When Customers Exhibit Verbal Aggression Employees Pay Cognitive Costs

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Abstract

In four experimental studies, we show that customer verbal aggression impaired the cognitive performance of the targets of this aggression. In Study 1, customers’ verbal aggression reduced recall of customers’ requests. Study 2 extended these findings by showing that customer verbal aggression impaired recognition memory and working memory among employees of a cellular communication provider. In Study 3, the ability to take another’s perspective attenuated the negative effects of customer verbal aggression on participants’ cognitive performance. Study 4 linked customer verbal aggression to quality of task performance, showing a particularly negative influence of aggressive requests delivered by high-status customers. Together, these studies suggest that the effects of even minor aggression from customers can strongly affect the immediate cognitive performance of customer service employees and reduce their task performance. The implications for research on aggression and for the practice of customer service are discussed.

Key Words: Verbal Aggression, Cognition, Customer Service Performance
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“The customer is always right” is a ubiquitous organizational mantra (Kern & Grandey, 2009), followed closely by “service with a smile” (Rafaeli & Sutton, 1987). Undeniably, in a consumer-centered economy it is impossible to ignore the effects of customer satisfaction on organizational success. However, inherent in these formulas is the notion of a power imbalance between customers and employees, which may encourage customers to take advantage of employees. Indeed, more and more studies are showing the dark side of customer-employee transactions, where employees are targets of customer aggression (Boyd, 2002; Grandey, Dickter, & Sin, 2004; Grandey, Rafaeli, Ravid, Wirtz, & Steiner, 2010; Harris & Reynolds, 2003; Ravid, Rafaeli, & Grandey, 2010; Ringstad, 2005). Such experiences have organizational as well as personal costs. For example, customer aggression has been found to be a predictor of job burnout and employee emotional exhaustion (e.g., Ben-Zur & Yagil, 2005; Deery, Iverson, & Walsh, 2002; Dormann & Zapf, 2004; Grandey et al., 2004; Harris & Reynolds, 2003; Ringstad, 2005). In turn, emotional exhaustion has been found to predict a reduction in job performance and an increase in employee withdrawal (Deery et al., 2002; Grandey et al., 2004; Wright & Bonett, 1997; Wright & Cropanzano, 1998). Thus, when customers treat employees badly, firms pay at least part of the price.

An underlying assumption of research on customer aggression is that a single hostile incident is not likely to be very harmful (Kern & Grandey, 2009). Instead, small recurring incidents of customer aggression are thought to act as “daily hassles” with long-term emotional effects (e.g., Ben-Zur & Yagil, 2005; Deery et al., 2002; Dormann & Zapf, 2004; Grandey et al., 2004; Harris & Reynolds, 2003; Ringstad, 2005). Consequently, investigations into a direct link between single incidents of customer aggression and cognitive performance are sparse.
Yet the few studies that have investigated the link between verbal aggression and performance clearly indicate that even isolated incidents of mild aggression can cause performance decrements. For example, Porath and Erez (2007, 2009) demonstrated that a brief single hostile incident caused cognitive disruption and negative arousal which, in turn, led to an immediate reduction in the task performance and creativity of both victims and witnesses. Similarly, Miron-Spektor, Efrat-Treister, Rafaeli, and Schwartz-Cohen (2011) showed negative effects of brief anger on creativity and problem solving in the target person. Goldberg and Grandey (2007) found that customer hostility increased the number of errors participants made in processing customer requests. Meanwhile, Skarlicki, van Jaarsveld, and Walker (2008) demonstrated that perceptions of customer injustice led to customer-directed sabotage by employees, which in turn reduced aggregated performance; and Wang, Liao, Zhan, and Shi (2011) found that daily mistreatment by customers was related to a daily increase in customer-directed employee sabotage, implying that customer aggression has immediate negative consequences for performance. The present study builds on and extends these findings by showing that customer verbal aggression can have a negative impact on employee cognition.

An important foundation for the present study is the extensive theoretical analysis by Beal, Weiss, Barros, and MacDermid (2005), which suggested multiple pathways by which affective events can lead to decrements in cognitive performance. According to Beal et al. (2005), performance on a task is a function of the resources available for performing the task. When resources are focused elsewhere (for example, on emotions), performance is likely to suffer (see also Kanfer & Ackerman, 1989). Beal et al. (2005) then suggest a number of ways by which emotional events consume attentional resources, and are therefore likely to impair task performance. Customer aggression can be construed as an affective event because it induces
strong negative affective states (Grandey, Tam, & Brauburger, 2002; Rupp, McCance, Spencer, & Sonntag, 2008; Rupp & Spencer, 2006). As such, and building on Beal et al. (2005), events of customer aggression can be expected to consume attentional resources and to reduce task performance.

Beal et al.’s (2005) theoretical model has yet to be empirically tested, and the path from customer aggression to task performance via cognitive disruption has not been empirically established. In this paper, we help fill this gap by examining disruption to employees’ cognition as a key mechanism behind the negative effect of customer verbal aggression on task performance. In four studies, we test for disruptive effects of customers’ verbal aggression on employee cognitive processes, namely free recall, recognition memory, and working memory. Beyond this, we seek to identify factors that qualify the effects of customer verbal aggression on cognitive disruption. Specifically, we test for individual characteristics of both the victim and the aggressor (in our experiments, the employee and customer respectively) that moderate the effects of customer verbal aggression on employees’ cognitive functioning.

In the following section, we describe the rationale for our overarching research hypothesis: namely, that customer verbal aggression results in cognitive disruption which, in turn, leads to decrements in employees’ task performance. We conclude that section with an overview of our hypotheses and the four studies in which we test them. We then describe our methods and results for the four studies. A general discussion concludes the paper.

**Customer Verbal Aggression and Employee Cognitive Performance**

Beal et al. (2005) described three key dynamics by which emotional events consume cognitive resources: *secondary appraisal* of interpersonal encounters; *rumination* about social encounters; and *arousal* following social encounters. We propose that being the target of
customer aggression, and specifically customer verbal aggression, consumes resources through one or more of these processes, reducing the employee’s ability to focus attention on his or her work tasks.

**Secondary Appraisal of Customer Verbal Aggression and Employee Cognitive Performance**

People have a spontaneous need to evaluate the implications of what happens to them and to assess how what happens might influence their well-being. Lazarus (1991) proposed two evaluation processes: an automatic, fast-track process that is unavailable to consciousness (Schneider & Shiffrin, 1977), which he labeled “primary appraisal,” and a conscious process that he labeled “secondary appraisal.” The effects of primary appraisal are automatic and subconscious, and therefore are presumed to not consume cognitive capacity. In contrast, the secondary appraisal process is conscious, and as such is likely to shift one’s focus of attention away from other relevant tasks (Beal et al., 2005).

When an affective event is encountered (i.e., a customer is recognized as being hostile and verbally aggressive), Lazarus’ (1991) analysis suggests that the secondary appraisal process will be activated. In this appraisal process, individuals assess their control of the event, develop expectations about what the event means (Smith & Ellsworth, 1985; Smith & Kirby, 2001), and plan or develop their reactions to the event. For example, Folkins (1970) examined participants waiting for an electric shock for periods of time that varied from 30 seconds to 5 minutes. Physiological stress reactions were most pronounced when waiting times were brief and weakest when the wait was longer. Participants in the longer periods explicitly noted that while waiting, they started appraising what was going on, and as Lazarus’ (1991) idea of secondary appraisal would suggest, these thoughts seem to have helped them cope with the stress. For example, some
participants reported thinking that academic researchers would not truly injure participants, and others reported thinking that electric shocks from a battery-operated device should not be a cause for alarm.

More broadly, these descriptions illustrate how secondary appraisal can occupy the thought processes of people facing a threat, while also relieving some of the stress caused by the threat. As such, secondary appraisal clearly consumes cognitive resources and limits the cognitive resources available for other tasks (Clore, 1994). Assuming such dynamics occur with customer service employees, encounters with verbally aggressive customers are likely to reduce the employee’s attention to the task at hand. Instead of focusing on the work task, the employee will be thinking about the implications of the aggressive encounter. The employee may weigh different possible reasons for the aggression (“Was I at fault in some way? Is this customer justified in his anger, or is he being unfair?”). The employee may then consider how to react to this aggression. It is easy to see how this appraisal process may shift the employee’s attention away from the focal task, leading potentially to slower work and more errors.

**Rumination Following Customer Verbal Aggression and Task Performance**

A second process through which encounters with verbal aggression are likely to impair task performance is rumination. Rumination can include thoughts about why the aggression has occurred and / or plans for how to behave vis-à-vis the aggression (Bies, Tripp, & Kramer, 1997). Porath, Macinnis, and Folkes (2010) recently reported that merely witnessing hostile interactions produced rumination about the event. Rumination, in turn, may be disruptive to cognitive functioning because it entails a persistent intrusion of negative thoughts into one’s regular and routine information processing (Watkins, 2008). For example, following aggression from customers, employees may ruminate about what the encounter means for their future work
in the organization. Will the customer file a complaint against them? Will management support them or the aggressive customer? The employee may even get angrier thinking about how, in previous encounters with aggressive customers, he/she did not receive appropriate support from management. Again, it is easy to see how such thoughts could consume cognitive resources needed for performing other tasks.

Rumination may appear similar to secondary appraisal. The difference is that secondary appraisal is a limited process, wherein the problems occupying an individual’s thoughts are presumed to be resolved (Lazarus, 1991) and thus cease to occupy the mind. Rumination can occur when the problem is not resolved through secondary appraisal, and therefore continues to intrude into the person’s thought processes (Watkins, 2008). Repeated thoughts about a stressful event are not necessarily unconstructive (Watkins, 2008), because such thoughts can help people make sense of and work through the stress caused by the event (Harber & Pennebaker, 1992; Horowitz, 1986; Janoff-Bulman, 1992; Tait & Silver, 1989). Indeed, rumination has been shown to help individuals invoke their core personal beliefs to reduce stress (Greenberg, 1995; Horowitz, 1985; McCann, Sakheim, & Abrahamson, 1988; McIntosh, Silver, & Wortman, 1993). However, whether constructive or not, rumination consumes cognitive resources, thus limiting the resources available for task performance (Beal et al., 2005).

