Outcomes Model Results

		Individual –Level (Level-2) Predictors				
	β_{1j} (τ_{11})	Gender	Org. level	Tenure	Super.	Stress
Daily-Level (Level-1) Relationships		γ (SE)	γ (SE)	γ (SE)	γ (SE)	γ (SE)
Fatigue & # mtgs	.088 (.000)	-.089 (.079)	-.048 (.043)	-.005 (.006)	-.051 (.102)	-.003 (.003)
Fatigue & Dur.	.001 (.000)	.024 (.026)	.013 (.014)	.003 (.005)	.069 (.048)	.001 (.002)
Fatigue & Rel.	-.018 (.029)	-.145 (.214)	.010 (.125)	.012 (.018)	.200 (.225)	-.002 (.009)
Fatigue & Sched.	-.016 (.000)	.049 (.105)	-.059 (.075)	.001 (.008)	.010 (.130)	.011** (.004)
Neg. aff. & # mtgs	.034 (.001)	-.003 (.027)	-.026 (.016)	-.004 (.002)	.027 (.027)	.002 (.001)
Neg. aff. & Dur.	.000 (.000)	.000 (.001)	.000 (.000)	.000 (.000)	.001 (.001)	.000 (.000)
Neg. aff. & Rel.	-.016 (.000)	.030 (.089)	.002 (.054)	.000 (.008)	.006 (.088)	.016** (.004)
Neg. aff. & Sched.	.026 (.015)	.068 (.058)	-.002 (.041)	-.001 (.005)	-.044 (.064)	.006* (.002)
Subj. wkld. & # mtgs.	.060 (.000)	.053 (.061)	-.007 (.033)	-.003 (.005)	-.100 (.078)	.000 (.002)

(table continues)

		Individual –Level (Level-2) Predictors				
	β_{it} (τ_{11})	Gender	Org. level	Tenure	Super.	Stress
Daily-Level (Level-1) Relationships		γ (SE)	γ (SE)	γ (SE)	γ (SE)	γ (SE)
Subj. wkld. & Dur.	.000 (.000)	.000 (.001)	.000 (.000)	.000 (.000)	-.001 (.002)	.000 (.000)
Subj. wkld. & Rel.	-.020 (.022)	-.071 (.160)	.011 (.092)	-.001 (.013)	.021 (.168)	.005 (.006)
Subj. wkld. & Sched.	.006 (.016)	.007 (.009)	.093 (.060)	.006 (.007)	-.053 (.093)	.006 (.004)
Feel. prod. & # mtgs.	.045 (.001)	.012 (.058)	-.040 (.032)	.004 (.005)	-.011 (.078)	-.004 (.002)
Feel. prod. & Dur.	.000 (.000)	.000 (.001)	.000 (.000)	.000 (.000)	-.001 (.001)	-.001 (.000)
Feel. prod. & Rel.	.194 (.027)	.024 (.152)	.058 (.089)	-.009 (.013)	-.030 (.163)	.005 (.006)
Feel. prod. & Sched.	-.003 (.000)	-.037 (.052)	.118 (.093)	.006 (.014)	.114 (.175)	.000 (.006)

*p < .05, **p < .01

Note: N=37. β_{it} from the random-coefficients model in which only level-1 predictors were included. τ_{11} = Estimated variation among the regression coefficients. γ = gamma, which indicates the relationship between the individual-level factors and the daily-level beta weights. SE = Standard error of the gammas. Org. level = Level in organization. Super. = Whether or not individual supervised others. Stress = Work stress. # mtgs. = Number of meetings. Dur. = Duration of meetings. Rel. = Relevance of meetings. Sched. = Ratio of unscheduled to scheduled meetings. Neg. aff. = Negative affect. Subj. wkld.= Subjective workload. Feel. prod. = Feelings of productivity.