



The Set of the Mind Matters: Perceived Energy, Focus, and the Placebo Effect

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The Set of the Mind Matters: Perceived Energy, Focus, and the Placebo Effect

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Abstract

This study investigated whether a brief mindset-reframing intervention could influence perceived energy and state focus. Drawing upon previous mindset-placebo research, the study tested if reframing the perception of daily work tasks would produce immediate shifts in self-reported energy and focus. An online experiment was conducted with 41 adults who worked in customer service roles that are in-person with face-to-face customer/client interactions. Participants were randomly assigned to either an intervention or control condition. In the intervention condition, customer service work tasks were framed as energizing and focus-enhancing, while the control condition presented neutral, customer service information. Pre- and post-intervention measures of subjective energy and state focus were completed by all participants. Results indicated a significant Time x Condition interaction for both outcomes. Participants in the intervention group reported immediate increases in perceived energy and focus. Participants in the control group did not report comparable increases. These findings contribute preliminary evidence that the way a task is framed and subsequently perceived may shape felt experience, even when the task itself remains unchanged.

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Chapter I.

Introduction

The global energy supplement industry profits billions each year, with market valuations projected to reach \$152.5 billion by the year 2031 (Allied Market Research, 2022). From energy drinks to medications, individuals are repeatedly told low energy and poor focus need an external remedy and are therefore convinced these products are necessary. Mindsets such as “didn’t get enough sleep? drink an extra-large coffee”, “working a job that is repetitive and draining? take a 5-hour energy to get through it”, “my energy is so bad, I need an Adderall to compensate”, are limiting and ensure individuals remain a dependent customer or a mindless patient. These assumptions keep individuals from considering other possibilities, such as questioning if their experience of energy and focus may be influenced by the meaning they assign to certain aspects of their lives.

One way to counteract these limiting mindsets, supported by current literature, is to reframe them. The mindset you bring to something has a placebo effect that shapes how you experience that something, thus a change in mindset can result in measurable changes in health, behavior, and perception (Langer, 1989). This claim does not suggest irrelevance of biological factors but rather that psychological factors and biology are not separate. In this view, one’s beliefs, attention, and expectations influence what they notice, how they interpret physical cues of the body, and the associated outcomes they expect to occur. Recent theoretical work suggests mindsets and associated placebo effects emerge from a continuous interaction of beliefs, attention, and expectations (Aung et

al., 2026). This indicates that the mind participates in the shaping of bodily experience, thus it plays a much more significant role than just commenting on the body after the fact.

However, while previous research has explored reframed mindsets placebo effect on a variety of physical health outcomes, the specific outcomes of perceived energy and focus remain underexplored. Building upon existing literature, the current study addresses that gap by investigating the placebo effect of a reframed mindset on perceived energy levels and focus. Specifically, it asks whether reframing one's mindset to view work as energizing and focus-enhancing can lead to significantly increased perceived energy and focus. The importance of finding an answer to this question is found not only its contribution to science's understanding of mindset-placebo effects but also in practical implications for individuals' understanding of the internal control they may have over their own felt energy and focus.

The Placebo Effect

The placebo effect has an extensive history in both medical and scientific research. Clinically, it is a phenomenon defined as a significant response to an ingested substance or procedure that occurs because of the individual's expectations or beliefs about the given intervention (APA, 2018). The APA continues this definition with the claim that placebo effects occur in all drugs, both active and inert, and they influence treatment's effectiveness. In nonclinical studies, the placebo effect is defined in a broader sense as any effect individuals experience from their expectations about the study (APA, 2018). Although placebos are commonly thought of as inert sugar pills or sham procedures, more accurately, they are complex psychobiological phenomena that occur

when an individual experiences benefits from an intervention due to context, beliefs, expectations, and prior learning (Evers et al., 2021).

Establishing this distinction is critical because a placebo is not chance nor occurring due to the substance or procedure itself having hidden biological properties. A placebo's power to alter subjective and physiological experience comes from an individual's interpretation of the intervention and the context it is delivered in. Benedetti (2008) argued that there are multiple placebo effects each with different mechanisms involved across various diseases and systems. For example, endogenous opioid systems involve a placebo analgesia, while placebo responses found in Parkinson's disease involve alterations in basal ganglia activity and dopamine release (Benedetti, 2008; Benedetti et al., 2005). Therefore, the placebo effect cannot be dismissed nor called imaginary, as evidence shows contextual meaning and expectations can activate psychological and biological processes in a measurable way.

Placebo effects are also found in instances where no inert substance is given. In these cases, the placebo effects derive from the treatments meaning, the specific words and phrasing of the provider, expectations of the setting, and the belief that change can occur (Benedetti, 2008; Benedetti & Amanzio, 2011). These findings are relevant to mindset research because if a placebo pill can produce real effects due to the meaning assigned to it, then it is reasonable to question if reframing the meaning attached to one's work tasks can also produce changes in one's experience. Research previously conducted harnessed the placebo effect by altering participants' mindsets about daily work tasks to produce both physiological and physical effects (Crum & Langer, 2007). However, most of the previous research on this topic has focused upon its implications in pharmacology,

healthcare, and clinical settings. The current study extends the investigation to perceived energy and focus.

Placebo Effects in Pharmacology & Healthcare

In clinical drug trials, the incorporation of placebos is the standard commonly followed for researchers to identify true differences in pharmaceutical effects and other confounding factors at play (Gupta & Verma, 2013). Highlighting the accepted belief in the therapeutic benefits of placebo effects. A meta-analysis examining antidepressant medication found that nearly half of the patients' responses to the medication were due to a placebo effect and not the drug itself (Kirsch & Sapirstein, 1998). In the following decade Kirsch again demonstrated placebo effects pervasiveness through a comprehensive analysis of antidepressant treatments (Kirsch, 2014). Results showed that placebo effects accounted for a significant percentage of therapeutic benefits across several interventions, underscoring the widespread influence of placebos in treatment outcomes (Kirsch, 2014). While the interpretation of antidepressant-placebo comparisons remains a debated topic, this literature strongly demonstrates there is more involved than the active properties of a drug in treatment effects.

Placebo effects extend further than pharmacology, impacting various neurobiological outcomes. Benedetti and colleagues demonstrated that placebo effects can be observed at the neurobiology level by changes in dopamine, automimic activity, endogenous opioids, and neural activation patterns (Benedetti, 2008; Benedetti et al., 2005). Neuroimaging studies of placebo analgesia show that placebos can also change how the brain reacts to pain, specifically expectation, pain modulation, and reward regions, thus affecting how one feels pain (Eippert et al., 2009; Geuter & Buchel, 2013;

Petrovic et al., 2002; Wager et al., 2004). This body of research highlights placebo effects beyond perception by suggesting the involvement of biological systems that regulate processing of sensations and the experience of them.

Further research provided clarity on the role of expectation in placebos. Petrovic et al. (2005) highlights the similarity between the placebo effect and reward processing, with both being heavily influenced by expectations. In a meta-analysis, Finniss et al. (2010) demonstrated that larger placebo effects are observed in clinical trials with stronger patient expectations of improvement and more robust conditioning procedures. Thus, placebo effects occur in clinical settings, even if no such placebo is given (Finniss et al., 2010). In treatments with open-hidden designs, the role of expectations becomes even clearer. For example, when medication is openly administered, so that the patient sees it, the medication often produces a stronger effect than when that same medication is covertly administered; patient is unaware (Benedetti, 2008; Crum et al., 2017). These findings show that the medication itself is not the only “active” ingredient, but the patient’s awareness of receiving the medication enhances the treatment effect. Thus, the individual’s expectation becomes a significant part of the therapeutic process.

The placebo effect not only impacts one’s subjective symptoms or pain levels but also the body’s motor systems. The study of placebo effects in Parkinson’s disease provides the most compelling evidence of this. Lidstone (2014) highlighted neuroimaging studies that show placebos stimulate the release of dopamine in the striatum, a brain region involved in movement, of patients with Parkinson’s, impacting expectations of clinical improvement. The review demonstrates the strong link between placebo effects in Parkinson’s disease and expectancy and dopamine by illustrating that one’s belief in

improving can affect neural pathways involved in motor control (Lidstone, 2014). Further research investigating Parkinsonian patients found that a placebo treatment caused a decrease in activity of single neurons in the subthalamic nucleus; this reduction was strongly correlated with patients' clinical improvement. (Benedetti et al., 2004). Additional research investigating Parkinson patients with implanted subthalamic nucleus stimulation found patients physically moved quicker when they expected to have good motor performance (Pollo et al., 2002). These findings of Pollo et al. (2002) occurred within minutes, thus suggesting individuals' expectations can change treatment response and motor output quickly. Taken together, the results of these studies are important because they highlight the impact placebo effects have on various bodily systems involved in movement, sensations, performance, and subjective outcomes.

Across both pharmacology and healthcare, research on placebo effects demonstrates the strong role beliefs and expectations play on influencing treatment responses. Additional physical processes where placebos demonstrated significant improvements include cardiovascular, gastrointestinal, respiratory, and immune functions (Enck & Klosterhalfen, 2020; Hadamitzky et al, 2018; Pollo et al., 2003). The evidence shows that a patient responds to the treatment and to what the treatment means. This provides the foundation from which mindset-placebo work builds from. Specifically, in the current study, if expectations can alter various bodily responses, then expectations may also alter the internal experience of energy and focus.