**Arousal following Customer Verbal Aggression and Task Performance**

An aggressive encounter can also reduce the cognitive resources available to an employee by elevating arousal (Beal et al., 2005). Customer aggression has been shown to evoke in employees high-arousal emotions, such as anger (Grandey et al., 2002; Rupp et al., 2008; Rupp & Spencer, 2006). Indeed, Porath and Erez (2009) found that merely observing an aggressive exchange between parties induces high-arousal negative feelings. Aggression elevates arousal
because it is likely to be perceived as a sign of danger, to which the body responds with increased muscle tension, elevated heart rate, and other physiological changes that prepare it for “fight or flight” (LeDoux, 1996). High levels of arousal, in turn, are argued to consume cognitive resources and to reduce task performance (e.g., Porath & Erez, 2009), and to more generally impair cognitive processing (e.g., Easterbrook, 1959; Eysenck, 1982; Mandler, 1975) and problem solving (Beier, 1951; Maltzman, Fox, & Morrisett, 1953; Pally, 1954).

Arousal is thought to affect cognitive functioning through two key mechanisms. First, arousal is known to produce a narrowing of perception and memory, improving memory of central features of an event and diminishing memory of peripheral aspects (e.g., Burke, Heuer, & Reisberg, 1992; Christianson & Loftus, 1987, 1991; Christianson, Loftus, Hoffman, & Loftus, 1991; Safer, Christianson, Autry, & Osterlund, 1998; Wessel & Merckelbach, 1997). That is, more-aroused people tend to focus their attention on immediately relevant cues and to ignore more peripheral information (Easterbrook, 1959). For this reason, high arousal is likely to impair performance on complex tasks, where utilization of incidental information may be essential to completing the task (Easterbrook, 1959). Employees facing a hostile customer may perceive their main task as handling the customer's hostility (Beal et al., 2005), while the employee’s job tasks are relegated to the periphery. Second, arousal may impair task performance because of the tendency of highly aroused people to default to their dominant response (Hull, 1943; Zajonc, 1965). An employee’s dominant response to a verbally aggressive customer – possibly an urge to retaliate or speak back – may not necessarily be the best way to solve the problem at hand.

In sum, customer verbal aggression may be predicted to deplete cognitive resources and impair cognitive processing by provoking a search for coping strategies (secondary appraisal); by creating an intrusion of negative thoughts into the work process (rumination); and /or by
narrowing the spectrum of utilized cues or increasing employee reliance on dominant responses (arousal). The overarching prediction of our study is that instances of customer verbal aggression may trigger any or all of these dynamics to impair employees’ cognitive performance. We test various aspects of this prediction in eight hypotheses over four separate studies, as shown in Table 1.

As the table makes clear, we have organized our hypotheses conceptually rather than in relation to the sequence of the studies. The first four hypotheses (H1a-H1d) deal with main effects of customer verbal aggression on cognitive performance, looking specifically at free recall (H1a), recognition memory (H1b), working memory (H1c), and overall performance on customer service tasks (H1d). These hypotheses are tested variously through the four studies, as shown in the table. In Studies 3 and 4 we also test potential moderating and mediating mechanisms that may help explain and qualify the first set of hypotheses. In Study 3, we test whether individual characteristics of the person experiencing the aggression (i.e., the employee in a real-world scenario) moderate the effects of customer verbal aggression on the employee’s cognitive functioning (H2 and H3). In Study 4, we investigate whether qualities of the aggressor, notably his or her value to the organization, moderate the effects of customer aggression on employee cognitive functioning (H4). Finally, in Study 4 we also test whether the relationship between customer verbal aggression and performance in a customer service task is mediated by disruption to working memory (H5).

In all four studies, participants were asked to imagine themselves in the position of a customer service representative (CSR). Based on random assignments, some of the participants were exposed to displays of customer aggression and some were not. In three of the four studies,
the participants were undergraduate students, while in the fourth (Study 2) they were real customer service employees.

**Study 1: Customer Verbal Aggression and Employee Free Recall**

A first test of our general contention that customer verbal aggression affects cognition is whether it influences memory. In Study 1, we examine memory at its most basic by testing free recall (the simplest form of memory task, in which participants are asked to remember items in any order).

Memory is comprised of short-term (working) memory, where information is typically retained for only a few minutes (Kandel, 2006), and long-term memory, which stores information on a fairly permanent basis, and is the ultimate destination for information that individuals intend to remember (Ashcraft, 1989). In order to retain information for future use (even only a few minutes into the future), individuals must either transfer the information from working memory to long-term memory, or extend the life of the working memory.

The main process by which information is retained is rehearsal. This can be of two types – maintenance rehearsal, and elaborative or comprehensive rehearsal (Craik & Lockhart, 1972) and both types of rehearsals are performed in working memory. The first type, maintenance rehearsal, involves a low-level, repetitive process of information recycling (e.g., mentally repeating the digits of a telephone number) in which information is held in working memory only during the repetition, or shortly after it is stopped. Baddeley and Hitch (1974) showed that maintenance rehearsal is impaired by the performance of other tasks that require cognitive resources. Thus, incidents of customer aggression are likely also interfere with maintenance rehearsal and limit the employee’s ability to retain information.
The second rehearsal process, elaborative rehearsal, is a deeper level of information processing, involving active attention to the meaning of the information being processed. Elaborative rehearsal is a more effective means of encoding information in long-term memory because in this process the brain establishes connections between the new information and other information (knowledge and experiences) already encoded (Ashcraft, 1989). Such rehearsal requires comprehension of the meaning of a message and active attention of the information receiver, who must realize the gist of the information and the necessity to store the information in long-term memory (Ashcraft, 1989). In that it requires active attention on the part of the encoder, elaborative rehearsal is vulnerable to anything likely to distract this attention – including customer aggression. Both types of rehearsal then could be impaired by customer aggression and accordingly retention of information and recall of the message is likely to be poor. Thus, we propose:

**Hypothesis 1a:** Exposure to customer verbal aggression will interfere with free recall of information.

**Method**

**Participants.** Data were collected from engineering students in a large university in Israel. Participation was on a voluntary basis, and those who participated received extra credit in one of their social science courses. Thirty-six undergraduate students (39% female) with a mean age of 24 (range 20-28) took part in the study.

**Materials and Procedure.** Participants were randomly assigned to one of two conditions, customer verbal aggression and control. Laboratory sessions lasted about 1 hour. Upon arriving at the lab, participants were told that the study was designed to explore the link between customer service and problem solving. Participants in both conditions listened to a short
recorded conversation between a customer and a customer service rep which formed the manipulation in the study (see below), after which they were asked to describe the conversation in detail (free recall task). They then performed a filler task for 25 minutes, following which they were again asked to describe in detail the conversation they had heard. Participants were then debriefed and thanked for their participation.

**Manipulation of customer verbal aggression.** Cellular providers routinely record customer calls to monitor quality of service. To create the manipulations for our first three studies, a manager and two employees of a large cellular provider in Israel listened to a random sample of recordings and selected calls that they identified as coming from verbally aggressive customers and calls in which they did not see the customer as aggressive. These calls were transcribed, and all identifying information was deleted from the transcripts. Two other employees then read and rated all transcripts on (a) the degree of customer verbal aggression (1=not at all aggressive to 5=very aggressive), and (b) the complexity of the customer’s request (1=technically very easy to 5=technically very difficult). Based on these transcripts and ratings, two research assistants selected six aggressive and six non-aggressive calls that were comparable in their technical complexity, and edited them to create, in each case, two separate transcripts of the same length (number of words), such that the customer requested help with the same problem but was verbally aggressive in one and neutral (not aggressive) in the other. A sample of undergraduate students (N=47) then rated these transcripts on the verbal aggression of the customer. Using these ratings, we selected three sets of paired transcripts (an example can be found in Appendix A).

For Study 1 we created an audio version of one transcript, with a male customer and a female CSR. Participants listened to the recorded interaction and were asked to imagine that they
were the employee in the call. Similar “imagining” techniques have been successfully used by multiple researchers to induce negative affect (Bless, 1996) and anger (Berkowitz & Donnerstein, 1982), and to manipulate procedural justice (De Cremer & Van Hiel, 2006) and rudeness (Porath & Erez, 2007).

Measures.

**Free recall.** After listening to the call, participants were asked to write down the details of the conversation, providing the *Time 1 Free Recall Test*. They were again asked to describe the conversation following a filler task, for the *Time 2 Free Recall Test*. In both memory tests, the instructions were to write down as many details as they could recall about the customer’s problem, the CSR’s responses, and the customer’s reaction to the employee. A graduate assistant counted the number of correct details recalled. The number of freely recalled details in Time 1 and Time 2 were taken as repeated measures of memory.

Results

**Manipulation Checks.** To verify that the experimental manipulations created the intended conditions, we recruited another sample of 75 undergraduate students from the same university (age: M=23.80 SD=2.52, 63.8% male). These participants listened to the phone interactions in the two manipulation conditions and then rated customer behavior on five items: “behaved aggressively towards the CSR”; “behaved in a hostile manner towards the CSR”; “treated the CSR with dignity” (reverse coded); “treated the CSR in a polite manner” (reverse coded); and “made improper comments” (the last three items are from the interpersonal justice

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1 We tested the effectiveness of our customer aggression manipulation with a different sample of participants to avoid potential confounds. Self-report checks of manipulations intended to induce emotional outcomes can significantly undermine the ecological validity of the study. Such reports may induce experimental influences, response effects, focus participants’ attention on emotions and therefore interfere with the task, and make people self-conscious and suspicious (see Isen & Erez, 2007).
sub-scale of Colquitt, 2001). Participants were asked to rate the degree to which each item
described the customer’s behavior using a seven-point scale (1=Very little and 7=Very much,
Cronbach’s α=0.92). A one-way analysis of variance (ANOVA) with customer verbal aggression
as the IV and the combined item ratings as the DV\(^2\) confirmed that the manipulation significantly
influenced participants' ratings of customer aggression (\(M_{\text{control}}= 2.03, SD_{\text{control}}= 1.08, N_{\text{control}}= 41; M_{\text{aggression}}= 5.05, SD_{\text{agression}} = 1.03, N_{\text{agression}} = 34; F(1, 74)= 144.55, p < .001\)). Thus, the
results confirmed the expected manipulation effects.

