Why We Can't Focus at Work

Inability to complete focus work continues to be a top complaint of employees.[1] Why can't we solve this problem? Different work activities often compete with one another, focus work tasks themselves can differ, and people's abilities differ. The best person to decide what's needed for focus work to be successful *is the person performing the work*—there is no "one-size-fits-all" solution. Knowing the ways that focus work is task- and person-specific can help you create a workplace—its culture, policies, and workspaces—to meet employees' focus work needs.

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1 Frontczak et al, 2012; Kim and de Dear, 2013; Gensler, 2013; Leesman, 2017.

At various times, we all need to do individual focus work. Other times we need to work together with people on shared tasks.[2] With all the different ways we need to work, sometimes we have competing activities. If we want to solve this problem, we need to better understand the problem itself.

Focus work, it turns out, is difficult to define. It's more than just a person working alone. Lucky for us, science is hard at work deciphering how we all do our best work. It tells us that successfully completing focus work depends on the specific task, the person, how much sustained attention to the task that person needs to complete it well, and, finally, the physical work environment. To better understand how focus work gets done in the workplace and what can sabotage it, Haworth conducted a series of experiments in our Human Performance Lab. Before we get to our findings, we need to understand how people complete focus tasks.

How Our Brains Help Us Complete Tasks

To complete a task, we control our attention toward that task—picking up *task-relevant information* (or external stimuli) to guide our actions. We "focus" on what's necessary to complete the task. But, how much attention we need is dependent upon how much we already know about the task. *And*, how long we need to sustain that controlled attention depends on how well that task can tolerate breaks in sustained attention. The challenge is that we have limited resources[3] and capacities,[4] so our brains are also designed to be efficient as possible.[5] In what ways are our brains efficient? When we are about to experience something, the brain takes in outside information, combines it with what we already know, and makes "educated" guesses at what is to come next.

Controlled Attention: How Much Do You Already Know?

Our brains are designed to be efficient and first will use existing knowledge that is easily accessible.[6] With little to no errors in our predictions, behaviors needed to complete the task are more "automated" and require less attentional control (think: habits). The less we know about the task we wish to complete, the less we are able to predict what needs to be done to complete the task. We need more information and must control our attention more so to include, process, and gather that additional information. With more new information needed for the task and more attentional control, our mental effort with the task becomes more "deliberate." If we can't manage all of the new information needed, the task becomes too difficult to complete well.

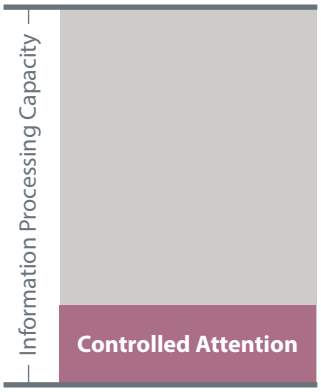
For example, think about the difference between a child learning to walk and an Olympic gymnast. Both need to control their bodies in balanced ways to move through space. The small child is still trying to understand how to stay upright so he must concentrate on balancing just to walk—carefully moving each part of his body in a way that keeps balance and better learns how to balance. The gymnast doesn't have to be deliberate at all to walk across a floor—walking is automated. She only needs to be aware that she is walking and to where. It would be nearly impossible for the small child to traverse a balance beam without stumbling, while the gymnast can complete acrobatic maneuvers while doing so. Based on new *task-relevant information* during a task, we may need to adjust our predictions and subsequent actions. Continual deliberate assessment of and adjustment to new information requires much of our limited resources and ability to process information. Initially, it will be difficult, but as we learn how to better predict similar events more quickly in the future, the easier they become and need less deliberate effort to achieve.

Deliberate Processing
Low task knowledge
requires more attention
to external task information

Irrelevant Information
Task Information

Automated Processing
High task knowledge
requires less attention
to external task information

Irrelevant Information
Task Information



Consider This: The Brain as a Prediction Engine

The brain acts something like a "prediction engine."[7] Newer research is providing evidence that our brains continuously gather and assess information from our senses to make sense out of ourselves, our world, and our place in it as we move through each day—*much of it beneath awareness*.[8] It is hypothesized, when WHAT our senses are gathering easily fits with what we ALREADY KNOW, we can move through our world with relative ease—we're better at predicting what is about to occur and need less outside information to achieve our goal.[9]

2 Nagy et al., 2016; Johnson and Scott, 2017.
3 Thomson, Besner, and Smilek, 2015.
4 N. Cowan, 2001; Nelson Cowan, 2010.
5 Christie and Schrater, 2015.
6 Vatansever, Menon, and Stamatakis, 2017.
7 Euler, 2018; Cepelewicz, 2018.
8 Friston and Frith, 2015; Alexander and Brown, 2018.
9 Heeger, 2017; de Lange, Heilbron, and Kok, 2018.

Sustained Attention: When Can You Take a Break?