Placebo Effects & Mindset

While there is a large body of research using inert substances, such as fake pills, liquids, and surgeries to produce a placebo effect, there is also research showing that

reframing one's mindset can achieve the same physiological outcomes. In a field study with surgical patients, Langer, Janis, & Wolfer (1975) demonstrated that reframing the hospital experience and participants pain, reduced psychological stress and requests for pain relievers and sedatives, and led to earlier hospital discharge. This significant physiological outcome was not because of a placebo in the form of an inert substance or sham procedure, but rather a placebo effect experienced by a reframed mindset.

Similar work demonstrates that participants' blood pressure increases when doctors are present, a phenomenon known as the 'white coat effect' (Mancia et al., 1983). These results suggest that the clinical context itself can produce physiological changes because the physician's presence, examination meaning, and patient's expectations influenced the body before anything was done. Similarly, Benedetti (2002) illustrated how words act as part of the treatment context by showing the influence the words a doctor uses has on a patient's brain and body. Additional research demonstrates that patients' negative outcomes have more to do with their negative expectations stemming from assigned diagnostic labels rather than the actual course of the disease (Langer, 1989; Crum & Langer, 2007). Thus, if an individual believes a diagnosis accurately predicts limitations, decline, and fragility, then the label directs their attention to evidence that confirms such outcomes rather than challenges them. This highlights the significant role expectations and beliefs associated with certain contexts play in one's physiological outcomes and makes the importance of contextual factors in mindset-placebo research even more evident.

Contextual factors influence the strength of placebo effects, including credibility, instructions, relationships, and the physical set-up or appearance of the placebo itself.

Stacking up multiple contextual factors generates a stronger placebo effect, as demonstrated through Crum & Langer (2007), Olson et al. (2020), and Olson et al. (2021). The studies also support expectations and beliefs having the same physiological outcomes as placebo substances or procedures.

In the seminal study Crum & Langer (2007) examined the effect mindset has on specific health outcomes among a participant group of hotel maids. These workers were clearly physically active throughout their workday, but they did not perceive their daily work as physical activity. Using a between-groups design, researchers informed participants in the intervention condition that their work qualifies as the recommended amount of daily exercise and showed them how their work tasks counted as exercise. Results showed improvements in various physiological measures, including weight, body fat, blood pressure, and body mass index, even though no actual work behavior changed (Crum & Langer, 2007). Suggesting that changing one's beliefs about their work can lead to measurable health changes through the power of mindset-placebo. These findings are particularly important for the current study.

Olson et al. (2020) investigated individual variations in placebo effects within an environment specifically designed to resemble a conventional psychedelic party. Participants included thirty-three students that were falsely led to believe they had consumed a substance like psilocybin, confederates acting as the drug was affecting them were also used to increase participants expectations (Olson et al., 2020). Additional contextual factors used to boost expectations include paintings, music, colored lights, and visual images. Results showed significant individual variation in placebo effects, including some participants who experienced effects equivalent to high doses of

psilocybin (Olson et al., 2020). These findings point to the powerful role context and expectations play in placebo effects, suggesting that both psychological and environmental factors must be considered when designing a mindset placebo.

Similarly, Olson et al. (2021) utilized the power of suggestion as the placebo rather than a physical placebo (sham pill or procedure). Participants, children aged 6-13, underwent a sham suggestion intervention designed to bring out their innate self-healing abilities, results showed improvements in various disorders affecting participants, ranging from improved tics to a full stoppage of skin-picking (Olson et al., 2021). This supports the use of a placebo (suggestion) producing an objective effect (improved disorder symptoms).

Further research by Zahrt and Crum (2017) provides evidence that is central to the current study. The researchers investigated perceived physical activity and mortality across three different nationally representative U.S. samples. Results illustrated that those who perceive themselves as less active by comparison have an increased risk of mortality than those who perceive themselves as more physically active (Zahrt and Crum, 2017). These results stood even after accounting for individuals' actual physical activity levels and other covariates related to health. The study provides a crucial distinction as results do not suggest that physical activity is unnecessary but rather that one's perception of their physical activity can shape the subsequent health outcomes. This is central to the current study because customer service work contains features that are energizing and focus-enhancing, but those features will not alter the workers' felt experience if they perceive the role only as draining and repetitive.

Another example of mindset impacting physiological response is found in research on food and metabolism. Participants in Crum et al. (2011) consumed an identical 380-calorie milkshake at two separate times. At one of those times the milkshake was clearly labeled as high-calorie and fattening, at the other time it was labeled as low-calorie and sensible. While the actual nutritional content of the milkshakes was the same, the high-calorie mindset generated a far steeper decline in the hunger-related hormone, ghrelin, than the low-calorie mindset (Crum et al., 2011). The results show participants' satiety followed their beliefs of what they thought they consumed rather than what they actually consumed, supporting mindsets' influence on physiological processes.

Reframing the meaning assigned to a physical state can also change outcomes as shown through stress mindset research. Particularly, an individual's mindset about stress can influence their health and performance outcomes (Crum et al., 2013). Using a metacognitive approach, Crum et al. (2023) retested these claims across three randomized controlled studies. The researchers found that the rethink-stress intervention did in fact increase stress is enhancing mindsets which led to better self-reported physical health symptoms and work performance (Crum et al., 2023). This research is especially important to the current study because, like stress, customer service work is often thought of negatively, yet when stress was reframed as enhancing, individuals' responses changed.

Recent research, Aungle & Langer (2024), highlights the power of the placebo effect of diagnostic labels through the self-fulfilling outcomes. Aungle & Langer (2024) found that participants who were labeled as "prediabetic" were more likely to develop

diabetes than participants who received a “normal” label. In another mindset intervention, Yelder et al. (2025) investigated patients starting methotrexate for an inflammatory rheumatic disease. Researchers reframed the phrasing of non-severe side effects as signs the medication was active in the body, leading participants to develop positive symptom mindsets and experience improved motivation at four weeks, and better C-reactive protein outcomes at twelve weeks (Yelder et al., 2025). The results of this research demonstrate that both biological and subjective experiences can be altered by reframing the meaning of bodily symptoms. Similarly, Sandra et al. (2023) examined the influence of personalized information on enhancing placebo effects. Participants who received a sham treatment that was framed as “personalized” experienced greater placebo effects than those who only received the sham treatment (Sandra et al., 2023). Therefore, underscoring the importance of tailoring placebo interventions to individuals' specific beliefs and expectations to increase their effectiveness.

The power of expectations is expressed through their ability to influence more than just physiological responses to pain and emotions. One study that supports this claim shows how participants who were expected to perform better on an eye test had improved visual acuity (Langer et al., 2010). In Park et al. (2016) blood glucose levels in people with type 2 diabetes changed based on the perceived time rather than the actual time of day. Participants in the study completed tasks for the exact same amount of time, however, researchers manipulated the clocks to make participants believe more or less time had passed. The results showed participants' blood glucose levels followed the time they perceived, suggesting that the body responds to the psychological meaning of passing time (Park et al., 2016). In a similar demonstration of the power of perception,

Rahman et al. (2020) found that participants had faster reaction times when they believed they had slept for eight hours compared to those who believed they slept for five hours. These results again stood even when actual sleep varied from perceived duration of sleep (Rahman et al., 2020). Additional examples include, participants who expected fatigue actually became fatigued (Camparo et al., 2022), participants who expected to have a cold significantly increased their chances of actually developing one (Pagnini et al., 2020), and participants who were led to believe that more time had passed after receiving an induced wound, thus expected their wound to be healed, actually experienced their wounds healing faster (Aungle & Langer, 2023).

Collectively, the literature provides robust evidence supporting expectations and beliefs as key variables in the effectiveness of mindset-placebo interventions. Recent theoretical work clarifies the mechanism through which effects may occur. Specifically, Aungle et al. (2026) shows beliefs shape what an individual expects, expectations shape what the individual attends to, and attention influences what cues in their body are amplified, ignored, or interpreted as significant. Under this framework, a mindset is a contextually activated belief that directs one's attention and expectations, thus explaining how reframing one's mindset can alter their physical and subjective outcomes. However, the full scope of health outcomes that could be improved using a mindset-placebo remains understudied. The current study investigated perceived energy levels and focus as two of those physical health outcomes not yet studied under the scope of a mindset placebo effect.

Mindset & Energy Levels

Energy is a fundamental aspect of physiological functioning and is crucial in sustaining effective cognitive processes and physical activities. In the context of this study, energy is defined as the vigor or vitality one experiences; thus, it is the subjective experience of energy. Low energy levels are a common health concern that has caused a variety of remedies to be developed. Remedies include behavioral changes, nutritional products, supplements, caffeine, and medications. While there is no one cure all to increase energy, most ignore the approach of mindset and its placebo-like effects as a potential remedy. This oversight is important because energy is experienced partly through interpretation. Internal cues like tiredness, alertness, heart rate, and mental effort are interpreted through the beliefs an individual already holds. Thus, if an individual believes their job is draining, they may be more likely to pay attention to signs of fatigue. If an individual believes their job is stimulating, they may be more likely to notice signs of energy. In this sense, one's experience of energy may be influenced by both the state of their body and their mindset, as the mind-sets the state from which the body responds.