**Effects of Customer Verbal Aggression on Free Recall.** Means, standard deviations,
and intercorrelations among the study variables are provided in Table 2. We tested the influence
of customer aggression on free recall using repeated-measure ANOVA, with customer
aggression as the between-factor variable and the two recall measures as the within-factor
variable. Overall, participants’ free recall performance fell from Time 1 to Time 2 (\(F[1, 33] =13.41, p < .01, \eta^2=.29\)), suggesting that over time, all participants forgot essential details of the
conversation between the customer and the employee. However, customer verbal aggression
significantly influenced participants’ recall at both times (\(F[1, 33] =5.59, p < .05, \eta^2=.15\)),
supporting H1a.

Importantly, customer verbal aggression did not interact with the time of the recall test
(Time 1 or Time 2) to influence performance. In fact, the reduction in recall over time was
almost identical between the neutral condition (Time 1: M= 5.97, SD=2.29; Time 2: M=4.38,
SD=2.45; Mean difference: M=1.59, t=2.79, p<.05) and the verbal aggression condition (Time 1:

\(^2\) An exploratory factor analysis showed that the five items loaded on a one-factor model with an eigenvalue larger
than 1. The items explained 60.77% of the variance, and all items loaded significantly on the factor, with loadings exceeding .70. A confirmatory factor analysis showed that the fit indices of one-factor (df=5) and two-factor models
(df=4) were identical \(\chi^2=12\) (ns); RMSEA=.16; NNFI=.90; IFI=.97; PFNI=.29. These statistics indicate that the
models fit the data adequately and that the more parsimonious one-factor model is preferable (Bollen, 1989).
M= 4.41, SD=1.64; Time 2: M=3.14, SD=1.97; Mean difference: M=1.27, t=2.39, p<.05). This suggests that the memory loss occurred in participants’ working memory.

**Discussion**

Study 1 suggests that exposure to verbal aggression from customers interferes with employees’ ability to remember the content of a service call. In comparison to a control group, participants in the customer verbal aggression condition showed significantly less recall of the content of a phone conversation. In addition, participants in both conditions saw their recall drop over time, with an identical decline from the immediate to the delayed recall test. The decline over time that we measured can perhaps be attributed to the natural process of forgetting that occurs even when the mechanisms which encode information in long-term memory are activated (Ebbinghaus, 1885/1913). While natural forgetting may be exacerbated by various factors (including information acquired post-event; Ashcraft, 1989), our results do not suggest that such interference occurred. Rather, the results indicate that the memory loss was in the first few minutes after people listened to the message, suggesting that it is participants’ working memory, rather than long-term memory that was hampered by customer aggression.

Remembering the content of customers’ requests is important for customer service work, making the ability of customer aggression to interfere with employees’ working memory a significant problem for employee and organizational effectiveness. However, since free recall is known to be fragile and sensitive to interference (Eysenck & Keane, 2003), it is important to investigate whether the findings of Study 1 will hold with less fragile memory tasks. Study 2 was designed to challenge these findings in a more rigorous test of the effects of customer verbal aggression on memory – namely, a recognition task. In addition, Study 2 also investigated the effects of exposure to aggression on working memory.
Study 2: Customer Verbal Aggression and Employee Recognition Memory and Working Memory

Recognition memory is typically less sensitive to interference than free recall (Eysenck & Keane, 2003), since individuals are more easily able to recognize items from a list than to summon them unaided from memory. Study 2 was designed, first, to extend the previous study’s findings to the more robust case of recognition memory.

Hypothesis 1b: Exposure to customer verbal aggression will interfere with recognition memory.

Study 1 results imply that customer verbal aggression is likely to interfere with working memory. Working memory is the “workbench” of the memory system (Ashcraft, 1989) – the “place” where information is rehearsed and transferred to long-term memory. But working memory has additional functions of planning, integrating information, and initiating decision processes (Eysenck & Keane, 2003). Thus, if exposure to customer aggression interferes with working memory, its effects may extend beyond memory per se to general cognitive performance. In Study 2, we specifically test whether customer verbal aggression interferes with the analytical processes that occur in working memory.

Hypothesis 1c: Exposure to customer verbal aggression will interfere with processes of working memory.

In addition, although evidence supports the generalizability of research findings obtained in contrived settings (Locke, 1986), Study 2 meets the call to replicate findings using different subjects and settings (Cook & Campbell, 1979; Dipboye & Flanagan, 1979). In this second study, rather than student data, we report on data collected from employees with actual customer service experience.
Method

Participants. Data were collected from 72 employees of a large cellular communications provider in Israel (age range 20 to 32 years, mean age 25.18, 80.6% female). All data were collected during monthly team meetings that employees of this organization are required to attend. Each meeting is typically attended by 10 to 15 employees. Corporate senior management permitted the research team to attend these meetings, and employees were notified that participation in the study was voluntary, anonymous, and confidential. All the employees approached agreed to participate in the study.

Procedure and Materials. Employees were randomly assigned to one of two experimental conditions, a customer verbal aggression group and a control. As in Study 1, participants were told that the purpose of the study was to investigate the link between customer service and problem solving. Participants first read three transcripts of service calls as described in Study 1; these transcripts created the manipulation of customer verbal aggression (see below). Next, participants completed a working memory task, and then answered multiple choice questions about the content of the transcripts that they had read. They were then thanked, debriefed, and released. All experimental sessions lasted about 30 minutes.

Manipulation of Customer Verbal Aggression. Customer verbal aggression was manipulated by the transcripts of service calls that a participant was asked to read. All participants read three transcripts, and were randomly assigned to a condition of either 0 or 2 aggressive calls. As in Study 1, all participants were asked to imagine themselves as the employee receiving the calls whose transcripts they were reading. Thus, participants imagined that they were the targets of either three neutral calls, or two aggressive calls and one neutral call. All transcripts were one page long (approximately 25 lines; see Appendix A). The order of
transcripts in the material packets was counterbalanced, so that in the verbal aggression condition, participants saw the neutral transcript either first, second, or third.

Measures.

Recognition memory. Recognition memory was assessed by asking participants whether specific items were present in the transcripts they had read. Participants were asked three multiple-choice questions about each transcript, for a total of nine questions; each question had four response options with one correct answer. A sample question: "In the first call, what problem did the caller report?" (1) “The cell phone had no reception”; (2) “The cell phone shuts down during a conversation and does not turn on after that”; (3) “You cannot hear anything when the cell phone is on speaker”; (4) “The ring volume is too low.” There was no time limit for answering these questions, and the recognition memory score was the number of correct responses.

Working memory. Working memory was tested using items from the Raven test (Raven, Raven, & Court, 1998). The Raven test is typically used as a measure of general fluid intelligence, and is therefore useful here because studies have repeatedly shown working memory to be an essential element of fluid intelligence (Carpenter, Just, & Shell, 1990; Conway, Cowan, Bunting, Therriault, & Minkoff, 2002; Engle, Tuholski, Laughlin, & Conway, 1999; Kyllonen, 1996; Kyllonen & Christal, 1990). For example, Conway et al. (2002) reported a correlation of r=.98 (p < .01) between working memory and a general fluidity factor that included the Raven test.

The Raven test is a set of visual analogy problems, each comprising a 3 X 3 matrix of figural elements, such as geometric figures, lines, or background textures. One entry in each matrix is missing, and the participant is asked to fill in this entry from eight response alternatives presented below the matrix. The test instructs people to look across the rows and then look down the columns to determine the rules that guide the construction of the figures, and to follow these
rules in identifying the missing entry. The main difficulty in the Raven test is keeping track of all the figural attributes and rules, which requires holding a lot of information in working memory (Carpenter et al., 1990).

Since the data were collected in a work setting and the organization strictly limited the time employees could spend on the study, we chose a sample of 10 items from the 36 items comprising the full Raven test. We intentionally did not include items from level 1 of the Raven test, since these items are easy for most people to solve (around a 90% success rate; Raven et al., 1998) and as such should not require working memory capacity. Rather, we included items that represented moderate to high levels of difficulty – levels 2 and 3 of the test (Forbes, 1964; Raven et al., 1998). All participants were given eight minutes to solve all the problems.³

Results

Manipulation Checks. As in Study 1, the manipulation check was conducted with a different sample of participants. A sample of 43 undergraduate students in a large university in Israel (age: M=25.54, SD=2.20, 55.80% male) were asked to read the transcripts and to evaluate the behavior of the customer in each transcript with the same five-item scale described in Study 1 (α=0.93). A one-way analysis of variance (ANOVA) with the customer verbal aggression manipulation as the independent variable and the ratings as the dependent variable confirmed that the manipulation significantly influenced the ratings of customers’ aggression (Mcontrol= 1.40, SDcontrol= .35, Ncontrol= 24; Maggression= 3.68, SDaggression = .57, Naggression = 19; F(1, 42)= 256.39, p < .001). Here again the manipulation worked as expected.

³ We verified the validity of using a subset of Raven items in two ways. First, the error rate of our participants in solving these problems ranged from 48.6% to 87.1%, which is equivalent to the error rate that Forbes (1964) reported in a sample of 2256 British adults with all the Raven items. Second, a separate sample of 40 students in a large UK university (Age: M=24, SD=4.35, 62.5% female) answered all 36 items of the Raven test in 30 minutes, following the instructions of Raven et al. (1998). The correlation between their scores for our 10-item subset and for the remaining 26 items was r=.69 (p < .01). The correlation between scores for our subset and for items at the same level of difficulty (levels 2 and 3) was r =.73 (p < .01). Both correlations confirm the validity of the items used in this study.
Effects of Customer Verbal Aggression on CSR Recall and Working Memory. Means, standard deviations, and intercorrelations among the study variables are provided in Table 3. We tested the influence of customer verbal aggression on memory using multivariate analysis of variance (MANOVA), with the two dependent variables of recognition memory and working memory. The overall model of the influence of verbal aggression on the two dependent variables was significant (Multivariate F [2, 72] = 17.24, p<.01, η²=.33). A means comparison verified that participants in the verbal aggression condition recognized significantly fewer (F[1, 72] = 25.22, p<.01, η²=.27) correct responses (M=4.44, SD=1.44, N=36) than participants in the neutral condition (M=6.00, SD=1.17, N=36), supporting H1b. A comparison of the means also showed that those in the neutral condition performed significantly (F[1, 72] = 15.59, p<.01, η²=.18) better on the Raven test (M=3.83, SD=1.82, N=36) than those in the aggression condition (M=2.44, SD=1.05, N=36). These results lend support to H1c, since success on the Raven test relies on working memory.