Since focus work performance is highly dependent upon controlling our attention, we should also consider how long that attention should be sustained. In the workplace, tasks that do not tolerate breaks in attention well are those in which performance degrades with each disruption in sustained attention. Reading, for instance, needs sustained attention for comprehension.[10] But, how long one needs to read can vary from three lines of a text message to a chapter in a novel. Do you need to hit a quickly approaching deadline? That task you chipped away at for a few weeks now may need your sustained attention.

Other times, breaks in sustained attention can be beneficial to the task we're trying to complete. Oftentimes, when trying to come up with a creative solution, the "lightbulb moment" occurs when we let our minds wander for a bit.[11] Furthermore, breaks in attention are necessary—like when we need to replenish resources or do a different task. What does it mean when we consider both controlled and sustained attention for focus tasks? It means that there is a variety of work activities that require different ways of focusing.

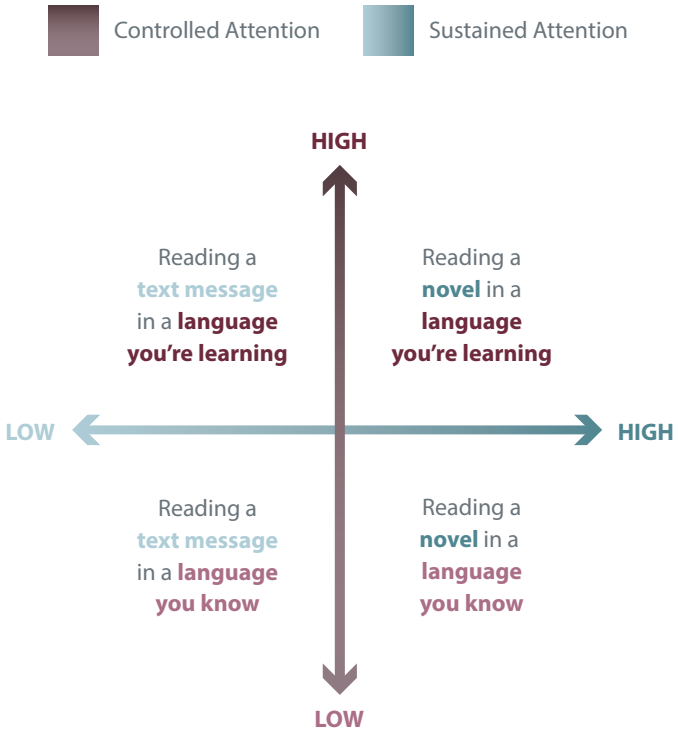
Back to our reading example, sustained attention can range from a few moments to read a text message to several minutes for a novel chapter. Let's combine that with attentional control. Reading a text message in a language you know (with fluency) requires less attention to details for comprehension—your brain can predict word parts and glean meaning with very little detailed information.[12] Learning to read in a different language, however, requires attention to characters in forming words, then to recall meaning, and then word order to draw understanding. Reading a text message in a language you are learning requires more controlled attention to task-relevant information. Still relatively short in sustained attention, but much more arduous or deliberate. Reading a novel chapter in a new language would be quite taxing.

Who Decides How Focus Tasks Vary? The Person Completing the Task

The amount of information processing required to complete a task implies that two people can be performing the same task, and it can be easy for one person and difficult for the other. Generalizing task difficulty *without* considering whether someone is completing it from a place of learning or mastery doesn't consider individual information processing needs. If a task is generally difficult, it will require even more effort for someone learning.

> *With automation on the rise, workforce skills will shift. One of five structural changes organizations are challenged with is a mindset shift in which they need to instill a culture of life-long learning and provide training opportunities for employees.[13] "Learning" at work will become more important as we move into the future. So will the need for focus.*

How Focus Tasks May Vary



Also, assuming all tasks will benefit from sustaining attention for hours on end or only until a task is completed may not be realistic. How many times have you been prodded by someone else to get or stay focused when you've paused your work because you were at a natural break or feeling depleted? It's not particularly helpful to insist others follow arbitrary or ill-fitting expectations about sustained attention. Humans work best in deliberate bursts.[14] While we may have common rhythms where we experiences bursts of peak performance throughout a day—circadian rhythms or, over a couple hours, ultradian rhythms[15]—those rhythms still vary among people. Who knows best how much control and sustained attention is required for a task? The person doing the work. If people are complaining they can't get their focus work done, they're best to know. But, what exactly is going on when they can't focus? Several things. Again, most people talk about these in terms of "distractions," but what exactly is a "distraction?" With the hopes of being better at solving for this, let's look at ways our attention gets pulled off a task.

10 Aaron et al., 2002; Flory et al., 2006; Smallwood, McSpadden, and Schooler, 2008.

11 Johnson and Scott, 2017.

12 Pikulski and Chard, 2005.

13 Bughin et al., 2018.

14 Ericsson, Krampe, and Tesch-Romer, 1993.

15 Pink, 2018.

What Prevents Us from Completing a Task?