Previous research on social interaction provides insight on the idea that the features of in-person, customer-facing service work are energizing. Most often interacting with strangers is treated as a stressful, effortful, or unpredictable ordeal. However, research suggests that an individual's affective experience can be improved by brief social exchanges with strangers. Sandstrom and Dunn (2014) examined a group of baristas and their brief social interactions with customers, including eye contact, smiling, and brief small talk. Participants who engaged in these interactions reported greater positive affect than participants who were instructed to have the most efficient exchange possible. These

findings are particularly relevant to the current study. In-person customer service work with face-to-face customer interactions involves repeated interpersonal exchanges with strangers. While it is possible for workers to interpret these continuous interactions as draining, the literature suggests these interactions can also be accurately interpreted as providing positive affect which is intricately linked to active states such as energy, enthusiasm, and alertness.

Recent research demonstrates the active role expectations and mindlessness have on shaping outcomes related to fatigue (Camparo et al., 2022). The findings suggest that fatigue is both a biological state and a psychological interpretation of perceived bodily cues. Therefore, the fatigue one feels is shaped by a complex interaction between physiology, attention, and expectations (Camparo et al., 2022). Placebo effects involvement in perceived energy and fatigue was also investigated in exercise research. Lindheimer et al. (2015) performed a meta-analysis of different exercise trials and found that a considerable number of psychological outcomes associated with exercise were due to placebo effects, including perceived energy and fatigue. Their findings support the idea that some psychological benefits one gains from exercise training are influenced by placebo-expectancy mechanisms (Lindheimer et al., 2015). Together, this research illustrates the connection between physical activity, placebo effects, and perceived energy.

Literature has yet to explore if reframing a mindset to elicit a placebo effect can increase one's perceived energy levels. However, previous research has investigated the effect of placebo substances and sham procedures on individuals' energy levels.

Placebo Effects & Caffeine

There have been many previous studies that have used placebo caffeine as a means to elicit physiological effects. Kirsch & Sapirstein (1998) showed participants who drank a placebo caffeine experienced increased heart rate and motor ability, participants also experienced other effects not pharmacologically associated with caffeine but with their own beliefs and expectations. Additionally, the impact of a placebo caffeine on quadriceps muscle performance was investigated and found that the placebo significantly increased muscle work (Pollo et al., 2008). Thus, existing literature suggests, (a) the placebo effect is not only about perception but physiological changes, (b) the placebo effect can be strengthened through conditioning and learning - suggesting the important role expectations play in its effectiveness, (c) and placebo effects may involve brain processes that impact muscle function beyond mere perception (Pollo et al., 2008).

The placebo effect has also been studied in various physical performance contexts. Placebo caffeine has been shown to increase running performance and pace (Hurst et al., 2020), vertical jump performance (Grgic et al., 2021), and exercise performance in professional cyclists (Saunders et al., 2019). Results of Tallis et al. (2016) demonstrated a potential link between ergogenics, motivation, and personality characteristics when using a placebo caffeine. The relevance of these findings is significant for the current study because they show energy and focus are also performance-related states, not just clinical outcomes.

Placebo Effects & Adderall

Most recently Looby et al. (2024) investigated the influence of an Adderall placebo on subjective mood, drug effects, and cognitive performance. Concurrently

incremental caffeine ingestion was also investigated for a potential enhancement of Adderall related placebo effects (Looby et al., 2024). A baseline measurement was taken of the 121 undergraduate student participants, and during their second visit to the lab, participants were randomized into three groups which included, the control (expected and received no drug), the expected Adderall but received a placebo group, and the expected Adderall and received 200 mg of caffeine group.

Results indicated significant interactions between condition and second visit for the subjective effects of perceived amphetamine effects, energy and efficiency effects, and feelings of being high (Looby et al., 2024). Additionally, researchers found that participants who expected Adderall but received placebo reported greater positive subjective effects compared to the control group. Participants who expected Adderall but received caffeine also reported positive subjective effects; however, caffeine did not produce incremental enhancement when compared to the placebo condition among participants that expected Adderall. In other words, the expectation of ingesting Adderall influenced participants' subjective mood and drug-effect ratings so significantly, that the addition of caffeine did not significantly strengthen the expectancy-based effects. These findings underscore the influence expectancy has in modulating subjective effects.

This body of research is especially important to the current study. Culturally, Adderall is associated with enhancements in cognition and energy, and many individuals believe they need a stimulant to feel energized and focused. However, this research suggests that some of the perceived effects individuals associate with a stimulant may actually be caused by their expectations. Therefore, while stimulants still have

pharmacological effects, the total effect felt by an individual includes an interplay of both pharmacology and expectations.

Beyond stimulant studies, placebo-expectancy effects have also been found in contexts related to attention. Researchers Lee and Suhr (2020) examined placebo neurofeedback among young adults with ADHD. Participants were randomly assigned to either a positive expectancy group or a negative expectancy group for each placebo neurofeedback session. Results showed the positive expectancy group reporting fewer ADHD symptoms after feedback and improvement on a working memory test, while the negative expectancy group reported an increase in ADHD symptoms (Lee & Suhr, 2020). It is important to note that the measured outcome of sustained attention did not change, indicating that the effects of expectancy can vary depending on the measured outcome.

Research has yet to examine if reframing one's mindset to elicit a placebo effect will increase individuals perceived energy and focus. Thus, the main aim of the study was to investigate this question. It was theorized that the placebo effect has a role in the benefits associated with increased energy, and an individual's mindset mediates the outcome(s). To test this theory, the placebo effect of reframing one's mindset about job tasks was investigated. It was hypothesized that reframing participants' mindsets to believe the work they do is energizing and focus-enhancing would lead them to expect increased energy levels and focus, resulting in significantly increased perceived energy and focus. To elicit the placebo effect of a reframed mindset, participants – customer service representatives – received information suggesting their daily tasks, particularly interacting with strangers, stimulate the body to produce heightened levels of cortisol and adrenaline, leading to increased energy and alertness. Credible research was presented to

support all claims. By reframing participants' beliefs about their job, we expected to find measurable increases in perceived energy and focus compared to a control. The results from the study may have practical implications for individuals seeking change in how energized and/or focused they feel.

Chapter II.

Method

The study was conducted as an online, single session via Qualtrics and included two measurement questionnaires. Participants were recruited through online social media platforms and excluded based on specific requirements (see inclusion criteria below). The study was approved by the Harvard University Committee on the Use of Human Subjects prior to the recruitment of participants.

Participants

The population of interest recruited for the study was customer service representatives (CSRs). The CSRs were adults who currently worked full-time in an in-person customer service role that involved face-to-face interactions with customers or clients. To minimize participant risk, preserve anonymity, and limit the collection of potentially identifying information, demographic data was not collected. Given the lack of demographic data, the study was unable to examine whether individual characteristics such as age, gender, race, ethnicity, socioeconomic status, or job tenure moderated results. Chapter IV addresses this limitation.

To recruit participants, a convenience sampling method was used. Participants were recruited through online social media platforms, and eligibility was determined through brief screening questions. Participation was anonymous, voluntary, and without any form of compensation. All data was collected through Qualtrics and stored on a

password-protected device. No names, IP addresses, geolocation, or other identifiable information were collected.

Inclusion criteria for this study included in-person full-time employment as a customer service representative, fluency in English, aged 18 years or older, and access to a device capable of displaying a video with audio and online surveys. Exclusion criteria consisted of a reported current diagnosis of a cognitive impairment or disorder (e.g., ADHD, narcolepsy) that significantly impacts energy levels and focus.

A sample size of 100 customer service representatives was initially targeted. However, recruitment yielded a sample of 53 subjects and included 12 participants who did not complete the session or failed eligibility. Therefore, the study had 41 total participants. The data set was also screened for fraudulent and failed attention-checks; no additional exclusions applied as all 41 participants passed.

Materials & Measures

The primary material delivered to the intervention group was a pre-recorded 3-minute video; researcher produced and narrated, that presented existing scientific findings related to mindset, energy, and focus. Specifically, the intervention video explained how the role of an in-person CSR can be understood as energizing and focus-enhancing because of its repeated interpersonal demands with a customer/cliental base that is predominantly strangers which creates an unpredictable and high-stimulus nature. The video included text and visualizations highlighting credible research in a convincing and accessible way (Crum & Langer, 2007; Crum, Salovey, & Achor, 2013; Langer, 1989; Benedetti, 2014). Additionally, there was an on-screen text summary of the video, one multiple-choice comprehension check question, and a brief two-part written exercise.

No physical interventions or placebos (e.g., supplements or devices) were used. The intervention relied solely on changing participants' beliefs and expectations (i.e., mindset) about their work through the materials provided. The control group was matched to the intervention group so that they received the same video-length, delivery format, exposure time, researcher production and narration, summary structure, comprehension item format, and post-video writing task. However, the content of the material was different. The content presented to the control included neutral information about general customer service responsibilities and no mindset reframe.