Discussion

The findings of Study 2 add to Study 1 by showing that customer verbal aggression significantly interfered with the more robust (Ashcraft, 1989) recognition memory process and with working memory processes. The major functions of working memory are planning future actions, initiating retrieval and decision processes, integrating information coming into the memory system, and transferring information to long-term memory (Baddeley & Hitch, 1974). Studies have repeatedly shown that cognitive activities such as recall, learning, reasoning, and problem solving are highly dependent on a functional working memory (Baddeley, 1976, 1992). Moreover, working memory is limited in capacity (Just & Carpenter, 1992), so factors that interfere with working memory also constrain other cognitive functions that depend on it.
Customer service work requires simultaneous performance of multiple cognitive tasks (e.g., understanding and dealing with customer requests while operating computer software), so reductions in working memory following customer verbal aggression are likely to be evident in employees’ task performance. Later, in Study 4, we complete this link in our story by investigating H1d, which proposes that customer verbal aggression will have a direct effect on employees’ task performance.

Our analysis thus far has not considered possible effects due to individual differences. However, it is unlikely that customer aggression affects all individuals in the same manner. Therefore, Study 3 brings into the picture the relationship between individual differences and the influence of customer verbal aggression on working memory.

In addition, while Studies 1 and 2 support the generalizability of our findings by using different subjects and settings, it is possible that our results thus far are unique to the Israeli context. It may be, for example, that Israelis’ constant sense of being under threat from terrorists and neighboring states makes them more sensitive to expressions of aggression than people who live in more stable environments. Thus, to test the generalizability of our findings in other countries, in Study 3 we investigate the effects of customer verbal aggression on working memory in a sample from the United Kingdom.

**Study 3: Moderators of the Effects of Customer Verbal Aggression on Employee Cognitive Performance**

One factor that may moderate the relationship between exposure to customer aggression and an employee’s cognitive functioning is the employee’s cognitive ability. This conjecture follows from our theoretical premise – namely, the argument that exposure to aggression reduces cognitive functioning partly by depleting cognitive resources. If this is so, verbal aggression may
be less cognitively taxing to “smarter” (i.e., more cognitively able) people, because they have more
cognitive resources to spare (Chabris & Simons, 2010; Côté & Miners, 2006).

Smarter individuals being generally better at problem solving than their counterparts with
lower cognitive ability, are also likely to be more confident (Brockner, 1988). High confidence, in
turn, makes performance less plastic to negative feedback (Brockner, 1988), meaning that the
cognitive performance of confident individuals will be less reactive to verbal aggression. Based on
these lines of reasoning, we hypothesize that the cognitive functioning of people with high
cognitive ability will be less affected by customer verbal aggression.

*Hypothesis 2:* Participants’ cognitive ability will moderate the relationship between
exposure to customer verbal aggression and cognitive functioning, such that verbal
aggression will have a weaker influence on participants with higher cognitive ability.

Beyond cognitive ability, there is also reason to expect that the negative effects of
customer aggression on cognitive functioning will be reduced for employees who are naturally
good at perspective taking – that is, who have a tendency to spontaneously adopt the
psychological viewpoint of others. Broadly speaking, more frequent perspective taking can help
build greater cognitive complexity (Harvey, Hunt, & Schroder, 1961). Greater cognitive
complexity, in turn, can help employees cope with the cognitive challenges of customer
agression.

More specifically, perspective taking can be expected to reduce the three paths by which
exposure to verbal aggression leads to cognitive decrements in Beal et al.’s (2005) model –
secondary appraisal, rumination, and arousal. Regarding the first two, two main lines of evidence
suggest that employees who are better at perspective taking will be less likely to be occupied by
secondary appraisal processes and rumination. First, studies suggest that people who are good at
perspective taking are more able to detach themselves emotionally from negative stimuli, with positive ramifications for cognitive functioning. For example, Richards and Gross (2000) instructed participants to adopt the perspective of a medical professional while observing emotionally disturbing photographs of injuries. Later, these participants were able to recall more details of the photos than a control group who just saw the photographs without such instructions. These results suggest that shifting to an emotionally detached perspective can reduce the disrupting effects of emotionally-laden negative stimuli.

Second, perspective taking can obviate the need for secondary appraisal and rumination by enhancing the individual’s social functioning. Perspective taking allows one to “get inside the mind” of another. Seeing things from the aggressor’s perspective can help the victim anticipate his or her behavior and reactions, and thereby maintain a sense of control over the event, rendering secondary appraisal unnecessary. Further, taking another’s perspective promotes understanding of the other’s needs and motivations, thereby relieving the need to engage in both secondary processing and later rumination. A long line of evidence backs up these arguments. For instance, Davis (1983), building on Piaget (1932) and Mead (1934), reported that perspective taking allowed individuals to anticipate the behavior and reactions of others. Parker and Axtell (2001) found that perspective taking enhanced sensitivity to others, patience, and a tendency to make positive attributions about others’ behavior. Gross and John (2003) showed that individuals who habitually reappraise their emotions with respect to the requirements of a situation exhibit better interpersonal relationships than those who do not. Other work has connected perspective taking to more pro-social behavior and to higher levels of moral reasoning (Davis, 1996; Eisenberg, 1991; Kohlberg, 1969; Rupp et al., 2008; Stotland, 1969)
It stands to reason that if perspective taking promotes patience and understanding, and enhances an individual’s sense of control over a negative event, it can also be expected to reduce employees’ arousal following exposure to aggression. And indeed, perspective taking has been found to be negatively related to various high-arousal reactions, including individual aggressiveness, anger, attribution of blame, and efforts to retaliate (Batson, Early, & Salvarani, 1997; Parker & Axtell, 2001; Takaku, 2001). In short, multiple reasons coalesce to suggest that employees’ perspective taking is likely to attenuate all three mechanisms by which Beal et al.’s (2005) analysis suggests that aggression hinders cognitive functioning.

Perspective taking can therefore be predicted to reduce the negative effects of customer aggression on employees’ cognitive malfunctioning:

*Hypothesis 3:* Perspective taking will moderate the relationship between exposure to customer verbal aggression and participants’ cognitive functioning, such that this relationship will be attenuated among participants who are better at perspective taking.

**Method**

**Participants.** Data were collected in the United Kingdom from a sample of 86 undergraduate students in various universities in London (mean age 25.54, SD = 6.64, 69.8% female). Participants came from highly diverse ethnic backgrounds (35.3% British Caucasian; 24.7% from the Indian subcontinent – i.e., India, Pakistan, and Bangladesh; 10.6% Chinese, 9.4% non-British Caucasian; 7.1% from Africa; and 12.9% from other countries). The study was advertised on an online system that recruits from a participant pool drawn from several London universities. Participants were notified by e-mail that the study would include two stages, and that they would be given a £5 Amazon voucher at the end of the second stage. They were also
told that upon completion of the first stage they would be entered into a lottery with a 1:10 chance to win a £10 Amazon voucher.

Procedure and Materials. Participants were e-mailed a link for the Wonderlic Cognitive Ability Test (Dodrill, 1981; Lassiter, Leverett, & Safa, 2000) on the Wonderlic organization website (http://www.wonderlic.com), which comprised the first part of the study. Upon completion, participants were directed to a second link, which took them to a page that was developed for this study. Here, the study was described as investigating factors that influence customer service interactions. Participants were asked to complete the perspective taking measure (see below). Then, participants were asked to read two of the transcripts used in Study 2, and to imagine that they were the employee in the calls. Participants received either two aggressive or two neutral transcripts. Finally, participants completed the same 10 Raven test items used in Study 2. All participants who completed this final stage were then sent the promised £5 Amazon voucher.

Measures.

Working memory. Working memory was measured by participants’ scores on the 10-item Raven test used in Study 2. As in that study, participants were given eight minutes to complete all 10 items.

Cognitive ability. Cognitive ability was measured using the Wonderlic Cognitive Ability Test, which measures general cognitive ability (g), and is comprised of 50 questions administered within a time limit of 12 minutes. The Wonderlic test has very high reliability and shows strong correlations with other measures of cognitive ability (Dodrill, 1981; Lassiter et al., 2000). Participant scores on the test were provided to us by the Wonderlic organization.
Perspective taking. Perspective taking was measured with a sub-scale of the Davis (1980) Interpersonal Reactivity Index (IRI), which is a widely used measure of empathy (Pulos, Elison, & Lennon, 2004) and has been extensively validated (Bernstein & Davis, 1982; Galinsky, Magee, Inesi, & Gruenfeld, 2006; Schutte et al., 2001). The perspective taking sub-scale includes seven items. Sample items: “I believe there are two sides to every question and try to look at them both”; “I sometimes find it difficult to see things from the ‘other guy’s’ point of view” (reverse scored) (Cronbach’s α=.78).

Results

Means, standard deviations, and intercorrelations among the Study 3 variables are provided in Table 4. To test our predictions, we used hierarchical linear regression. As Table 5 shows, in the first step, we regressed performance in the working memory test (Raven test scores) on gender, cognitive ability, perspective taking, and the customer verbal aggression manipulation. This analysis showed that cognitive ability predicted working memory performance (β=.35, p<.01) and that customer verbal aggression significantly reduced working memory performance (β=−.25, p<.05), replicating the results of Study 2 and again confirming H1c. The analysis also showed that the effects of gender and perspective taking were not significant (β=−.19 and β=.00 respectively, p>.10).