Distractions: Prediction Engine Errors Capture Our Attention

So far, we've only looked at task-relevant information for completing tasks, but what happens when we're presented with *task-irrelevant information* (stimuli)? Well, our prediction engine still does its job; if task-irrelevant information is easy to predict, it doesn't require much attention. Here's an interesting phenomenon: When working on tasks needing deliberate and sustained attention, we can start to suppress highly predictable irrelevant information from even entering awareness.[16] Think about that for a moment: The more difficult the task, the easier it is to ignore task-irrelevant information. How does that work? Remember that our "prediction engine" is efficient, so when you need to be more deliberate about a task, you're using more processing capacity and there is less "room" for more predictable task-irrelevant stimuli to reach awareness.

However, when *task-irrelevant stimuli* are different, outside of our expectations, or *unpredictable*, they create prediction errors. Often we then focus on the error to see if action is needed and to learn to predict similar stimuli. This new information is irrelevant to the current task, so it pulls resources away from that. Some research indicates that this "attentional capture" during a task slows task processing, regardless of its content.[17] It's the unpredictable nature of it that is distracting—*the more different the task-irrelevant information is, the larger the prediction error*, and the more likely it is to capture attention and pull resources away from the current task.*

How long it takes to resume the original task after attention has been captured can range, on average, from a few seconds to up to a full minute.[18] While relatively short per instance, *the accumulation of distractions* can have profound effects on work performance.

When being exposed to continual distractions, sustaining attention to that task gets more difficult. Not only that—sometimes distractions lead to interference with our task or demand we switch to a new task. While these may be a problem for the initial task, they may also be beneficial and even necessary to the person. This is why the value of the disruption to focus work is also decided by the person doing the work. Why is that?

Captured Attention: Interference vs. Interruptions

Our brains are designed to bring unpredictable task-irrelevant information into awareness in case it is something we need to pay attention to—like catching a glimpse of your coworker that you need to track down or hearing a severe weather siren. Once our attention is captured, we resolve the error by keeping our attention there and gathering more information. How different is it? What is different? Do I need to act? What action do I need to take? The siren is designed to capture our attention—there is a large prediction error with what we expect to hear as we move through our day. When it occurs at times that are expected—noon on the first Friday of each month for testing—we recognize that it is a test, can ignore it, and get back to our original task. When the siren is not expected, it requires action. We'd better switch tasks and get to safety.

Once our attention is "captured" and we are distracted, we can take one of two routes: return to our current task or switch to the new task that captured our attention. How do we decide? In part, it is based on whether the new information captured by our attention is desired or not. If desired information, it is acted upon; if unwanted, it should be ignored. Let's look at what happens when we can't ignore information.

Interference: When We Can't Ignore Irrelevant Information

Sometimes, even after the onset of a distraction, the new information that captured our attention continues to sustain some of our attention and resources—despite being unwanted information. In these instances, we'll call it *interference*, after the initial distraction, there may be an ongoing conflict with the original task. It may engage in similar types of processing,[19] having overlapping characteristics with the information needed to complete the original task.[20]

An example of this is when someone starts talking to you while you're composing an email, and you suddenly find yourself typing what they're saying to you instead of what you intend to include in the email. Interference occurs when task-irrelevant information

**Beware of Sensory Overload*

Deviation from expectations—what constitutes a large prediction error—varies widely among people. For example, those with anxiety and Autism Spectrum Disorder (ASD) respond to very small differences between new stimuli and what they have already experienced, resulting in a higher sensitivity to stimuli than average. Both may be flooded with prediction errors, where those with anxiety are taxed with resolving the flood of errors and those with ASD aren't able to resolve the errors.[21] People sensitive to stimuli easily get "overloaded" by flooding awareness with things that need further attention.[22] As life continues to increase in complexity, the more we will all need to manage sensory overload.