Eligibility Screener

The eligibility screener included four questions developed by the researcher to determine if individuals interested in participating in the study were eligible to do so. To be eligible, individuals had to respond “YES” to the three inclusion criteria questions: “Are you 18 years of age or older?”, “Do you currently speak English fluently?”, and “Are you currently employed in an in-person customer service role that involves face-to-face interactions with customers/clients?”. Individuals also had to respond “NO” to the exclusion criteria question: “Do you have a diagnosed cognitive impairment or disorder that significantly impacts your energy or focus (e.g., ADHD, narcolepsy)?”. Individuals who failed to meet any of the inclusion criteria or exclusion criteria were not eligible to participate in the study. The inclusion criteria of this study were selected based on elements necessary to the application of the designed mindset intervention. Similarly, the exclusion criterion was selected to hedge against possible preexisting cognitive disorders or sleep conditions that significantly influence individuals' baseline perceived energy and focus. This was important because the study examined immediate changes in perceived

energy and focus, so participants needed to engage with the delivered intervention materials and complete the self-report measures without having a condition that could substantially confound the outcomes being studied.

Subjective Vitality Scale

The Subjective Vitality Scale (SVS; Ryan & Frederick, 1997) includes 7-items that assess to what extent individuals feel “alive” and energetic. Individuals rate the items on a 7-point Likert scale, ranging from 1 (not at all true) to 7 (very true). The scale has high internal consistency, with a Cronbach’s α of .84-.86 and strong construct validity across various health context studies (Ryan & Frederick, 1997). In the current study, the scale is used as a self-report indicator of perceived energy.

Mindful Attention Awareness Scale – State

The State Mindful Attention Awareness Scale (MAAS-State) is a 5-item adaption of the original 15-item trait MAAS (Brown & Ryan, 2003). The adapted measure assesses momentary attentional focus and attentional lapses (i.e., how frequently participants are operating on “autopilot” versus attending to what they are doing). Individuals rate items on a 0-6 scale, ranging from 0 (not at all) to 6 (very much). Items are reverse scored and averaged such that higher scores indicate greater momentary attentional focus and fewer attentional lapses. Brown and Ryan (2003) reported strong internal consistency ($\alpha = .92$) of the state version of the measure, while Carlson and Brown (2005) validated the original MAAS with strong psychometric properties across clinical and nonclinical samples. Although the scale was originally developed within the

mindfulness literature, in the present study it is used as a self-report indicator of focus-related attention and present-moment awareness.

Procedure

Data was collected using an online, randomized, controlled, between-subjects experimental design that included two conditions, a mindset intervention, and a control. Pre- and post-intervention measures were also collected within the single session. All tasks and assessments were completed via Qualtrics, a widely used online data collection platform that was accessed by the researcher through Harvard University Information Technology. The study was accessible on any electronic device connected to the internet via a direct link to the Qualtrics session. Data was collected from March 2026 to April 2026.

Participants' privacy and confidentiality were protected using an assigned unique numerical identifier to track assessment responses. Participants' responses were anonymous, with no personal or identifiable information collected. Qualtrics IP/geo-location capture was disabled. All assessment responses were secured on the researcher's password-protected laptop. Participation was voluntary and included the right to withdraw at any time, without penalty. No incentives, including monetary compensation, were given for participating in the study.

Participants first learned of the study through online sources and social media via short advertisement postings on various Reddit community pages, r/samplesize, r/takemysurvey, and r/surveyexchange. Additional recruitment posts occurred on Pinterest, X (formerly 'Twitter'), and TikTok. Participants interested in the study followed a hyperlink, embedded in the posting, that took them directly to the study on

Qualtrics. Participants read a brief description of the study and, if still interested, proceeded to the 4-item eligibility screener (see Appendix A). Individuals who failed to meet one of the criteria were thanked and unable to proceed. Eligible participants proceeded to the informed consent form, which included the study's general purpose, required tasks, estimated duration, anonymity, and voluntary nature. Individuals that wanted to proceed provided electronic consent and those that did not were unable to participate in the study.

All consenting participants were directed to the first baseline measure, the Subjective Vitality Scale. Next, participants completed the second baseline measure, the State Mindful Attention Awareness Scale. Baseline measures were estimated to take participants approximately ten minutes to complete.

After completing the baseline measures, Qualtrics randomly assigned participants to the intervention group track or the control group track. Participants assigned to the intervention group watched a three-minute video produced and narrated by the researcher. In the intervention video, the researcher presents credible research (not placebo) on how the role of a customer service representative that works in-person is energizing and focus-enhancing due to its unpredictable, high-stimulus disposition and constant interpersonal engagement. Participants randomly assigned to the control group watched a three-minute video produced and narrated by the researcher, that included general information about customer service responsibilities. After viewing the videos, participants in both groups proceed to a page with a text summary of the main points of the video they watched. To increase exposure to the intervention, Qualtrics timing controls were used such that participants had to remain on the video page for the full

duration prior to proceeding to the text video summary page, where the arrow to proceed to the next page did not appear until 30-seconds had passed. Once the arrow appeared, participants could proceed to a page with one multiple choice video comprehension question (see Appendix B). The question was different for intervention and control group participants, as it was designed and primarily used to reinforce the strength of the reframe of the intervention rather than measure true comprehension. Regardless of the answer participants selected, the next page was the “correct answer” written as “clarification” of the videos main point. Participants then proceeded to the next page where they completed a two-part writing exercise that again reinforced the content (reframe or neutral) of the video they watched.

All participants were then redirected to complete the post-intervention measures: SVS and MAAS-State. A 1-item attention check was included within the MAAS-State; failure to accurately complete this check was considered during analysis. After post-measure completion, participants viewed the final page of the session, which included a written debrief that clarifies the purpose of the intervention and contact information of the researcher for participants to send questions or comments. The entire session was estimated to take participants approximately 25-35 minutes to complete.

Data Cleaning

Prior to performing the preliminary analyses, the data was screened for incomplete or erroneous responses. Only participants who completed the full study with complete pre- and post-intervention responses for both primary outcome measures were retained for analysis. The final condition sizes were reviewed and found to be balanced,

with no missing outcome data in the analytic sample. No identifying information was included in the analytic data set.

Data Analysis

Data was analyzed using Jamovi statistical software. The Subjective Vitality Scale (SVS) was scored by averaging the 7-items of the scale at each timepoint. One item was reversed scored, “I don’t feel very energetic,” before the scale means were computed. Higher SVS scores indicated greater perceived energy and vitality from participants. The MAAS-State measure was scored by reverse scoring all 5-items, as the items were phrased in terms of automaticity and attentional lapses. Therefore, higher MAAS-State scores indicated fewer attentional lapses and greater momentary attentional focus. Both measures were examined pre- and post-intervention for internal consistency using Cronbach's alpha.

Descriptive statistics were performed first for all primary outcome variables by condition. This included examining means, standard deviations, minimum values, maximum values, and changes scores for subjective energy and state attentional focus. To calculate change scores, each participant’s pre-intervention score was subtracted from their post-intervention score.

The primary hypotheses were tested using two 2x2 repeated-measures analyses of variance (ANOVA), the first for subjective energy, and the second for state attentional focus. In each model, Time was the within-subjects factor, and pre- and post-intervention were the two levels. Condition was the between-subjects factor, with intervention and control as two levels. The Time x Condition interaction was the primary effect of interest,

as it tested whether intervention condition participants showed greater pre-to-post change than control condition participants.

To test whether each group significantly changed from pre- to post-intervention, secondary analyses were conducted using paired-sample t tests within each condition. These analyses were performed separately for each outcome and separately for each condition. The within-condition change size was estimated using Cohen's d.

Finally, robustness checks were performed with ANCOVA models. These analyses were used to compare post-intervention scores between conditions while the corresponding baseline score was controlled for. The first ANCOVA conducted predicted post-intervention SVS scores while controlling for pre-intervention SVS scores. The second ANCOVA predicted post-intervention MAAS-State scores while pre-intervention MAAS-State scores were controlled. For all ANOVA and ANCOVA models, partial eta squared was used as the effect size estimate.

Prior to interpretation, assumptions were examined. Normality of paired-difference scores for the paired-samples t tests was examined. Homogeneity of variance was evaluated using Levene's test. The within-subjects factor of the repeated-measures ANOVA models only had two levels, so sphericity assumption was automatically satisfied. Transformations of the data were not conducted.

Chapter III.

Results

The study collected a total of 53 responses on Qualtrics. Of the 53 responses, six were excluded because the participants did not complete the study, and six were excluded because participants did not meet eligibility criteria. The final analytic sample included a total of 41 participants. This sample size was smaller than the original target size ($n = 100$) but retained a nearly equal distribution across experimental conditions. Qualtrics randomly assigned 20 of the 41 participants to the intervention condition and the remaining 21 to the control condition. Participants that were retained for analysis had complete pre- and post-intervention data for both outcome measures. No additional participants were excluded from the analytic sample after the screen and data cleaning was performed.

Reliability of Measures

At both timepoints, internal consistency was examined for each outcome measure. The Subjective Vitality Scale produced strong internal consistency at pre-intervention with $\alpha = .946$, and at post-intervention with $\alpha = .939$. Additionally, the MAAS-State showed reliable internal consistency at pre-intervention with $\alpha = .846$, and at post-intervention, $\alpha = .865$.