To test for moderators of the relationship between customer aggression and working memory performance, we added to the regression interaction terms for each variable of the predicted moderators (cognitive ability and perspective taking)⁴ with the independent variable – customer aggression. We calculated the interaction terms by multiplying each predicted moderator with the customer aggression manipulation, after first centering the scores of the

⁴ Although not specifically hypothesized we also tested the interaction between gender and customer verbal aggression.
relevant variable (Aiken & West, 1991). As reported in Table 5, in a second step we then regressed working memory (Raven test performance) on gender, cognitive ability, and perspective taking, and the three interaction terms.

Because of the relatively small sample (n=77), we used bootstrapping in this analysis. In bootstrapping, a random sample is drawn from the data set multiple times, and in each random sample drawn, direct and indirect effects and their standard errors are estimated (see Preacher & Hayes, 2004). We conducted the bootstrapping analysis with 10,000 iterations to calculate the 95% confidence intervals of the regression coefficients. As seen in Table 5, the interactions between cognitive ability and customer aggression, and between gender and customer aggression, were not significant. Thus, Hypothesis 2 was not supported. However, the interaction between perspective taking and customer aggression was significant (β =.34, p<.01). As Figure 1 shows, customer verbal aggression significantly reduced performance on the working memory task of individuals who scored low (more than one SD below the mean) in perspective taking, but had no effect on the working memory of individuals who scored high in perspective taking (more than one SD above the mean). Thus, Hypothesis 3 was fully supported.

**Discussion**

Study 3 replicated the results of Studies 1 and 2 with a completely new sample from a different country, showing that customer verbal aggression reduced participants’ cognitive functioning, thus again confirming our overarching prediction. However, the results for our hypotheses dealing with potential moderating factors were mixed. We found no confirmation for H2, which predicted that cognitive ability would moderate the relationship between customer aggression and cognitive functioning. The results did support H3, showing that individual perspective taking moderates this relationship.
Regarding the null result for H2, one explanation may be that interaction terms have high power constraints, which translates to a requirement for a very large sample size (Alexander & DeShon, 1994; Judge, 2007). That is, it may be that an interaction exists, but our sample was too small to detect it. However, several factors suggest that this technical issue was not responsible for the null results. First, the confidence interval of the interaction effect around zero was quite large (-.56 to .28), suggesting that using a larger or different sample would likely not narrow the confidence interval to the extent that it would not include zero. Second, the sample size was large enough to identify the perspective taking interaction. Third, we conducted the analysis using the bootstrapping method, which provides robust estimates of standard errors and confidence intervals and typically helps identify significant effects even with small samples (Preacher, Rucker, & Hayes, 2007). Thus, our results suggest that cognitive ability simply may not influence the degree to which people devote their cognitive resources to dealing with aggression. In other words, smarter people are cognitively affected by exposure to aggression as much as anybody else.

Regarding perspective taking (H3), our results are in keeping with research in other areas. For instance, Rupp et al. (2008) found perspective taking to moderate the relationship between customer injustice and employees’ surface acting, such that employees high in perspective taking engaged less in surface acting (i.e., false smiles, pretending to have positive emotions) following customer injustice. As surface acting is associated with increased stress (Grandey, 2003), Rupp et al.’s (2008) findings suggest that individuals high in perspective taking are good at resisting the stress provoked by customer injustice. Our results add to this body of research by showing that perspective taking also reduces cognitive impairment following encounters with aggression.
Study 4: Customer Verbal Aggression and Performance of Customer Service Tasks

Our first three studies have shown the influence of customer verbal aggression on memory and, specifically, on working memory. However, we have not yet tested the logical corollary of this phenomenon: that encountering aggression will reduce employees’ performance on their work tasks. Rectifying this is the first goal of Study 4.

Hypothesis 1d: Exposure to customer verbal aggression will lead to reduced performance of work tasks.

Study 4 has two additional goals. First, we continue the process begun in Study 3 of searching for factors that moderate the relationship between customer aggression and employee outcomes. In this case, we aim to identify customer qualities that may exacerbate the relationship identified in H1d, between exposure to aggression and work performance. Second, we investigate whether working memory mediates the relationship between customer verbal aggression and employee task performance, as suggested by the findings of Studies 2 and 3. These two goals will now be explained.

The effects of customer verbal aggression on employee outcomes may differ based on characteristics not only of the employee, but also of the customer. We posit that customer status is a critical factor that may intensify the effects of customer verbal aggression, because it is likely to exacerbate the three dynamics identified in Beal et al.’s (2005) model (secondary appraisal, rumination, and arousal).

People are highly attuned to social status cues and differences (Anderson, Srivastava, Beer, Spataro, & Chatman, 2006), and studies have shown that individuals invest considerable energy and cognitive resources in efforts to maintain and enhance their own status (e.g., Groysberg, Polzer, & Elfenbein, 2011) – even to the point where this effort ends up interfering
with individual performance (Bendersky & Shah, 2010). Even where individuals accept their low status (e.g., women or ethnic minorities in some traditional societies; see Jost & Banaji, 1994; Overbeck, Jost, Mosso, & Flizik, 2004; Tajfel & Turner, 1979), they may expend cognitive resources trying to excuse their acquiescence (Porath et al., 2008).

We argue that the expenditure of resources identified in these and other studies occurs because status concerns trigger a resource-draining process of secondary appraisal. It follows from this that when someone of high status exhibits aggressive behavior, the victim can be expected to engage in secondary appraisal in an attempt to understand what that aggression entails for his or her own status. Indeed, Porath, Overbeck, and Pearson (2008) found that incivility was perceived by targets as a challenge to their status. Thus, aggression of high-status customers may be doubly threatening to individual cognitive processing – creating a secondary appraisal process with regard to the aggressive act itself, as discussed earlier, and also with regard to the status implications of the aggressive act.

Rumination, too, is likely to be provoked by encounters with aggression from high-status customers. Indeed, Rafaeli and Sutton’s (1987) participant observation work showed that customer service employees tend to ruminate on all interactions with high-status customers. Thus, the encounter with customer aggression may lead to rumination through parallel routes here as well, with rumination provoked by both the mere interaction with a high-status customer, and by the danger that the aggressive encounter represents.

Finally, as discussed earlier, verbal aggression signals danger and so is likely to evoke arousal. However, this effect is likely to be more pronounced with a high-status customer, who can be assumed to have the potential to inflict more harm. Indeed, a complaint made by a premium customer is likely to have more severe implications for an employee than the same
complaint coming from an ordinary customer. Therefore, aggression from a high-status customer is likely to cause even higher levels of employee arousal.

In sum, the three processes that Beal et al. (2005) suggest as potential mediators between affective events and a decrement in task performance are likely to be stronger with aggressive behavior by a high-status (as compared to low-status) customer. Following this, verbal aggression from a higher-status customer will require more cognitive resources than aggression from a lower-status customer, and therefore is likely to have a greater effect on task performance.

_Hypothesis 4:_ Customer status will moderate the relationship between exposure to customer verbal aggression and participant task performance. The more important the verbally aggressive customer appears to be, the weaker will be the participant’s task performance.

Study 4 will also test whether the diminution of working memory documented in the previous studies mediates the affect of customer verbal aggression on task performance. Working memory is central to the mental work of planning, integrating information, and initiating decision processes (Eysenck & Keane, 2003), and as such, is clearly critical to the performance of customer service work. At the same time, working memory is limited in the number of factors and parameters that it can process (Ashcraft, 1989), and is – as we have found – vulnerable to interference from other factors. Thus, we can continue to follow the logic of Beal et al. (2005) that affective events reduce episodic performance through a reduction in cognitive functioning, to posit:
Hypothesis 5: The relationship between customer verbal aggression and performance of customer service tasks will be mediated by the functioning of participants’ working memory.

Method

Participants. One hundred and one undergraduate engineering students in Israel participated in the study on a voluntary basis for extra credit in one of their social science courses (age range 20 to 29 years, mean age 24.04, 66% female).

Procedure and Materials. The study was presented to participants as a test of a new training tool for customer service work. Data were collected in laboratory sessions that lasted a total of about 30 minutes and in which participants worked with software that simulates the work of employees in a contact center. Participants read and processed routine and uncomplicated customer requests which required clear-cut, straightforward handling, such as updating an address or changing a last name. Requests were presented in brief, written narratives that appeared on a computer screen. To handle each request, participants had to locate the correct field on the screen, open a folder, and erase, edit, or add information that was mentioned in the request. To ensure motivation, participants were promised cash rewards for effective handling of requests.

The experimental session started with six minutes of training, in which participants were taught how to operate the computer system and were instructed about the policies and procedures necessary for handling the customer requests. At this stage, participants were also informed that they would be rewarded for each request handled correctly in 30 seconds or less. The policies and procedures and the reward criteria were based on typical policies in contact centers, and
were intended to create ecological validity, as well as motivation to perform the tasks quickly and accurately.

The training protocol also informed participants that they might encounter requests from high-status customers (defined as similar to the Platinum or Gold status used in various service operations), and that they should give priority to such requests. Following the training, participants were randomly assigned to a neutral or aggressive experimental condition (see below). They then proceeded to the data collection phase, which lasted 15 minutes and could include up to 35 requests. For all participants, 70% of the requests came from regular customers, and 30% from “premium” customers; the “premium” requests were presented randomly during the session. After the experimental session, participants completed the working memory (Raven) task.

**Manipulation of Customer Verbal Aggression.** Half of the participants handled requests whose wording was designed to convey verbal aggression, while the other half handled requests designed to be identical in content but with no verbal aggression (i.e., neutral requests). To create the requests, a graduate student who was a manager in a large contact center in Israel first developed 50 standard customer requests based on her experience. These requests were technical in content and had no specific affective tone. Additional graduate students, some of whom had also previously worked in customer service, edited these requests to create a second set characterized by verbal aggression. The result was 100 requests, comprising 50 pairs that were similar in content but differed in whether they were phrased neutrally or aggressively.