16 Buschman and Kastner, 2015; Zelazo, 2015.

17 Hughes, 2014; Parmentier, 2014; Everett, Labonte, and Marsh, 2017; Cheyne et al., 2009.

18 Monk, Trafton, and Boehm-Davis, 2008.

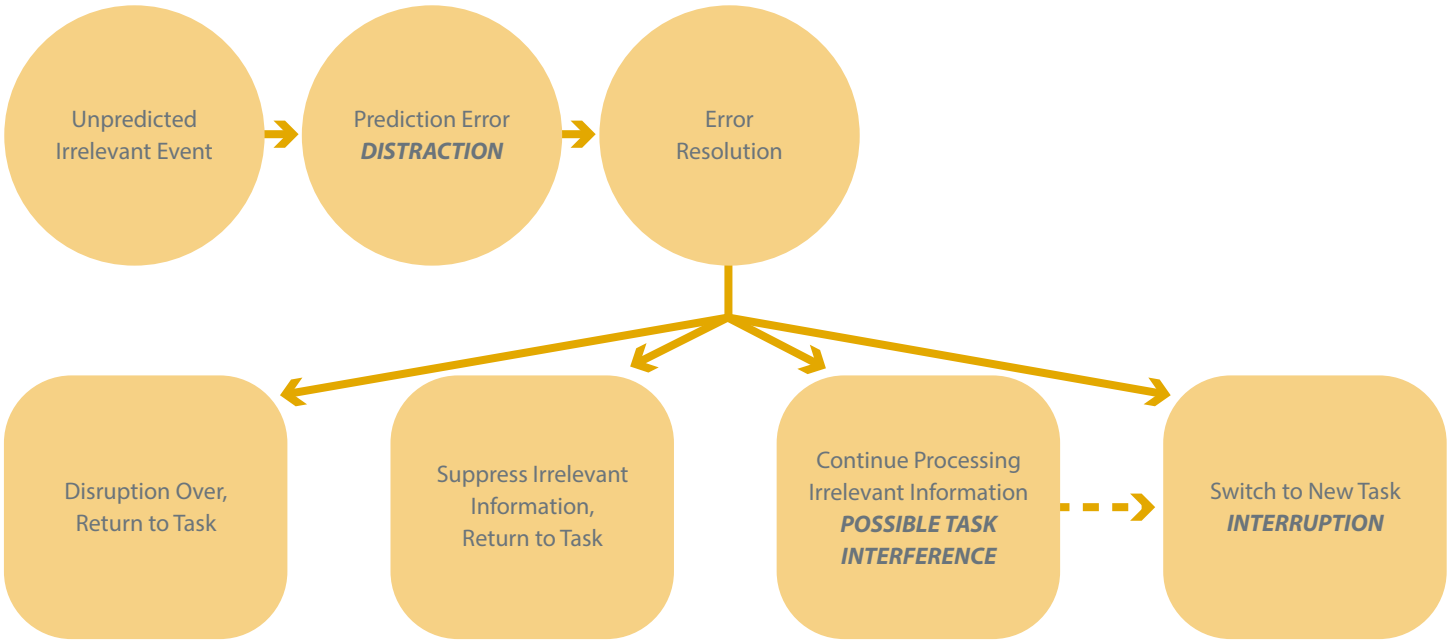
19 Jahncke, Hongisto, and Virjonen, 2013; Marsh et al., 2017; Marsh, Yang, et al., 2018.

20 Lutfi-Proctor, 2016.

21 Menon and Uddin, 2010; Menon, 2015; Van de Cruys, 2014.

22 Aron, Aron, and Jagiellowicz, 2012; Acevedo et al., 2018.

How the Brain Copes with Distractions, Interference, & Interruptions



processing competes with task-relevant information processing. We end up having difficulty coordinating the task-relevant information with our actions, and the quality of work declines.[23]

As seen in this example, language is particularly problematic—newer research provides evidence that our prediction engine, in its efficiency, does such a fantastic job of identifying sounds associated with language that it starts to comprehend semantic qualities of words (word sounds) *before* they reach awareness.[24] Put simply, our brains start processing language sounds and attempt comprehension of speech before we are aware of it. The more difficult it is to comprehend speech—say, when listening to only half of a phone conversation—the more processing needed, and the more disruptive that speech is to our current task.[25]

To complicate things further, even what we'd call interference may lead to something good. Have you ever been pulled off your work because you couldn't stop yourself from listening to nearby colleagues discussing a topic, one that then prompts you to join them? And, you all end up coming up with a good idea? That chance encounter was valuable. You see, sometimes new tasks are necessary—a last-minute request from a colleague, hunger pangs signaling it's time to eat, that severe weather siren signals us to act, or a chance encounter because of interference.

Interruptions: Fragmented Work and Frequent Task-Switching

An often-cited study about attention says that it takes workers 25 minutes, on average, to return to their original task when an interruption occurs.[26] Yes, the study provides evidence for this, but what often gets lost is what exactly workers were doing during those 25 minutes. They weren't just sitting in front of their original task trying to re-engage with it. We know that doesn't take very long. Instead, they were completing at least two other tasks before returning to the original task, IF they even returned to it at all.[27] This kind of event is more indicative of managing interruptions, fragmented work, and "multitasking" (task-switching) rather than how long it takes to return our attention toward our original work after a distraction.

The costs of fragmented work and frequent task-switching are well documented: ranging from difficulty getting individual work done, to diverting resources away from one's central work, to lowering performance.[28] Organizational culture and policy issues may be just as, if not more, important as the workplace environment for allowing people to work un-interrupted and on a single task until they reach completion or come to a natural break.

We know that removing physical barriers allows us to be more aware of our colleagues,[29] but knowing when and where to interrupt each other is highly dependent upon the social norms in place.[30] Having a private office won't guard against interruptions if your organization has an "open door" policy and it is acceptable, even desirable, to "pop in" on each other at any time. Knowing when, where, and in what way it's appropriate to interrupt others' focus work can help mitigate some of the impact of interruptions on their work performance.