These reliability estimates indicated that both the SVS and MAAS-State performed consistently in the present study sample. The averaged scale scores were therefore used in the primary analyses.

Table 1. Internal Consistency of Primary Outcome Measures

Measure	Timepoint	Cronbach's α
SVS	Pre-intervention	.946
SVS	Post-intervention	.939
MAAS-State	Pre-intervention	.846
MAAS-State	Post-intervention	.865

Descriptive Statistics

Prior to hypothesis testing, descriptive statistics were examined by condition for both subjective energy and state attentional focus. See Table 2 below for pre-intervention means, post-intervention means, and change scores. It is important to note that although the final sample size was smaller than the target, both conditions reported similar baseline scores on outcome variables (SVS mean: intervention = 2.88, control = 2.93; MAAS-State mean: intervention = 3.12, control = 3.19).

The expected direction of the intervention was consistent with the descriptive pattern. Participants in the intervention condition reported increases on both outcome measures. Mean perceived energy increased from 2.88 before the intervention to 4.13 after intervention, and mean state attentional focus increased from 3.12 to 5.05 after the intervention.

Participants in the control condition did not demonstrate the same pattern. Mean perceived energy decreased from 2.93 to 2.31 after the control material, and mean state attentional focus slightly decreased from 3.19 to 3.01. Thus, results of the descriptive statistics show that the intervention condition moved in the hypothesized direction, while the control did not. This is consistent with the study's prediction because participants in the condition that received the mindset reframe reported higher perceived energy and

focus after the intervention, whereas participants in the control condition did not report comparable pre-to-post increases.

Table 2. Descriptive Statistics by Condition and Timepoint

Outcome	Condition	n	Pre <i>M</i>	Pre <i>SD</i>	Post <i>M</i>	Post <i>SD</i>	Change <i>M</i>	Change <i>SD</i>
SVS	Control	21	2.93	1.41	2.31	0.51	-0.63	1.18
SVS	Intervention	20	2.88	1.20	4.13	0.58	1.25	1.04
MAAS-State	Control	21	3.19	1.18	3.01	0.80	-0.18	1.11
MAAS-State	Intervention	20	3.12	1.44	5.05	0.65	1.93	1.64

Note. Change scores were calculated as post-intervention minus pre-intervention. Positive values indicate an increase from pre- to post-intervention.

Primary Hypothesis Tests

The primary hypothesis of the study was that intervention condition participants would have greater increases in perceived energy and focus than participants in the control condition. To test the hypothesis, two repeated-measures ANOVAs were used. In each model, the primary effect of interest was the interaction between Time and Condition.

Perceived Energy

The repeated-measures ANOVA for the Time x Condition interaction was significant for perceived energy, $F(1, 39) = 29.24$, $p < .001$, $\eta^2p = .428$. These results indicate that the change in participants' perceived energy from pre- to post-intervention significantly differed by condition.

The estimated marginal means of the intervention group increased from pre-intervention, $M = 2.87$, $SE = 0.22$, 95% CI [2.42, 3.31], to post-intervention, $M = 4.12$, $SE = 0.22$, 95% CI [3.67, 4.56]. For the control group, the estimated marginal means decreased from pre-intervention, $M = 2.92$, $SE = 0.22$, 95% CI [2.48, 3.36] to post-intervention, $M = 2.30$, $SE = 0.22$, 95% CI [1.85, 2.74]. These contrasted results show that the intervention group participants reported a significant increase in perceived energy, while control participants did not.

The main effect of Time ($F(1, 39) = 3.24$, $p = .080$, $\eta^2p = .077$) was not statistically significant. Such an outcome is consistent with the fact that the two conditions changed in opposite directions rather than exhibiting a uniform increase or decrease across the entire sample. In contrast, the between-subjects main effect of Condition ($F(1, 39) = 11.50$, $p = .002$, $\eta^2p = .227$) was significant. However, this main effect should be interpreted by its relation to the significant Time x Condition interaction, which directly tested the hypothesis as the primary effect of interest.

For both pre-intervention SVS scores ($p = .191$) and post-intervention SVS scores ($p = .810$), Levene's tests were nonsignificant. Therefore, indicating no violation of the homogeneity of variance assumption.

State Attentional Focus

The repeated-measures ANOVA for MAAS-State focus scores indicated a significant interaction between Time x Condition, $F(1, 39) = 23.60$, $p < .001$, $\eta^2p = .377$. These results show that participants change in state attentional focus from pre-intervention to post-intervention significantly differed by condition.

The estimated marginal means of the intervention group increased from pre-intervention, $M = 3.11$, $SE = 0.24$, 95% CI [2.64, 3.58], to post-intervention, $M = 5.04$, $SE = 0.24$, 95% CI [4.57, 5.51]. The control group decreased slightly from pre-intervention, $M = 3.18$, $SE = 0.23$, 95% CI [2.71, 3.64] to post-intervention, $M = 3.00$, $SE = 0.23$, 95% CI [2.53, 3.46]. These results indicate that intervention group participants showed a significant increase in momentary attentional focus after the mindset reframing intervention, while control participants did not report a comparable increase.

Both the main effect of Time ($F(1, 39) = 16.20$, $p < .001$, $\eta^2p = .294$) and the between-subjects main effect of Condition ($F(1, 39) = 15.40$, $p < .001$, $\eta^2p = .283$) were significant. As with perceived energy, both main effects should be interpreted within the context of the significant interaction between Time x Condition, which directly tests if the intervention condition changed differently than the control.

Levene's tests were nonsignificant for MAAS-State scores pre-intervention, $p = .842$, and for MAAS-State scores post-intervention, $p = .125$. These findings indicate no violation of the homogeneity of variance assumption.

Table 3. Repeated-Measures ANOVA Results for Primary Outcomes

Outcome	Effect	F	df	p	η^2p
SVS	Time	3.24	1, 39	.080	.077
SVS	Time x Condition	29.24	1, 39	<.001	.428
SVS	Condition	11.50	1, 39	.002	.227
MAAS-State	Time	16.20	1, 39	<.001	.294

Outcome	Effect	F	df	p	η^2p
MAAS-State	Time x Condition	23.60	1, 39	<.001	.377
MAAS-State	Condition	15.40	1, 39	<.001	.283

Note. The Time x Condition interaction was the primary effect of interest for both outcomes.

Time * Condition

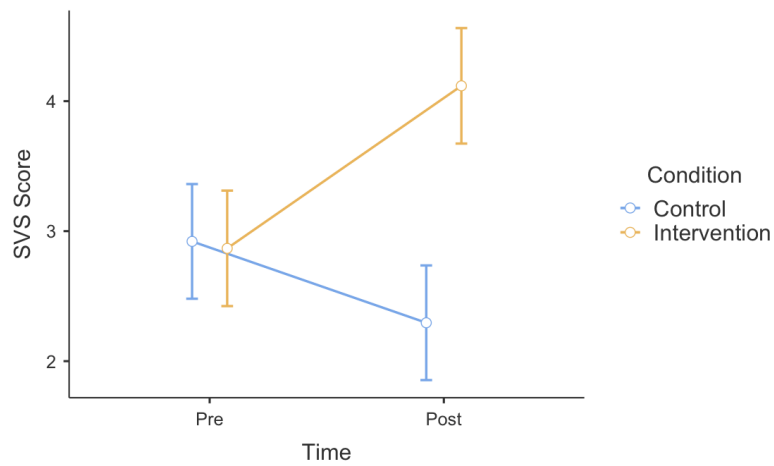


Figure 1. Pre-to-post SVS scores by condition

Higher scores indicate greater perceived energy.

Time * Condition

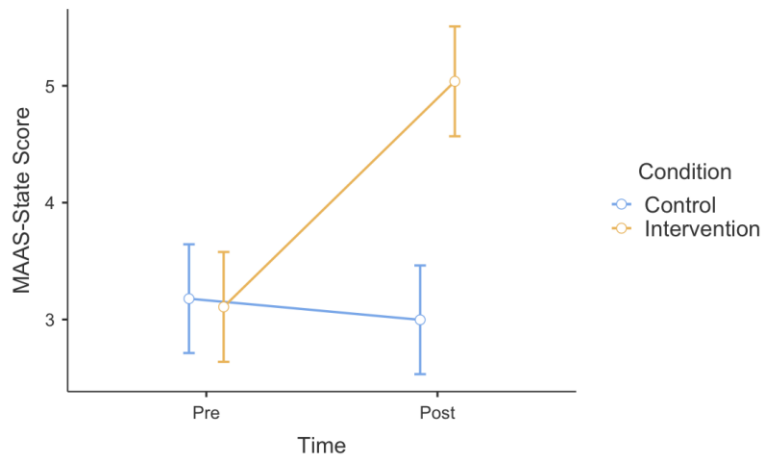


Figure 2. Pre-to-post MAAS-State scores by condition

Higher scores indicate greater momentary focus and fewer attentional lapses.

Secondary Analyses

Paired-samples *t* tests were conducted separately for both conditions to further examine the direction and magnitude of change within each group. These analyses came secondary to the primary repeated-measures ANOVA models and were used to clarify whether intervention and control conditions showed significant pre-to-post change.