A sample of 80 undergraduate students was then asked to read these requests and to (a) summarize the content of each request, and (b) rate the aggression in the request using a scale of \(-3=\text{very verbally aggressive}\) to \(+3=\text{very polite}\). Half of these participants saw requests designed
to be aggressive and half saw the original, presumably neutral requests. Using these data, we eliminated requests in which (a) the summarized content varied between the aggressive and neutral conditions, and/or (b) the ratings of "aggressive" or "neutral" did not match our intent. We defined a text as aggressive if the mean rating on the aggression scale was -3 or -2, and as neutral if the mean rating was 0. These screening processes identified two sets of 35 requests that were used as stimuli in Study 4, where one set was deemed to include customer verbal aggression and one set was neutral.

The aggressive and non-aggressive messages were similar in length (number of words). A typical request in the neutral condition was: "My password is Shirley. I would like to cancel the password service so I do not have to be identified with a password each time. Thanks, Dan."

The same request in the verbal aggression condition was: "My password is Shirley. Cancel already the very annoying requirement for a password! I am sick and tired of being asked for a password each time. Dan." The neutral condition included only requests whose verbal tone was neutral, while the customer verbal aggression condition included only requests whose verbal tone was aggressive. The presence of verbal aggression in the request was the only difference between the two conditions.

**Manipulation of Customer Status**

Any of the requests could be randomly presented on the computer screen as coming from a regular or a high-status customer. As noted above, 30% of the requests in each condition were presented as requests from “premium” customers; these were scattered randomly among the regular customers’ requests. Premium customers were identified with a bright yellow star clearly visible when the customer’s profile was opened. To motivate attention to the customer status manipulation, participants were promised higher rewards for correct and timely (under 30
seconds) handling of requests from premium customers. The rewards were set at 25 cents and $1 for requests from regular and premium customers respectively.

Measures.

Task performance. The software assessed two performance indices: (i) quantity of performance, or the total number of requests that a participant handled; and (ii) quality of performance, or the number of requests a participant handled correctly and in under 30 seconds, as defined by the policies presented in the training stage. For example, if a customer asked to change his address, the participant had to read the request, then open a certain field and edit the address. If the participant opened the field but did not change the address or changed it incorrectly, one point was added to the quantity of performance measure but zero to the quality of performance measure.

Working memory. Working memory was measured, as in the previous studies, as the number of Raven test items (out of 10 possible items) solved correctly in eight minutes. However, because of a shortage of physical space, this task was offered only to a random group of forty of the participants.

Results

Manipulation Checks. As in the previous studies, independent raters were recruited to confirm that the manipulation worked as intended. A separate sample of 47 undergraduate students (Mean age =23.80, SD=2.67, 59.60% male) was asked to read the 70 requests used as stimuli and rate the degree of customer aggression along the same five-item scale used in Study 1 (α=0.96). A one-way ANOVA with customer verbal aggression (the experimental condition) as the IV and the 5-item scale as the DV confirmed that ratings of customer aggression were significantly higher in the verbal aggression condition than in the neutral condition (Mcontrol=
Effects of Customer Verbal Aggression on Task Performance. Means, standard deviations, and intercorrelations among the Study 4 variables are provided in Table 6. A one-way ANOVA found no significant differences in the number of requests processed (quantity of performance) between the two conditions ($F[1, 101] = 2.35, \text{ns}$). Participants in the verbal aggression condition handled the same number of requests ($M_{\text{aggression}} = 29.38, SD_{\text{aggression}} = 5.28, N = 49_{\text{aggression}}$) as those in the neutral condition ($M_{\text{control}} = 30.92, SD_{\text{control}} = 4.89, N = 51_{\text{control}}$). In contrast, there was a significant difference between the conditions in the quality of performance. ANOVA results showed significantly better performance in the neutral condition ($F[1, 101] = 6.41, p < .05, \eta^2 = .06$) ($M_{\text{control}} = 22.63, SD_{\text{control}} = 5.90, N = 51_{\text{control}}$) than in the aggression condition ($M_{\text{aggression}} = 19.72, SD_{\text{aggression}} = 5.72, N = 49_{\text{aggression}}$), thus fully supporting H1d. These results suggest that customer verbal aggression significantly impaired the quality of employee performance of customer service tasks.

Moderating Effects of Customer Status. To test if customer status moderated the relationship between customer aggression and task performance, we conducted a repeated-measure ANOVA with customer verbal aggression as a between-factor variable. Because only 30% of the requests came from high-status customers (to retain ecological validity), we could not simply compare the number of requests handled correctly in each of the status conditions. Rather, we calculated the percentage of high-status requests and the percentage of ordinary requests that were handled correctly, to produce two new indices: % premium quality and % regular quality. We then performed a repeated measures ANOVA with the percentage of correctly handled requests in the two populations (regular versus premium customers) as a
within-factor variable, and with aggression as a between-factor variable. The within-factor variable was not significant, indicating no difference in quality of performance when handling regular versus premium customers (F[1, 100] = .00, ns). In contrast, the between-factor variable was significant, indicating that customer verbal aggression influenced the quality of performance (F[1, 100] = 9.63, p < .01, \( \eta^2 = .09 \)).

However, in support of Hypothesis 4, this effect was qualified by a significant interaction between the experimental condition (neutral or customer verbal aggression) and the customer status (regular versus premium) (F[1, 100] = 5.46, p < .05, \( \eta^2 = .05 \)). As depicted in Table 7 and Figure 2, we found a significant difference in how premium versus regular customers were handled in the neutral and customer aggression conditions. With regard to regular customers, there was no significant difference in the percentage of requests handled correctly between neutral and aggressive customers. However, there was a significant difference between the neutral and aggressive conditions with regard to premium customers. A smaller percentage of requests were handled correctly for premium aggressive customers than for premium neutral customers. In fact, the weakest level of performance was exhibited for requests coming from high-status customers who were also aggressive. Thus, the results fully supported H4: customer status moderated the relationship between customer verbal aggression and the quality of employee performance. With higher-status customers, customer verbal aggression more substantially interfered with employee performance.

**Mediation Effects of Working Memory.** To test Hypothesis 5, which built on Beal et al. (2005) to suggest that working memory mediates the effects of customer verbal aggression on the quality of employees’ work performance, we again used the bootstrapping approach (Preacher & Hayes, 2004). Based on 3000 random samples drawn from the data set, we
estimated the direct and indirect effects of customer verbal aggression on quality of performance through working memory. However, as we found that status moderated the relationship between customer verbal aggression and task performance, and that customer aggression affected quality of performance only for high-status customers, we conducted the mediation analysis only for those customers.

The results showed that the direct effect from customer aggression to the mediating variable of working memory was significant ($B=-1.36$, $p < .01$). The effect from working memory to quality of performance was also significant ($B=.04$, $p < .05$), as was the indirect effect from customer verbal aggression through working memory to performance ($B=-.05$, $p < .05$). Further, the direct effect from customer aggression to quality of performance, controlling for working memory, was not significant ($B=-.10$, ns), indicating full mediation. Thus, Hypothesis 5, which stated that working memory mediates the relationship between customer verbal aggression and quality of performance, was supported with regard to high-status customers.

**Discussion**

Customer service employees must converse with a customer, pay attention to what is said and requested, and at the same time use advanced technology to operate a computer program. Each task may appear simple, but the combination of tasks requires a significant level of attention.\(^5\) Factors that interfere with the employee’s attention can thus have a real effect on performance.

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\(^5\) According to Chabris and Simons (2010), people consistently and grossly underestimate the complexity of simultaneously handling multiple tasks. Even automatic tasks such as driving and talking on the phone cannot be performed together efficiently, although separately they place little toll on the cognitive system. This underestimation, which Chabris and Simons (2010) term the “illusion of attention,” can be fatal.
Study 4 shows customer verbal aggression to be such a factor. Participants in the customer aggression condition handled as many customers as in the control condition, but they did so significantly less well. The fact that both groups processed the same number of requests suggests that the aggressive encounters did not make participants put in less effort. Thus, it seems that motivation, or the lack of it, is not a sufficient alternative explanation for our results. Instead, as hypothesized, and in keeping with the findings from Studies 1 through 3, our results suggest that customer aggression disrupts the cognitive processes required to perform complex tasks. Put differently, verbal aggression on the part of customers robs employees of cognitive resources, impairs their attention and working memory, and reduces the quality of their task performance.

The results of Study 4 further show that aggressive behavior affects performance more strongly when the aggression comes from someone with high status. Building on the logic of Beal et al. (2005), we presume this to be because verbal aggression from a high-status individual triggers multiple secondary appraisal processes, more rumination, and higher arousal, and as such diverts more cognitive resources.

It should be noted that our two-tiered reward structure, where participants were rewarded more liberally for correctly handling premium versus regular customers – a procedure designed to reinforce the status manipulation – may have created a confound. Ariely, Gneezy, Loewenstein, and Mazar (2009) recently found that higher rewards impaired task performance, presumably by engendering greater stress. This suggests that the effects we attribute to status could have been caused by the higher rewards we offered in those cases. However, Ariely et al. (2009) offered extremely high rewards, in some cases equivalent to as much as several months’ salary. Even assuming that our participants had in mind the total they might be able to earn over
the course of the experiment, it seems unlikely that the modestly higher reward we offered for
high-status customers ($1 versus 25 cents) was high enough to create stress that could interfere
with task performance. Nonetheless, this is an important empirical issue for future research to
rule out.

General Discussion

Customer service representatives are likely to occasionally encounter verbally aggressive
customers in the course of their daily work. Researchers often assume that such aggression is an
accumulative, long-term, and emotionally oriented problem. Our four studies bolster the limited
body of research suggesting that CSRs are also vulnerable to episodic and short-term aggression
(e.g., Miron-Spektor et al., 2011), and highlights implications that are cognitive rather than
emotional in nature. Our results show that even short-term encounters with verbal aggression
from customers impairs recall, recognition memory, and the active engagement of working
memory – all vital to customer service work. Further, we show that aggressive encounters lead
directly to poorer performance.

Our findings also show that aggression from high-status customers can cause employees
to make significantly more errors. In a real customer service setting, these errors would likely
result in even greater customer dissatisfaction, potentially setting off a vicious cycle of
dysfunction.