23 Pinotsis, Buschman, and Miller, 2018.

24 Parmentier and Kefauver, 2015.

25 Emberson et al., 2010; Marsh et al., 2017; Marsh, Ljung, et al., 2018.

26 Mark, Gonzalez, and Harris, 2005.

27 Ibid.

28 Perlow, 1999; Heerwagen et al., 2004; Mark, Gonzalez, and Harris, 2005; Ophir, Nass, and Wagner, 2009; Dabbish, Mark, and Gonzalez, 2011; Murray and Khan, 2014.

29 Gutwin and Greenberg, 2002.

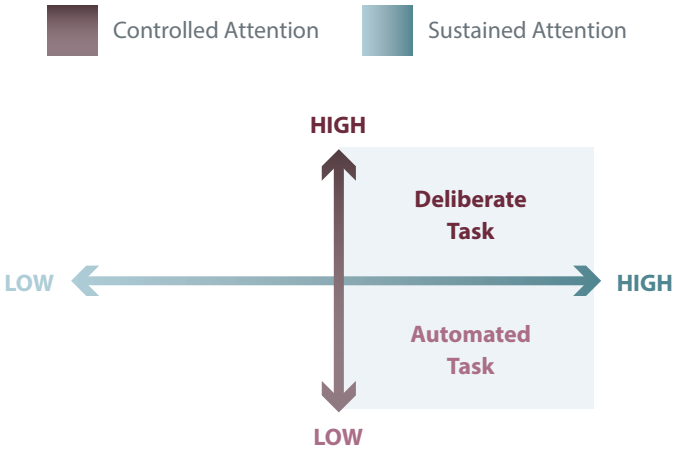
30 Wiberg, 2005; Baethge, Rigotti, and Roe, 2014.

Now that we understand what distracts, interferes, and/or interrupts our focus work, how much and in what ways do they impact our performance at work? Next, we'll show you how we tested specifically for visual and auditory distractions and interference in the workplace. Our results may surprise you, but they fit with what we know about how our prediction engine works.

Distraction and Interference Effects on Focus Work Performance

In a work environment, the two most common sources of task-irrelevant information—visual and auditory—can capture attention (distract) and interfere with a task. We wanted to test if and how these impact performance on focus work. In a series of experiments in our Human Performance Lab,[31] we manipulated key factors of focus work activities: amount of attentional control (measured as task effort/difficulty) and sustained attention.

Focus Work Activities Tested

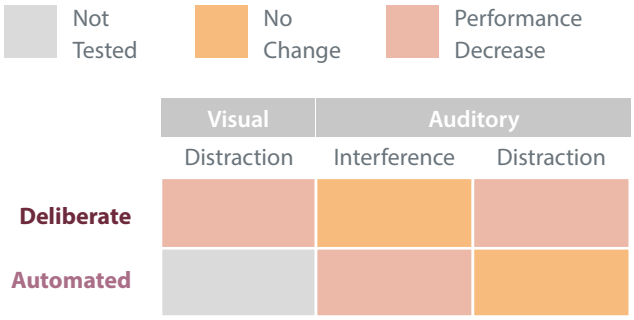


During these activities, participants (except the control group) were exposed to specific task-irrelevant sights and sounds separate from one another, then in combination.

- **Visual distractions** *(unpredictable sights)* – person sitting directly across from participant took a drink out of a cup, stretched arms overhead, and stood up without warning.
- **Auditory distractions** *(unpredictable sounds)* – typical busy coffee shop sounds: chatter, laughter, coffee equipment, etc.
- **Auditory interference** *(predictable sounds)* – a conversation (dialogue) and a speech (monologue); intelligibility and relevance of content also were measured.

Task performance was then measured for each type of disruption to work, alone and in combination. Our findings show how these specific characteristics of the work environment affect, on average, the ability to perform a focus task when compared to the performance of the control condition. Let's look at separate effects first.

Separate Effects on Focus Work Performance



More Deliberate Focus Work Requiring Sustained Attention

- Participants exposed to visual distractions during more difficult (deliberate) focus work requiring more sustained attention *perform poorer* than those not exposed to visual distractions.
- Participants listening to auditory distractions during more difficult (deliberate) focus work requiring more sustained attention *perform poorer* than those not exposed to distractions.
- Participants listening to auditory interference during more difficult (deliberate) focus work requiring sustained attention *perform the same* as those not exposed to interference.

More Automated Focus Work Requiring Sustained Attention

- Participants listening to auditory distractions during easier (automated) focus work requiring sustained attention *perform the same* as those not exposed to distractions.
- Participants listening to auditory interference during easier (automated) focus work requiring sustained attention *perform poorer* than those not exposed to interference.

Results align with what science is telling us—there are *different effects* on focus work performance based on the difficulty or ease of the task. More difficult tasks are more susceptible to distractions (many large prediction errors), but why not interference? Remember, our brains are efficient and the more predictable the task-irrelevant information is (like listening to a speech) during difficult work, the easier it is to ignore it. Meanwhile, easier focus tasks are more susceptible to interference. It seems with less task-relevant information processing needed to complete the task, more resources are available to process more predictable task-*irrelevant* information simultaneously, causing interference. While doing the easier task, participants were engaged in listening to the conversation and speech, which in turn affected their performance.