Participants in the intervention condition reported a significant increase in perceived energy from pre-intervention ($M = 2.88$, $SD = 1.20$) to post-intervention ($M = 4.13$, $SD = 0.58$), $t(19) = 5.39$, $p < .001$, Cohen's $d = 1.20$, 95% CI [0.62, 1.78]. The mean change was an increase by 1.25 SVS points, 95% CI [0.76, 1.74]. These results represent a large within-condition effect. Thus, the direction of this effect is consistent with the primary hypothesis that reframing customer service work tasks as energizing would increase perceived energy.

Intervention condition participants also reported a significant increase in momentary attentional focus from pre-intervention ($M = 3.12$, $SD = 1.44$) to post-intervention ($M = 5.05$, $SD = 0.65$), $t(19) = 5.27$, $p < .001$, Cohen's $d = 1.18$, 95% CI [0.60, 1.75]. The mean change was an increase by 1.93 MAAS-State points, 95% CI [1.16, 2.70]. These results also represent a large within-condition effect and align with the prediction that the mindset reframe, delivered in the intervention, would increase self-reported momentary focus.

In the intervention condition, Shapiro-Wilk tests were nonsignificant for the paired-difference scores for both the SVS, $p = .150$, and the MAAS-State, $p = .840$. Therefore, there was no evidence of a violated normality assumption for the paired comparisons in the intervention condition.

Participants in the control condition reported a significant decrease in perceived energy from pre-intervention ($M = 2.93$, $SD = 1.41$) to post-intervention ($M = 2.31$, $SD = 0.51$), $t(20) = -2.44$, $p = .024$, Cohen's $d = -0.53$, 95% CI [-0.99, -0.07]. The mean change was -0.63 SVS points, 95% CI [-1.16, -0.09]. These results suggest that control group participants' perceived energy ratings did not remain unchanged as intended but instead slightly decreased from pre-to-post sessions. When interpreting the between-condition difference, this decrease is important because the primary interaction reflects both the intervention and control groups' decrease.

Control group participants did not show a significant change in momentary focus from pre-intervention ($M = 3.19$, $SD = 1.18$) to post-intervention ($M = 3.01$, $SD = 0.80$), $t(20) = -0.75$, $p = .462$, Cohen's $d = -0.16$, 95% CI [-0.59, 0.27]. The mean change was -0.18 MAAS-State points, 95% CI [-0.68, 0.32]. This result demonstrates a contrast

between the intervention and control groups because control participants did not report a significant increase in perceived focus.

In the control condition, the Shapiro-Wilk test suggested non-normality for the SVS change scores, $p = .017$. However, the MAAS-State change scores met the normality assumption, $p = .122$. The SVS's non-normality check was noted as a potential violation while interpreting the control-condition SVS paired-samples t test, but it did not alter the interpretation of the primary Time x Condition interaction because the effect reported strong and significant.

Table 4. Within-Condition Paired-Samples t Tests

	Condition	Pre <i>M</i>	Post <i>M</i>	Mean change	95% CI for <i>M</i> change	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's d	95% CI for Cohen's d
SVS										
	Intervention	2.88	4.13	1.25	[0.76, 1.74]	5.39	19	<.001	1.20	[0.62, 1.78]
	Control	2.93	2.31	-0.63	[-1.16, -0.09]	-2.44	20	.024	-0.53	[-0.99, -0.07]
MAAS- State										
	Intervention	3.12	5.05	1.93	[1.16, 2.70]	5.27	19	<.001	1.18	[0.60, 1.75]
	Control	3.19	3.01	-0.18	[-0.68, 0.32]	-0.75	20	.462	-0.16	[-0.59, 0.27]

Note. Mean change was calculated as post-intervention minus pre-intervention. Positive values indicate increases from pre-to-post. CI = confidence intervals.

Robustness Checks

ANCOVAs were performed for each outcome to examine if post-intervention group differences remained after baseline scores are accounted for. These analyses served as robustness checks for the repeated-measures ANOVA results by comparing post-intervention scores between conditions, while controlling for the corresponding pre-intervention score.

For perceived energy, an ANCOVA was executed predicting post-intervention SVS scores from condition, while baseline SVS scores were controlled for. Results showed that condition significantly predicted post-intervention perceived energy, $F(1, 38) = 162.70$, $p < .001$, $\eta^2p = .811$. Post-intervention SVS scores were also significantly predicted by baseline SVS, $F(1, 38) = 16.40$, $p < .001$, $\eta^2p = .301$. Adjusted means indicated that post-intervention perceived energy was higher in the intervention group ($M = 4.13$, $SE = 0.10$, 95% CI [3.93, 4.34]) than in comparison to the control group ($M = 2.30$, $SE = 0.10$, 95% CI [2.10, 2.50]). These findings aligned with the repeated-measures ANOVA results, thus supporting the interpretation that the intervention group produced higher post perceived energy scores than the control group.

For state attentional focus, an ANCOVA was performed predicting post-intervention MAAS-State scores from condition, while baseline MAAS-State scores were controlled for. Results showed that condition significantly predicted post-intervention momentary focus, $F(1, 38) = 80.91$, $p < .001$, $\eta^2p = .680$. However, in this model post-intervention MAAS-State scores were not significantly predicted by baseline MAAS-State scores, $F(1, 38) = 1.13$, $p = .294$, $\eta^2p = .029$. Adjusted means indicated that post-intervention momentary focus was higher in the intervention group ($M = 5.05$, $SE = 0.16$, 95% CI [4.72, 5.38]) than in the control ($M = 3.01$, $SE = 0.16$, 95% CI [2.68, 3.33]). Thus, the primary repeated-measures ANOVA result was supported again.

In both performed ANCOVA models, Levene's tests were nonsignificant, suggesting no violation of the homogeneity of variance assumption for perceived energy, $p = .593$, and momentary focus, $p = .314$.

Table 5. ANCOVA Results Predicting Post-Intervention Outcomes

Outcome	Predictor	F	<i>df</i>	<i>p</i>	η^2p
SVS Post	Condition	162.70	1, 38	< .001	.811
SVS Post	SVS Pre	16.40	1, 38	< .001	.301
MAAS- State Post	Condition	80.91	1, 38	< .001	.680
MAAS- State Post	MAAS- State Pre	1.13	1, 38	.294	.029

Interpretation of results is discussed in the following chapter.

Chapter IV.

Discussion

The purpose of this study was to determine whether a brief mindset-reframing intervention could immediately influence perceived energy and focus. The study specifically tested whether presenting customer service work tasks as energizing and focus-enhancing would increase self-reported perceived energy and focus among participants immediately following the intervention. The study was designed as a conceptual extension of related mindset-placebo research, particularly the idea that the meaning assigned to something can alter the way that thing is experienced by influencing beliefs, attention, and expectations. Therefore, the intervention did not change participants' work, environments, or actual job tasks; it simply changed the frame through which participants were asked to understand the work tasks they already perform.

Results supported the study's primary hypothesis, as quantitative findings showed participants in the intervention group reported greater increases in perceived energy and state attentional focus than participants in the control group. This pattern was found descriptively, statistically, and across multiple analytic approaches. These findings provide evidence that a brief online intervention that reframes one's mindset can produce immediate increases in self-reported energy and focus among customer service representatives that work in-person, face-to-face, with customers/clients. However, the findings must be understood as proof-of-concept evidence because outcome measures were self-reported immediately after the intervention. For this initial proof-of-concept study, self-reported state was an appropriate dependent variable because the constructs of

interest were immediate perceived energy and focus, and objective physiological outcomes were beyond the study's scope. Nevertheless, the evidence suggests that the subjective experience of work may be partly shaped by the frame through which that work is interpreted.

This interpretation is critical because the study did not ask if CSR work became objectively easier or if participants' job performance during a real shift improved. Rather, it asked if CSR job tasks were viewed through a different psychological frame would that lead to measurable changes in participants' perceived energy and focus. Customer service work is commonly described as repetitive, draining, or emotionally demanding. The current intervention gave participants a different view of the role, so that the description became: stimulating, engaging, rapid attention and awareness increasing, and heightened emotional control. In this way, the study tested if a different interpretation of job demands would give participants a new perspective, thus causing them to form a new set of beliefs and expectations, resulting in a shift in their immediate self-reported state. The findings suggest that even a brief reframing of work tasks can produce measurable immediate shifts in how participants report feeling in the moment.

A central contribution of the study is its treatment of perceived energy and focus as states that can be influenced by meaning and not only by external substances or biological depletions. In an individual's daily work, the same contextual and bodily cues can be interpreted in more than one way. For example, feeling alert, on edge, socially engaged, and cognitively activated can be interpreted as evidence of strain or evidence of energy. The difference in interpretation depends on the frame brought to the experience. In other words, different mindsets about the same context will produce different lived

experiences of that context. The design of the study's intervention intentionally made the activating features of in-person customer service work more salient and gave participants a new interpretation of the demands of their job. Thus, the study was not designed to prove customer service work is inherently energizing but rather to show that individuals are in control of what they physically experience by their interpretation of customer service work. To test this, the study changed the meaning assigned to customer service work and measured immediate shifts in participants' perceived energy and focus.