Summary of Results

In four experimental studies, we support our overarching proposition, that customer
verbal aggression impairs employees’ performance in tasks involving cognitive performance. In
Study 1, customer verbal aggression reduced the ability of students acting as customer service
reps to recall information provided in customer requests. In Studies 2 and 3, customer verbal
aggression directly affected participants’ recognition and working memory. Study 4, in turn, showed that customer verbal aggression influenced the overall quality of performance in customer service tasks.

Customer service tasks, like many others, require individuals to hold information in their heads (Eysenck & Keane, 2003). This requirement has been shown by cognitive psychologists to be particularly challenging when employees must simultaneously handle multiple tasks (Navon & Gopher, 1980). Our results bring emotion dynamics into this stream of research. Specifically, our findings show that verbal aggression from others creates cognitive interference in that it can be construed as an additional task that employees must deal with. The idea that emotions can act as tasks was initially suggested by Beal et al. (2005). Our results clearly support their theory by showing that an affective event (verbal aggression) impairs multiple forms of cognitive functioning, including recall, recognition, working memory, and quality of work performance.

Targets of aggressive acts commonly experience negative emotions such as anger and hostility (Pearson & Porath, 2005). However, service organizations have high expectations that employees will maintain customer satisfaction and contain their own anger (Rafaeli & Sutton, 1987). To prevent themselves from venting their anger on customers, employees have to consistently self-regulate their behavior (Grandey et al., 2004). Yet maintaining self-control is effortful and distracting, and therefore depletes energy and cognitive resources (Baumeister, Heatherton, & Tice, 1994). Indeed, Beal et al.’s (2005) model incorporates the role of emotional regulation as a major cause of the disruption emotional events may cause to cognitive processes. One may argue then, that the mechanisms of secondary appraisal, rumination, and arousal may be less relevant than emotional regulation to cognitive disruption caused by customer aggression. However, in our four studies, cognitive disruption occurred even though our participants did not
directly interact with aggressive customers, and therefore did not have to control their anger or regulate their emotions. Thus, our findings suggest that even in the absence of emotional regulation, aggression from customers may lead to direct cognitive disruption, giving credence to the other mechanisms suggested in Beal et al.’s model. Investigating these mechanisms is beyond the scope of the current study and must be left for future research, but our findings lend support to the argument that these processes are involved.

Protecting oneself from potential harm is a fundamental human motive (Daly & Wilson, 1988; Kenrick, Li, & Butner, 2003). As a result, people are adept at identifying signs of danger in social interactions and at deciding swiftly whether a particular event is likely to be good or bad for their well-being. When an event is perceived as signifying social danger, the mind spontaneously determines whether something needs to be done immediately to ensure survival (the process of primary appraisal; Lazarus, 1991), even as it consciously shifts attention to the implications of the event and how to react to it – the process Lazarus (1991) called secondary appraisal. Once the danger is past, the mind continues to reflect on the event and its potential significance or ramifications – the process known as rumination. Both secondary appraisal and rumination thereby shift the focus of attention away from the task at hand, with deleterious consequences for performance. Our four studies showed exactly that. Customer verbal aggression reduced performance on all the tasks we tested, whether memorizing information, solving visual analogy problems, or responding accurately to customer requests.

Arousal is also likely to be a factor in this shifting of attention. Neurophysiological studies suggest that the autonomic nervous system reacts quickly to even remote signs of danger, raising the heart rate and blood pressure, tensing the muscles, and so on (e.g., LeDoux, 1996). This swift reaction is designed by evolution to prepare the body for a defensive response – i.e.,
fight or flight (Kandel, Schwartz, & Jessell, 2000). As such, it stands to reason that the arousal engendered by threatening encounters would also shift attention away from tasks not directly related to survival. If this is so, arousal can help explain the reduction in cognitive functioning exhibited in our studies. Of course, this is only speculation at this point, and arousal should be tested – along with secondary appraisal and rumination – for their mediating effects in the relationship between customer verbal aggression and cognitive functioning.

Our results did not show an interaction between cognitive ability and customer aggression in influencing individuals’ cognitive functioning, but did identify two variables that moderate the effects of customer verbal aggression on cognitive performance. Specifically, a greater capacity for perspective taking appears to reduce the negative effects of verbal aggression on cognitive functioning, while experiencing aggression from someone of high status appears to exacerbate these effects. The moderating effects of perspective taking complement Rupp et al.’s (2008) findings, which showed that individuals high in perspective taking are uniquely qualified at handling difficult customers. Our studies showed that perspective taking helps individuals not only better relate to difficult customers, but also actually perform their tasks better.

The moderating effect of customer status means that verbal aggression from high-status customers may undermine performance more than aggression from regular customers. Ironically, high-status customers may believe that they deserve special treatment, and may engage in verbal aggression more often than regular customers. This finding is novel and disturbing because it means that employees likely make significantly more errors in dealing with customers who typically carry more economic power.

Implications
Perhaps our most important result is that small, trivial, and purely verbal manifestations of aggression reduce the functioning of employees' working memory. Cognitively complex activities, including language comprehension and production, problem solving, reasoning and deduction, creativity, and decision making, inevitably rely on working memory (Ashcraft, 1989; Eysenck & Keane, 2003). Thus, although our results focus on the effects of customer verbal aggression on the functioning of working memory, they suggest much broader implications for performance on a wide variety of tasks. Indeed, our results may explain the results of Porath and Erez (2007), who reported that participants exposed to mild verbal aggression performed less well than controls on a variety of complex and creative tasks.

The service industry is the largest employer in the US, and the fastest growing global source for career opportunities (Kern & Grandey, 2009). Today’s economy considers customer satisfaction as pivotal to organizational performance; service employers communicate the mantra “the customer is always right” to employees as a core job requirement (Kern & Grandey, 2009). The prevalence of customer verbal aggression toward customer service employees is well known (Glomb, 2002; Grandey et al., 2004), and Grandey et al. (2010) showed that service employees are the primary target of expressions of aggression in organizations. Yet attention is typically focused on deflecting the long-term emotional harm caused by aggressive customers. CSR training programs do not address the cognitive ramifications of verbal aggression.

The real-time nature of customer service jobs means that handling verbal aggression is typically performed simultaneously with other tasks. However, customer service employees are typically trained to handle customer aggression in a “hygienic” way, where the aggression is detached from day-to-day performance. The cognitive literature shows that training individuals on multiple tasks separately can make the later integration of these tasks difficult, and therefore
training individuals on multiple tasks simultaneously is recommended (e.g., Gopher, Weil, and Siegel, 1989). By extension, a practical implication of our findings may be that customer service training should integrate the handling of customer aggression with technical training in service tasks. For instance, training should simulate customer aggression while trainees \textit{at the same time} have to handle computer software, since performing the two together is a particularly challenging task. The simulation used in Study 4, in which customer aggression is integrated into routine customer tasks, may provide a point of departure for the development of such training programs.

Finally, since our results suggest a direct effect of customer verbal aggression on employees’ cognitive functioning, it is not clear that employees can control the outcomes that we depict. Service organizations may therefore be well advised to seek ways to reduce customer aggression by managing the customer side of things. Service firms can track aggressive customers and allow employees to terminate calls from difficult customers, or even altogether terminate regularly offensive customers (cf. Skarlicki et al., 2008). Such a “zero tolerance policy” for customer abuse of employees can reduce the critical cognitive and economic costs that we depict, while also creating added motivational value by signaling that the company cares for its employees (Skarlicki et al., 2008).

**Limitations and Conclusions**

A notable and critical limitation of our study is that it cannot explain the mechanisms by which customer verbal aggression disrupted cognitive functioning. While we have suggested some processes that should be examined in future research, notably secondary appraisal, rumination, and arousal (Beal et al., 2005), we could not measure these variables with our data. Similarly, we did not measure emotional reactions to customer aggression; yet emotions such as anger, hostility, and even fear may all mediate the relationship between customer aggression and
disruption to cognition. Research must always seek a balance between comprehensiveness and parsimony, and our mission here was to establish the disruptive effects of customer verbal aggression on multiple cognitive tasks. Thus, we must leave it to future work to address the question of “why.”

Our findings are also limited in their generalizability to actual customer service settings, since our studies were laboratory studies, and in three of the four, the participants were students. Additionally, our studies relied on “paper people” or vignettes, meaning that participants were not the targets of actual aggressors. However, multiple factors lend external validity to our findings. First, our data for Study 2, collected from experienced employees in a genuine organizational context, showed results identical to those we found with university students. Second, real-world aggression is likely to be more rather than less disruptive than that of “paper people.” Thus, our results can be viewed as a conservative test of the actual disruption likely to be caused by customer verbal aggression. Third, our findings converge with past research, some of it conducted in organizational settings (e.g., Goldberg & Grandey, 2007; Porath & Erez, 2007, 2009; Skarlicki et al., 2008; Wang et al., 2011). Finally, evidence supports the generalizability of research findings obtained in contrived settings across many psychological domains (Anderson, Lindsay, & Bushman, 1999; Colquitt, 2008; Locke, 1986). In fact, Cohen-Charash and Spector’s (2001) meta-analysis of the justice literature, which is specifically relevant to the topic of our study, found an impressive correlation of r=.97 between the effect sizes of lab and field studies. Notwithstanding, we call for future research to test our predictions with different participants, settings, and manipulations of customer verbal aggression (Cook & Campbell, 1979; Dipboye & Flanagan, 1979).
Another limitation is that our studies used a between-person design, in which participants in the experimental group encountered aggressive customers, while participants in the control group did not. A within-person design would have been more ecologically valid, because CSRs handle multiple customers on a daily basis, some of them verbally aggressive and some not. Such a design would also make it possible to test how long the effects of customer aggression last, or more specifically, how many calls after the aggressive encounter reflect performance decrements. Answering this question may have important implications for CSRs who work with many customers in quick succession.