31 Johnson and Richardson, 2018; Johnson, 2018a; 2018b; 2017.

The next natural questions are: What are the combined effects, and how large (or small) are the effects?

Combined Visual and Auditory Effects on Focus Work Performance

Oftentimes in real life, we can't easily control for visual and auditory task-irrelevant information. The two sensory processes for these types of information work in coordination with one another,[32] so it made sense to also test for combined visual and auditory effects on difficult focus work. Results are not encouraging. Any combination of the visual and auditory distractions and auditory interference resulted in either poorer performance than the control condition, or resulted in such a large variation in performance (some performed very well while others performed extremely poorly) that it is too difficult to predict how most people would perform in those conditions.[33] Practically speaking, it is safe to say that people with no distractions generally out-perform people exposed to more than one kind of distraction.

Putting It All Together: How Task and Workspace Characteristics Impact Focus Work

We further looked at how task characteristics, distraction and interference characteristics, and ability to focus affects performance on focus work requiring sustained attention. Again, we found different effects depending on the difficulty of the task.

More Deliberate Focus Work Requiring Sustained Attention

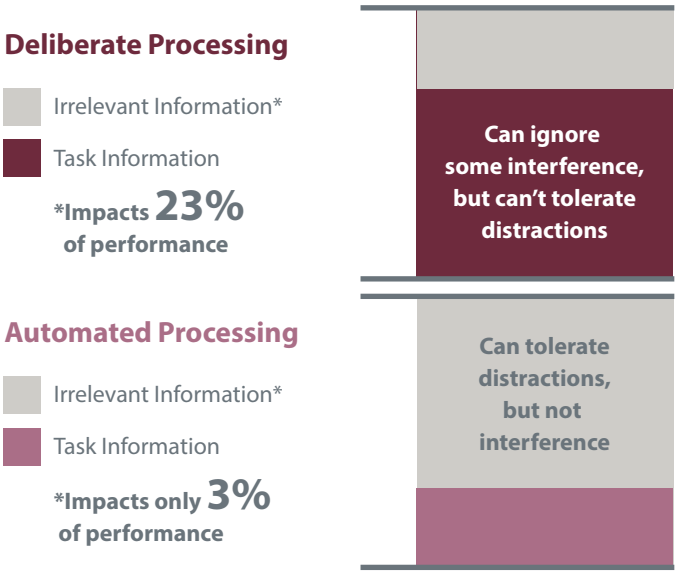
Task characteristics, environment (exposure to task-irrelevant information) characteristics, and ability to focus on average account for 23 percent of change in focus work performance for deliberate tasks needing sustained attention.

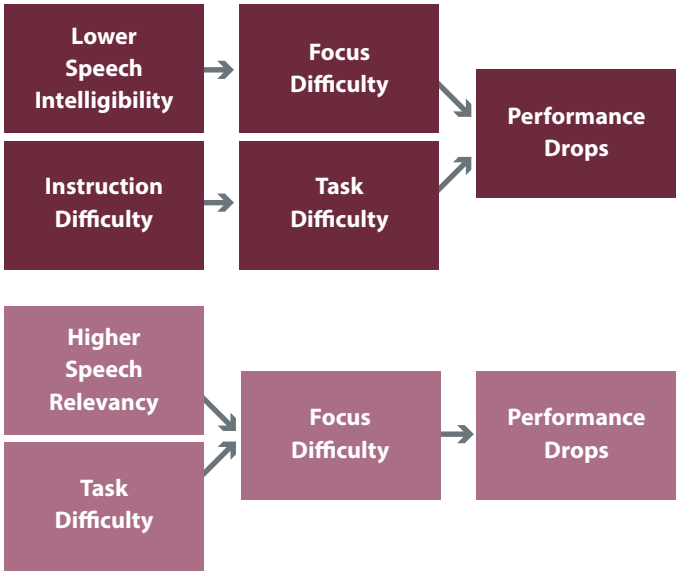
Increasing instruction difficulty increases task difficulty; *decreasing intelligibility of overheard speech* and increasing task difficulty directly increase difficulty focusing; and increases in difficulty focusing, in turn, result in poorer performance. Focus difficulty has a larger direct effect on errors than task difficulty, and all factors are responsible for over one-fifth of any decline in performance for difficult deliberate tasks. Note the effect of speech intelligibility: As it decreases, focusing becomes more difficult. Why might this be? Less intelligible speech is more difficult to understand, making it less predictable. Our prediction engine experiences larger prediction errors more often, occupying more resources, which makes it more difficult to control attention or focus.

More Automated Focus Work Requiring Sustained Attention

Task and distraction/interference characteristics and ability to focus on average account for three percent of change in focus work performance for easier tasks needing sustained attention.

Auditory interference created by relevant overheard speech influences ability to focus. Increasing relevance of overheard content and task difficulty both increase focus difficulty, which in turn results in poorer performance. However, all these factors only account for three percent of any decline in performance for the easier task.