The results are also consistent with the broader logic of mindset literature. In the chambermaid study, Crum and Langer (2007) showed that changing how hotel maids perceived their work altered outcomes, even though the work itself did not change in any way. The current study applied the same general principle to a different work context and a different set of self-reported outcomes. Instead of reframing hotel maids work tasks as exercise, this study reframed customer service representatives work tasks as energizing and focus-enhancing. The significant results provide preliminary support for the idea that individuals' interpretations of their job demands may influence not only what they think about their work, but also the role their mind plays in how they experience their own energy and focus.

Simultaneously, interpretations of the findings must be understood as immediate self-reported effects rather than evidence of long-term change. The intervention produced shifts in participants' self-reported energy and focus within a single online session and immediately after they received the intervention. Therefore, it cannot be concluded that all customer service work always increases energy and focus, or that a brief, self-guided, online intervention can alter felt experience long-term or permanently. The more precise

conclusion is that when CSRs who work in-person, face-to-face with customers/clients, were given a credible reframe of their work tasks as energizing and focus-enhancing, they reported immediate increases in perceived energy and state attentional focus relative to participants who received neutral information about customer service responsibilities.

This distinction matters because the study's central question was not whether job tasks are objectively positive or negative, but whether the psychological meaning attached to those tasks could influence immediate perceived experience. The findings suggest the answer to that question is yes, at least in the short term. The same general features of customer service work that can be interpreted as tiring, (i.e., unpredictability, interpersonal demands, and the need to remain attentive), can also be interpreted as activating, engaging, and focus supportive. The difference is not the task itself, but the mindset brought to the task: intervention participants perceived their work differently which produced new beliefs, directed attention, and created expectations that shaped their felt experience.

Limitations

Several limitations must be considered when interpreting the significant findings of the current study. First, the design of the study cannot make conclusions about long-term change, objective physiological change, or actual performance in the workplace because it tested immediate, self-reported, changes within a single online session. Therefore, the results should be understood as evidence of an immediate shift in participants' reported experience after receiving the intervention material, rather than evidence of customer service work universally or permanently increasing energy and focus.

Demand characteristics may have influenced the results and therefore represent the most significant limitation of the study. Intervention group participants may have inferred that the expectation was to report higher levels of energy and focus after completing the mindset-reframing material. This alternative explanation of intervention participants strategically responding in the hypothesis-consistent direction cannot be ruled out because the study relied on self-report measures and did not include objective physiological or performance measures. The relevance of this concern is valid because the intervention explicitly reframed CSR job tasks as energizing and focus-enhancing, while the post-measures assessed participants' perceived energy and focus.

Several features of the design and pattern of results, however, make demand characteristics insufficient as a complete explanation. The first feature is the study's use of an active, structurally matched control condition. Participants in both conditions watched a three-minute video produced and narrated by the researcher and completed an identical sequence of exercises. The sequence included equivalent exposure time (3-minute video), an on-screen text summary of video, a multiple-choice comprehension question, a two-question written exercise, and the same pre- and post-intervention measures. Thus, across the conditions, researcher presence, required time and effort, study apparatus, and the researcher's apparent investment were held virtually constant. The only intended experimental difference between groups was the specific meaning assigned to customer service work. This difference was delivered in the material's content: the intervention condition received an evidence-based mindset reframe while the control condition received neutral information about customer service responsibilities.

The second feature that makes demand characteristics an incomplete explanation was the delivery of the content. The intervention materials presented credible reasons and research evidence for understanding CSR job tasks as energizing and focus-enhancing. Thus, the content was delivered as evidence not instructions, as it did not tell participants to feel more energized and focused, nor did it instruct them to answer post-measures in a certain way. This delivery format makes a revision of participants' beliefs a more plausible mechanism than mere compliance with an assumed study expectation. Although the study did not measure if belief revision directly mediated outcomes, presenting the content as evidence is not consistent with an explicit demand to comply with a suspected experimenter preference.

Third, the significant magnitude of the observed effects make demand characteristics a less persuasive sole explanation. The interactions of Time x Condition were large for both perceived energy (SVS), $\eta^2p = .428$, and perceived attentional focus (MAAS-State), $\eta^2p = .377$. There were also large within-intervention changes, with perceived energy (SVS), Cohen's $d = 1.20$, and perceived attentional focus (MAAS-State), Cohen's $d = 1.18$. These results substantially exceed typical demand-characteristic effects; therefore, it is difficult to attribute the observed effects entirely to demand-aligned reporting.

Fourth, a convergence across two distinct constructs measured by two independently developed scales emerged. Producing both effects would require participants to strategically alter their responses consistently across the SVS and MAAS-State measures. This demand was especially indiscernible for the MAAS-State because its items ask about attentional lapses and are reversed scored. Therefore, a participant

attempting to report an increase in focus would need to infer that lower ratings of negatively phrased items would be interpreted as a higher focus score. This makes the desired scoring direction less obvious than it would have been if the study used a scale that had participants rate positively worded statements about feeling focused. Although the study cannot claim this prevents demand-aligned responding, the required inferring of the scoring direction considerably raises the cognitive load of compliance, which makes demand-aligned responding a less likely explanation.

The fifth feature that makes demand characteristics an incomplete argument was the study's anonymity, and the control groups decreased SVS scores. There was a reduction in pressure to "please the researcher" because participation was anonymous, identifying information was not collected, Qualtrics IP and geolocation capture were disabled, participants had no direct interaction with the researcher, and no compensation or other incentives were given. These features reduced evaluative pressure and the external motivation to alter responses to gain participation benefits or the researcher's approval. The control group also reported a decrease in perceived energy, which opposes a generalized tendency to give uniformly positive responses. Therefore, a positive-acquiescence account would be more likely of upward movement across outcomes, rather than the significant decrease in one outcome (SVS) and the no meaningful change in the other (MAAS-State).

These features, however, cannot eliminate the possibility that to some degree the observed changes were demand driven. Methodologically, the effects of a reframed mindset and demand-aligned responding are distinguishable. In the study, the proposed mindset mechanism involved a genuine shift in felt experience manifested through

altered beliefs, attention, and expectations, whereas demand-aligned responding implies that participants strategically reported the results they assumed the study expected without experiencing the corresponding change. Nevertheless, an absolute distinction cannot be made when the dependent variables are perceived states because processes operate through participants' interpretations and expectations. Within mindset-placebo literature, participant beliefs and associated expectations are not just a source of bias but part of the psychological process through which the intervention is expected to run. It is for this reason that there might not be a sharp line between demand, expectation, and mindset when the outcome is a perceived state.

In this proof-of-concept study, the constructs of interest were perceived energy and focus. This made self-report appropriate for measuring whether the reframed mindset altered participants' immediate felt experience. Even if demand-characteristics contributed to the results, the study, as proof-of-concept, demonstrates that a brief, scalable mindset-reframe produces large, statistically reliable shifts in self-reported state relative to a structurally matched control. The findings therefore contribute preliminary support for a mindset-reframe intervention among customer service representatives that could conceivably increase participants' actual energy and actual focus. However, to establish the claim that the intervention can change biological energy and focus, further research that uses objective physiological, behavioral, and attentional measures is required.

A related limitation is that the study did not directly measure the exact psychological mechanism underlying the observed effects. The intervention was designed to alter participants' beliefs, attention, and expectations of their customer service job;

however, direct pre- and post-intervention measures of those specific mechanisms were not included. Therefore, the study is unable to say if the increases in perceived energy and focus were driven primarily by temporary motivation, belief revision, shifts in attention, expectancy, or a combination of mechanisms. Although this limits the ability to precisely explain why the changes occurred, it does not weaken the increases in perceived energy and focus that participants reported immediately after the intervention.

The final sample size of the current study is a significant limitation. The original target was a total of 100 participants, but after incomplete responses and ineligible participants were removed, the final sample included 41 participants in total. While the final condition sizes were balanced, the precision and stability of the effect size estimates are limited by the smaller sample. In small samples, large effects can still be meaningful, but they are also more sensitive to sampling variability. The current sample was sufficient to detect the effects observed in this specific study, but the sample was not large enough to fully establish generalizability of the intervention across the entire population of customer service representatives. Therefore, before interpreting the magnitude of the observed effects with confidence, a replication of the study with a larger participant sample is necessary.

Similarly, the use of convenience sampling and online recruitment was another limitation, as the sample may not be representative of all in-person customer service representatives. Recruitment occurred through online sources, and participants completed the study remotely on Qualtrics. While this made it possible to collect data from individuals who reported working in customer service roles that are in-person, face-to-face with customers/clients, it also made the sample self-selected. This is important to

consider because participants who chose to complete an online study about customer service work may differ from customer service reps who would not participate in such a study. Additionally, the study did not recruit from a specific organization or workplace, making the sample more likely to include a diverse range of customer service roles, industries, and work environments. Although this creates a broad sample, it also introduces a variability that could not be completely measured or controlled.

A related limitation is the study's anonymous design. Collecting no names or identifying demographic data of participants strengthened privacy and reduced risk but also limited what could be known about the sample. Thus, the study was unable to examine the effectiveness of the intervention across age, gender, race, ethnicity, industry, tenure, socioeconomic status, or specific customer service roles. This is significant because customer service jobs vary substantially - a retail cashier, bartender, bank teller, restaurant server, concierge, and flight attendant all interact with customers face-to-face, but the tasks, pace, emotional demands, and degree of unpredictability may greatly differ across those roles (and others). Therefore, with no specific demographic data, the study is unable to determine whether the intervention is effective equally across distinct types of customer service roles or whether certain subgroups drove the observed effects.