Finally, in our studies we asked participants to take the perspective of employees. This may have affected our results, as aggression encountered while playing a role may have different effects from aggression encountered first-hand. However, this aspect of our procedure may actually have rendered our results conservative. As suggested by Richards and Gross (2000), reappraising situations from the perspective of another may actually reduce the distracting effects of negative emotions. Similarly, our results suggest that perspective taking minimizes the effects of customer aggression. Thus, it is likely that the negative effects of customer aggression we identified in our four studies are in fact smaller than the effects of customer aggression on real customer service representatives.6

In sum, we highlight the effects of minor events of workplace aggression, an issue that has received relatively little research attention (cf. Glomb, 2002). We identify and document some clear and harmful effects of relatively mild and purely verbal customer aggression. Obviously our findings need to be replicated and extended, but they send a clear signal about the importance of systematic efforts to reduce the extent of hostility that employees routinely encounter.

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6 We would like to thank an anonymous reviewer for suggesting this idea.


Table 1. Hypotheses Tested in the Four Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Study</th>
<th>Study</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a: Exposure to customer verbal aggression will interfere with free recall of information</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1b: Exposure to customer verbal aggression will interfere with recognition memory</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1c: Exposure to customer verbal aggression will interfere with processes of working memory</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>H1d: Exposure to customer verbal aggression will lead to reduced performance of work tasks</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Victim Level Moderators</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2: Participants’ cognitive ability will moderate the relationship between exposure to customer verbal aggression and cognitive functioning, such that verbal aggression will have a weaker influence on participants with higher cognitive ability</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3: Perspective taking will moderate the relationship between exposure to customer verbal aggression and participants’ cognitive functioning, such that this relationship will be attenuated among participants who are better at perspective taking</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aggressor Level Moderator</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H4: Customer status will moderate the relationship between exposure to customer verbal aggression and participant task performance. The more important the verbally aggressive customer appears to be, the weaker will be the participant’s task performance</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mediator</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H5: The relationship between customer verbal aggression and performance of customer service tasks will be mediated by the functioning of participants’ working memory</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2

Means (M), Standard Deviations (SD), and Intercorrelations among Study 1 Variables

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Manipulated customer aggression</td>
<td>.49</td>
<td>.51</td>
<td></td>
<td></td>
<td>---</td>
</tr>
<tr>
<td>2. Time 1 recall of call content</td>
<td>5.21</td>
<td>2.45</td>
<td>-.32</td>
<td></td>
<td>---</td>
</tr>
<tr>
<td>3. Time 2 recall of call content</td>
<td>3.78</td>
<td>1.89</td>
<td>-.33</td>
<td>.47</td>
<td>---</td>
</tr>
</tbody>
</table>

Notes. N=36. Correlations greater than |.32| are significant at the p < .05 level. Correlations greater than |.40| are significant at the p < .01 level. Customer verbal aggression was coded as neutral (0) and verbally aggressive (1).
Table 3

*Means (M), Standard Deviations (SD), and Intercorrelations among Study 2 Variables*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Manipulated customer</td>
<td>.50</td>
<td>.50</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>aggression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Memory of transcripts</td>
<td>5.22</td>
<td>1.52</td>
<td>-.52</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>content</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Performance on the</td>
<td>3.14</td>
<td>1.64</td>
<td>-.43</td>
<td>.36</td>
<td>---</td>
</tr>
<tr>
<td>Raven test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Notes.* N=72. Correlations greater than |.30| are significant at the p < .01 level. Customer verbal aggression was coded as neutral (0) and verbally aggressive (1).
Table 4

Means (M), Standard Deviations (SD), and Intercorrelations among Study 3 Variables

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>.69</td>
<td>.47</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Cognitive ability</td>
<td>25.76</td>
<td>4.46</td>
<td>-.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Perspective taking</td>
<td>3.55</td>
<td>.57</td>
<td>.12</td>
<td>.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Customer verbal aggression</td>
<td>.50</td>
<td>.50</td>
<td>.12</td>
<td>.10</td>
<td>-.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Raven test</td>
<td>2.93</td>
<td>1.94</td>
<td>-.18</td>
<td>.39</td>
<td>.12</td>
<td>-.16</td>
<td></td>
</tr>
</tbody>
</table>

Notes. N=77. Correlations greater than |.30| are significant at the p < .01 level. Manipulated customer verbal aggression is coded as neutral (0) and verbally aggressive (1). Gender is coded as male (0) and female (1).
Table 5

Influence of Customer Verbal Aggression and Participants’ Gender, Cognitive Ability, and Perspective Taking on Working Memory (Study 3)

<table>
<thead>
<tr>
<th></th>
<th>$\beta$</th>
<th>$\Delta R^2$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Step</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (G)</td>
<td>-.19</td>
<td></td>
<td>(-1.75, .04)</td>
</tr>
<tr>
<td>Cognitive ability (g)</td>
<td>.35**</td>
<td></td>
<td>(.06, .25)</td>
</tr>
<tr>
<td>Perspective taking (PT)</td>
<td>.00</td>
<td></td>
<td>(-.76, .58)</td>
</tr>
<tr>
<td>Manipulated customer aggression (A)</td>
<td>-.25*</td>
<td>.23**</td>
<td>(-1.61, -.10)</td>
</tr>
<tr>
<td><strong>Second Step</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (G)</td>
<td>-.19</td>
<td></td>
<td>(-1.73, .05)</td>
</tr>
<tr>
<td>Cognitive ability (g)</td>
<td>.33**</td>
<td></td>
<td>(.06, .25)</td>
</tr>
<tr>
<td>Perspective taking (PT)</td>
<td>-.03</td>
<td></td>
<td>(-.77, .58)</td>
</tr>
<tr>
<td>Manipulated customer aggression (A)</td>
<td>-.22*</td>
<td></td>
<td>(-1.64, -.16)</td>
</tr>
<tr>
<td>A x G</td>
<td>.08</td>
<td></td>
<td>(-.25, .58)</td>
</tr>
<tr>
<td>A x g</td>
<td>-.05</td>
<td></td>
<td>(-.56, .28)</td>
</tr>
<tr>
<td>A x PT</td>
<td>.34**</td>
<td>.12**</td>
<td>(.30, 1.07)</td>
</tr>
</tbody>
</table>

Notes. N=77, * p < .05, **p <.01. Manipulated customer verbal aggression is coded as neutral (0) and verbally aggressive (1). Gender is coded as male (0) and female (1). Confidence intervals are based on 10,000 bootstrapping iterations.
### Table 6

*Means (M), Standard Deviations (SD), and Intercorrelations among Study 4 Variables*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Manipulated customer verbal aggression</td>
<td>.49</td>
<td>.50</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Quantity of employee performance</td>
<td>30.17</td>
<td>5.12</td>
<td>-.15</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Quality of employee performance</td>
<td>21.21</td>
<td>5.97</td>
<td>-.25</td>
<td>.80</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. % correct responses to regular customers</td>
<td>.70</td>
<td>.13</td>
<td>-.15</td>
<td>.39</td>
<td>.81</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>5. % correct responses to premium customers</td>
<td>.70</td>
<td>.17</td>
<td>-.33</td>
<td>.16</td>
<td>.54</td>
<td>.44</td>
<td>---</td>
</tr>
</tbody>
</table>

*Notes.* N=102. Correlations greater than |.20| are significant at the p < .05 level. Correlations greater than |.25| are significant at the p < .01 level. Manipulated customer verbal aggression is coded as neutral (0) and verbally aggressive (1).
Table 7

Effects of Customer Verbal Aggression and Customer Status on Quality of Performance in Customer Service Work (Study 4)

<table>
<thead>
<tr>
<th></th>
<th>Neutral</th>
<th>Verbally Aggressive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular customers</td>
<td>(A)</td>
<td>(B)</td>
</tr>
<tr>
<td></td>
<td>.72&lt;sup&gt;d&lt;/sup&gt;</td>
<td>.68&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(.14)</td>
<td>(.12)</td>
</tr>
<tr>
<td>Premium customers</td>
<td>(C)</td>
<td>(D)</td>
</tr>
<tr>
<td></td>
<td>.75&lt;sup&gt;bd&lt;/sup&gt;</td>
<td>.64&lt;sup&gt;ac&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(.15)</td>
<td>(.17)</td>
</tr>
</tbody>
</table>

Notes. Standard deviations are in parentheses. Superscripts indicate which cells are significantly different from each other using a Tuckey HSD test. All values are significantly different at p < .05.
Figure 1. Moderating effect of participant perspective taking on the relationship between customer verbal aggression and participant working memory. “Low” indicates one standard deviation below the mean and “High” represents one standard deviation above the mean.
Figure 2. Moderating effect of customer status on the relationship between customer verbal aggression and accurate performance of customer service tasks
Appendix A

Participants in both conditions heard (in Study 1) or read (in Studies 2 and 3) the following exchange:

**Employee:** Hello, you’ve reached PelCom. This is Adi speaking.

**Customer:** My name is Ron Weiss, and my cell phone number is 0596851172.

**Employee:** How can I help you?

**Customer:** Three months ago I had a problem with my cell phone. People couldn’t hear me when I was using the car speaker.

**Employee:** Perhaps the problem occurred in an area with no reception?

From this point on the customer text differed between the neutral and the verbal aggression conditions.

**Verbal Aggression Condition**

**Customer:** What?! Do you want me to research when exactly it happens? Should I waste my time because of your bad quality phones, your lousy technicians? Every time a new problem pops up!

**Employee:** We can replace the phone for you. We have home delivery service every day between 9:00 and 12:00 AM. Will someone be home at these times to meet the delivery man?

**Customer:** Don't you think that people work? Do I need to stay home 3 hours because of your mistakes? This is really going overboard! What kind of service is that?

**Employee:** Would you like to talk to the delivery service so you can set a delivery time that is best for you?

**Customer:** Do I have a choice? I’ll talk to them, and let’s hope this is the last time the problem occurs.
Customer Rudeness and Cognition

Neutral – No Verbal Aggression - Condition

Customer: I also thought about this. But I think it happens all the time, even when I'm in areas
that usually do not suffer from reception problems. Just anywhere I happen to be.

Employee: We can replace the phone for you. We have home delivery service every day between
9:00 and 12:00 AM. Will someone be home at these times to meet the delivery man?

Customer: I am usually at work during these hours. But I can check, maybe one of my children
can stay at home and wait for the delivery man. When were the delivery times?

Employee: Would you like to talk to the delivery service so you can set a delivery time that is
best for you?

Customer: Sure, I think it will solve the problem. Thanks.