32 Menon, 2015.

33 Johnson and Richardson, 2018.

Predictability of Irrelevant Information Impacts Focus Work in Different Ways, Especially Speech

These results support the notion that distractions and interference are more problematic for more deliberate tasks than more automated tasks needing sustained attention. For deliberate work, more predictable overheard speech seems to be easier to ignore/suppress. Thus, as intelligibility of overheard speech *starts to decline*, the language becomes less predictable and engages resources that otherwise would be devoted to the task. Lastly, the easier the task is, the more likely focus difficulty is due to interference as content of speech becomes more relevant to the listener.

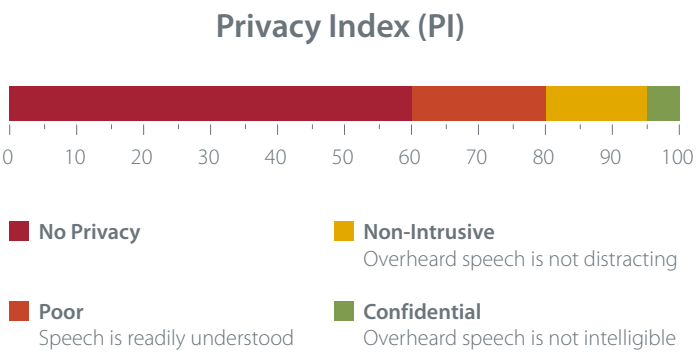
These findings contribute to a growing body of research.[34] There is still more to test and learn. In the meantime, how do we go about managing these types of disruptions in an effective way?

Specific Ways to Insulate Focus Work from Distractions and Interference

We know that when people can get their individual focus work done with ease, their work is better, they feel valued, they're more engaged, and they're happier.[35] Appropriately insulating focus work helps us create the right work environment while still allowing for those necessary interruptions.

Distractions are more problematic for deliberate focus work—accounting for at least a fifth of how well one performs that work, and interference is slightly problematic for easier focus work—with a much smaller (three percent) impact.

- Visual barriers or orientation manages visual distractions and interference. Outside of having opaque walls, increasing panel height reduces exposure to visual distractions, with a 50-inch panel providing enough protection as a full wall *when auditory distractions aren't present*.[36]
- When walls and panels aren't available, adjusting orientation to face a direction that minimizes visual activity is helpful. For example, not being in someone else's direct line of sight will prevent eye contact, which is a visual cue that can signal a desire to interact and prompt an interruption.
- Absorbing, blocking, and covering sound manage auditory distractions and interference.[37] In terms of the Privacy Index, more difficult focus work may need space traditionally described as that needed for "Confidential" speech; for easier focus work, spaces traditionally described as "Non-Intrusive" should still work well.



If the goal for workplaces is to protect focus work so people can perform their best, we must consider the task, the person, how much attention that person needs to give to the task to complete it successfully, and the organization within which they work.

Appropriate Solutions for Distractions, Interference, and Interruptions

Yet to be discovered, is the "one-size-fits-all" solution to workplace distractions, interference, and interruptions. Instead, science points us toward appropriate solutions that require several considerations around organizational culture and workspace.

Start with Culture: Organizational and Team

Since organizational culture has a large influence in an organization's success, understanding and influencing organizational and team cultures is foundational to addressing disruptions to focus work within the context of all kinds of work we do alone and with others. Building a workplace strategy that starts with culture involves identifying and addressing how cultural norms, the overall built environment, and supportive technology all influence each other.

Consider This: Acoustical Design & Speech Intelligibility

For workplace distractions caused by speech specifically, it has long been assumed that higher intelligibility of overheard speech undermines focus work.[38] Our research indicates that the effect of overheard speech on cognitive functioning requires a more careful assessment than simply measuring the signal to noise ratio of intruding speech sounds. Measurement tools such as the Privacy Index, which measures the speech privacy between spaces, may not consider all the necessary inputs for focus work. Even where such metrics are used, higher performance levels may be necessary for the most challenging focus work requirements. Science continues to reveal more about how overheard speech impacts our tasks.

34 Jahncke, Hongisto, and Virjonen, 2013; Liebl et al., 2012; Haapakangas et al., 2017.

35 O'Neill, 2017.

36 Johnson, 2017.

37 Goodchild and Johnson, 2018.

38 Pirn, 1971; Hongisto, Haapakangas, and Haka, 2008.

Norms and Rules

It is important for organizations and teams to cultivate the "rules" around interrupting individual work and managing distractions. To cultivate such rules, it is essential to routinely discuss[39] the best way to manage the needs of individual focus work and other ways of working. For example, in a team area appointed for individual focus work, if two or more colleagues need to have a side discussion, team members may all agree to take the discussion out of the work area to a more social space, then honor that agreement when it occurs. It not only preserves the importance of both individual focus work and collaboration, but also can cut off potential conflict and maintain a supportive work environment.[40]

The Built Environment

Features of the built environment and organizational culture are intertwined—culture is embodied in the design of the space because the space communicates the organization's values.[41] This includes legibility. One of the six elements of legible design centers on the intention of space: "The space design, the furnishings selected, and their arrangement should nudge people about the intended use of the space and help them make the best choice for the type of work or social activity the space can support."[42] Legible workspaces communicate where interruptions and distractions are welcome and where they are not. Without this feature of legibility, it becomes unclear what should happen where.