The self-guided format of the intervention also presents another limitation. In Crum & Langer (2007), the intervention was delivered in-person and reinforced through verbal presentation, handouts, and posters in the workplace. That general logic was adapted in the current study to a single online session to increase feasibility and standardize delivery. However, this reduced the researcher's ability to control the intervention environment, as participants may have completed the study in different

settings, with various levels of fatigue, distractions, privacy, and/or attention. As a mitigation effort, Qualtrics' timing controls were used to keep participants on the video and summary pages for the required amount of time, but this cannot fully guarantee that participants were engaged, fully attentive, internalizing or persuaded by the material. Additionally, because participants may have completed the study after work, before work, during a break, on a day off, or at a time completely disconnected from their most recent shift, responses could have been influenced by factors outside of the intervention. This matters because both outcome measures assessed participants' current state energy and focus, which are highly sensitive to immediate context, such as stress, sleep, time of day, caffeine, workload, mood, and recent social interactions. Thus, the lack of measurement and control of these contextual factors makes it possible for responses to be influenced by something other than the intervention material. The study used random assignment to help reduce systematic differences between conditions.

The primary outcomes – perceived energy measured by the SVS and perceived focus measured by the MAAS-State – are subjective states and were therefore appropriately assessed via self-report. Although both measures are well-validated, self-report data is vulnerable to demand characteristics, expectancy effects, differences in participant interpretations, and other response biases. The structurally matched active control condition, anonymous administration, lack of compensation, inclusion of an attention check, and reverse scoring structure of the MAAS-State helped mitigate the concerns but could not eliminate them. Accordingly, the findings establish immediate changes in self-reported experience but not changes to biological energy or objective focus performance. The lack of physiological and behavioral measures means the

findings can be best understood as a preliminary extension of mindset research into the subjective experience of energy and focus. To test whether the same reframe influences outcomes beyond self-report, future studies would need to measure reaction time, sustained attention, heart rate variability, cortisol, work output, customer interaction ratings, or shift-based behavioral data.

Although the control group's decrease in perceived energy opposes a generalized tendency to give uniformly positive responses, the decrease also presents a possible limitation. Participants in the control group received neutral material on general customer service responsibilities, yet results showed a decrease in participants' perceived energy from pre- to post-intervention. This decrease complicates the interpretation of the Time x Condition effect because it strengthens the statistical contrast between groups. Thus, the primary interaction reflects both the increase in the intervention group and the decrease in the control group. It is a possibility that the neutral customer service video and subsequent materials unintentionally made the role seem routine or demanding by emphasizing responsibilities without providing an energizing reframe. It is also possible that the task of completing the same surveys after watching a neutral video and answering additional questions slightly reduced energy in control group participants. Therefore, although results indicate a strong intervention effect, future research should test alternative control conditions.

Future Considerations

To build on the current study, future research should test the intervention in a specific, real-world customer service context. Preliminary evidence in the current study supports the effectiveness of a brief online mindset reframe on shifting immediate

perceived energy and focus. Thus, the next step is to examine whether this effect replicates when the intervention is delivered to a specific group of workers within an actual workplace environment. A conceptual replication could be conducted with customer service workers in a face-to-face service environment, such as a car registry or healthcare front desk. This would examine the effectiveness of the reframe when participants are actively embedded in the work context the intervention is designed to reinterpret.

Future studies may also benefit from investigating whether effects persist beyond the immediate post-intervention period. In the current study, perceived energy and focus were measured directly after the brief intervention; however, a stronger test would include follow-up measures, such as two weeks or one month later. Follow-up measures make it possible to determine if the reframe can produce longer term shifts in reported experience or only immediate shifts.

Future designs could also use objective or behavioral measures in addition to self-report measures. The present study was concerned with participants' felt experience, thus self-reported energy and focus were appropriate outcomes for the study's proof-of-concept goal. However, adding measures like reaction-time tasks, sustained attention tasks, work output, customer/client ratings, or physiological indicators related to arousal and attention could strengthen the evidence. The inclusion of a post-experimental hypothesis awareness probe could also strength future designs because it assesses participants beliefs about what the study was testing and if awareness of anticipated outcomes predicts pre- to post-intervention changes.

Comparing the mindset-reframing intervention in the study to multiple control conditions could also be useful to future studies. The current study used an active control condition that presented neutral information about different responsibilities associated with customer service work. In future research, the intervention should be compared against additional controls such as a no-video control, a positively skewed control, and a workplace wellness control. Using multiple controls could provide clarity on the precise mechanism – the energizing and focus-enhancing reframe, positive information in general, or completing structured exercises about one’s work – producing the observed effects.

Testing various levels of reinforcement may also benefit future research. The intervention in the current study was brief and self-guided. To strengthen the intervention, future designs could include an in-person presentation versus a video, printed materials posted in the workplace, brief reminders sent via email during shifts, or repeated exposure over several days or weeks. Such a design more closely aligns with the type of repeated contextual support that is necessary for a reframe of an individual's beliefs and expectations (mindset). Comparing the single-session intervention to a reinforced intervention could also help approximate how much exposure is needed for the reframe to meaningfully persist.

Finally, it would strengthen the research if future studies collected identifiers such as demographic and occupational information, when possible, within a design. The present study was designed to preserve the full anonymity of participants. However, this made the study unable to examine if the intervention appeared differently across gender, age, ethnicity, race, socioeconomic status, job tenure, professional work industry, and

specific customer service roles. In future studies, collecting this information would provide deeper insight on the mindset-reframes effect across various customer service contexts such as certain roles, workplace environments, and individual workers.

Conclusion

The current study provides preliminary evidence that a brief, single-session mindset-reframing intervention can yield immediate changes in perceived energy and focus. This work and similar research are equally promising as beneficial because of the immediate perceived outcomes participants may experience from reframing their beliefs and expectations (mindset). In the present study, participants' customer service work did not change, nor were alterations made to their actual work tasks, environments, or responsibilities. Rather, the only alteration was to participants' psychological frame through which they were asked to understand the work they currently perform. The findings supported the hypothesis that reframing customer service work tasks can lead to immediate increases in self-reported perceived energy and state focus. This suggests that meaningful shifts in experience can occur without changing the external task itself.

It is important to clarify that this conclusion is not implying that mindset exclusively determines felt experience or that physical working conditions are insignificant. The conclusion acknowledges that customer service work can be interpreted as demanding, repetitive, exhausting, and emotionally taxing. However, it also acknowledges the existences of other interpretations, as results suggest that the meaning assigned to demands can influence how they are felt. Under one frame, the social, focus-demanding, and unpredictable features of customer service work can be experienced as depleting, while under a different frame those same features can be

experienced as activating. From this perspective, the mind is not a mere observer of the state of the body retrospectively but rather the factor that sets the state from which the body responds.

Despite its limitations, the results of this study contribute to the broader body of literature that demonstrate beliefs, attention, and expectations not as passive reflections of experience but as active forces that shape it. Thus, the meanings an individual assigns to different aspects of their life can be more consequential than the limits they have learned to accept. The continuation of research in this area is necessary because it reveals a practical and distinctly human possibility: people may have more influence over how they experience their own work, bodies, and daily lives than is typically assumed. If even a brief reframe can change how energized and focused one feels in the moment, then future research should investigate mindset-based interventions as promising and accessible paths for helping individuals experience their lives differently. The central idea is that mindset is not only a lens through which experience is observed, but also an active condition through which experience is made. Therefore, mindset should be treated as a primary participant in making felt experience what it is.

Appendix A.
Eligibility Screener

Individuals completed the following questions to determine if they were able to proceed to participate in the study.

Eligibility Check

Before beginning, we need to confirm if you are eligible to participate in the study. Please answer the questions below. If you are eligible, you will proceed to the consent form.

1. Are you 18 years of age or older? Yes; No.
2. Do you currently speak English fluently? Yes; No.
3. Are you currently employed in an in-person customer service role that involves face-to-face interactions with customers/clients? Yes; No.
4. Do you have a diagnosed cognitive impairment or disorder that significantly impacts your energy or focus (e.g., ADHD, narcolepsy)? Yes; No.

[Questions 1-3: No = ineligible; Question 4: Yes = ineligible]

Appendix B.

Comprehension Check Question

Participants in each group completed the following corresponding multiple-choice question to strengthen their comprehension of the delivered intervention content.

Intervention Group:

Which statement BEST reflects the **main point** of the information you have received?

- Customer service jobs involve many responsibilities that actually qualify it as energizing and focus-enhancing work.
- Energy and focus levels at work are fixed and do not depend on the context of the job.
- Customer service is independent work that is not an essential part of daily business operations.

Control Group:

Which statement BEST reflects the **main point** of the information you have received?

- Customer service work is not an essential part of daily business operations.
- Customer service is mostly independent work with minor day-to-day customer interaction.
- Customer service roles include many different responsibilities that are repetitive and important to daily business operations.

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