Supportive Technology

Technology plays an important role in completing and managing our work effectively. Being intentional about using technology to increase performance on focus work includes using technology:

- to manage face-to-face communication, e.g., visual indicators;[43]
- to prioritize other forms of communication, e.g., messaging systems;[44] and
- to effectively control our technology so it interrupts us only when it is appropriate, e.g., turning off certain notifications and removing access to technology for unrelated tasks, to name a few.[45]

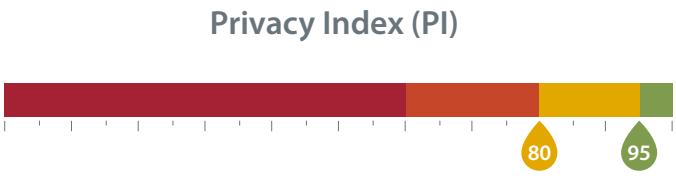
Workspace Design: Afford Insulated Focus

As a part of the built environment and its legibility, workspace features that communicate where specific work activities can take place are essential. Floorplate and adjacency features and workspace characteristics do this—they also effectively manage visual and auditory distractions and interference.

Floorplate and Adjacency Issues

Carefully consider overall arrangement and adjacency of the various activity zones—from quiet to active—in the floorplate. Based on our results and most recent acoustics research, noise levels for an organization are the top consideration in designing spaces. Tactics to mitigate disruptions to focus work include:

- Active zones are best in the center of the building: high traffic areas, such as printer areas, restrooms, elevators, and cafés.
- Keep quiet zones away from louder active zones and establish rules/norms, e.g., no conversations, phone, or meetings allowed.
- To accommodate necessary conversations, phone use, or quick meetings, and immediate access to non-reserve-able huddle spaces are essential.
- Appropriate ratios of zones can be determined by generalized workstyles for groups and teams, keeping in mind that specific individuals may still have differing needs.
- Place walls or other barriers to block unnecessary visual distractions and sound transmission between such areas.
  - › In open-plan areas, use strategically placed absorptive materials to minimize reflections and reduce sound levels.
  - › Position closed rooms where needed to support deliberate tasks requiring sustained attention, which also provide high levels of speech privacy. Such rooms can also be ideal for confidential conversation.
- Especially important for reducing the effects of irrelevant speech, spaces should have adequate signal-to-noise ratio adequate background sound levels.[46]



Individual Workspace Considerations

User control becomes important in individual workspaces. Since whether a task is easy or difficult is dependent upon what each individual knows, it's difficult to predict when and which specific distractions and interference will impact performance. When people can't choose a focus room with walls that block most visual distractions and provide enough acoustical privacy, additional tools can help address specific needs:

- movable, adjustable panels and storage elements with the ability to change orientation to block visual distractions as necessary;
- absorptive materials and sound-masking systems that cover noise well;
- freedom to use/wear headphones when needed; and
- enough supportive technology for managing interruptions.

39 Rimal and Lapinski, 2015.

40 Carlock, 2012.

41 Miller, Casey, and Konchar, 2014; Kupritz, 2017.

42 O'Neill, 2018.

43 Züger et al., 2017.

44 Kalman, Aguilar, and Ballard, 2018.

45 Bailey, 2018.

46 Goodchild and Johnson, 2018.

A Complex Problem Deserves a Holistic Solution

Ultimately, we all want to minimize those things that unnecessarily disrupt our work. At the same time, we also want to allow for those things that are appropriate interruptions. The challenge is that when we address what can be done for one organizational goal—fostering serendipitous interactions (interruptions) and collaboration in open-office areas—it often comes at a cost to another by increasing visual and auditory distractions and interference for individual focus work. An organization's culture and its work environment both contribute to the occurrence and frequency of distractions, task interference, and interruptions.

Understanding the ways focus work is task- and person-specific can help you create a workplace—through its culture, policies, and workspaces—that can meet employees' focus work needs. For more deliberate focus work, the stakes are higher—a 23 percent drop in performance—than for easier/automated focus work with only a 3 percent drop in performance. Furthermore, it seems the unpredictability of the work environment is the biggest culprit when it comes to what sabotages focus work. What does this mean? Thoughtfully align your organizational culture and its workplace environment strategy to value necessary focus work *along with other ways of working*. Help people manage distractions and interference with tasks in a way that allows them to perform their best, when and where they need it.

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Haworth research investigates links between workspace design and human behavior, health and performance, and the quality of the user experience. We share and apply what we learn to inform product development and help our customers shape their work environments. To learn more about this topic or other research resources Haworth can provide, visit www.haworth.com.