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Emerging perspectives on distraction and task interruptions—Part III: contexts, mechanisms, and metacognitive blind spots

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EDITORIAL

Emerging perspectives on distraction and task interruptions—Part III: contexts, mechanisms, and metacognitive blind spots

The articles in Part III of our Special Issue "Emerging Perspectives on Distraction and Task Interruptions", extend the theoretical and empirical themes introduced in Parts I and II. This issue presents seven new empirical studies conducted to advance understanding of distraction and task interruptions. Parts I and II highlighted how factors such as metacognitive monitoring (one's awareness of being distracted), task controllability (through forewarning), and individual differences (why some people are more vulnerable to distraction than others) influence the impact of interference. The authors contributing to Part III report new evidence clarifying how and when distraction disrupts performance. They explore specific situations, including task interruptions and background speech during reading. In this editorial, we summarise the key findings of each study and then reflect on how they collectively contribute to broader theoretical frameworks including interference-by-process (Jones & Tremblay, 2000; Linklater et al., 2024; Marsh et al., 2008, 2009), memory-based mechanisms of distraction (e.g. Richardson et al., 2023; Röer et al., 2017), and metacognitive accounts of distractor awareness (Bell et al., 2021; Kattner & Bryce, 2022). Empirical phenomena such as conditional interference, metacognitive illusions of distraction, and distraction-induced facilitation are highlighted as part of an emerging research trend, marked by a growing focus on these effects within experimental research on distraction. In the following sections, we organise the studies by thematic focus to offer a clear and structured overview.

Task interruptions, residual activation, and resumption costs

Within Part III of the Special Issue, one study addresses the classic problem of task interruption: *what happens to primary task goals when an individual is forced to switch to another task, and how does this affect the ability to resume the original task?* Hirsch et al. (2025) examined whether a suspended primary task remains actively represented in working memory during an interruption. In their experiment, participants engaged in a structured task composed of multiple subtasks, which were occasionally interrupted by a secondary task. Crucially, some interruption stimuli were designed to overlap with the content of the suspended subtask: they afforded a response relevant to the most recent subcomponent of the primary task.

Hirsch et al. found evidence of residual activation: in their Experiment 1, participants responded more quickly when the interrupting stimulus required the same response as the preceding subtask. A trend in the same direction was observed in their Experiment 2. It would appear then, that the action schema from the primary task remained accessible—effectively "primed" and ready for execution—which facilitated performance on the overlapping secondary task. However, this benefit occurred alongside a resumption cost: performance on the resumed primary task was slower and more error-prone than on uninterrupted trials. This replicates the well-established finding that task switching incurs a processing cost (Jersild, 1927; Rogers & Monsell, 1995). Hirsch et al.'s findings align with goal memory models of interruption (e.g. Altmann & Trafton, 2002), which imply that suspended tasks are not discarded from memory but retained in an active state. Importantly, the lingering activation observed here appears to be a double-edged sword: it can facilitate performance when there is structural congruence between the tasks (via a congruency benefit), but it may also impair attention to the interrupting task or contribute to confusion when resuming the primary task (cf. Meiran & Kessler, 2008).

Hirsch et al. (2025) contribute to broader discussions of task controllability, showing that the disruptive effects of interruption depend in part on structural overlap between tasks. They also raise questions about metacognitive insight. Individuals may be unaware of how residual activation from a suspended task continues to shape ongoing behaviour. This latent activation can interfere with performance on the interrupting task itself and complicate the transition back to the focal task.

Task processing and semantic distraction: when does meaning matter?

In Part III of the Special Issue, two studies (Marsh et al., 2025; Meng et al., 2025a) tackled a central question in auditory distraction research: *under what conditions does the meaning of background sound disrupt task performance?* According to the interference-by-process framework (Jones & Tremblay, 2000; Linklater et al., 2024; Marsh et al., 2008, 2009), distraction is most likely when the cognitive operations required by the focal task overlap with the processes automatically elicited by the distractor. These studies tested that prediction by manipulating both the nature of the task and the properties of the background speech.

In Meng et al.'s (2025a) study, Chinese-speaking participants completed either a semantic task (judging whether two Chinese characters shared meaning) or a phonological task (judging whether they shared an initial phoneme), while exposed to various background conditions: intelligible Chinese speech, phonotactically legal but meaningless speech, spectrally rotated speech, or silence.

The results revealed an interaction between task and distractor type. During semantic judgments, intelligible speech significantly slowed response times relative to meaningless or rotated speech. In contrast, the phonological task was disrupted by speech with phonological features regardless of whether it was meaningful or not. This pattern supports the interference-by-process account: tasks requiring semantic analysis are selectively vulnerable to semantically meaningful distractors, whereas phonological tasks are more susceptible to phonological interference, even if the speech lacks meaning.

Complementing Meng et al.'s (2025a) findings, Marsh et al. (2025) examined how depth of processing modulates susceptibility to semantic auditory distraction in a free recall task. All participants studied word lists while hearing background speech, but they were instructed to encode the words either semantically (rating pleasantness) or shallowly (counting vowels). Background speech was either semantically related to the list items (drawn from the same category) or unrelated.

Consistent with prior findings, related distractors impaired recall and increased intrusion errors—but only under deep encoding conditions. When participants focused on meaning, semantically related background speech disrupted performance significantly more than unrelated speech. Under shallow encoding, however, the distractors' semantic content had minimal effect. This provides direct experimental evidence that semantic auditory distraction depends on the semantic orientation of the focal task: the between-sequence semantic similarity effect can be "turned on or off" depending on task instructions.

Marsh et al. also reported an asymmetry in source monitoring (see Marsh et al., 2008). Although deep encoding increased vulnerability to semantic distraction in veridical recall, it also improved participants' ability to identify and reject intrusions of distractors (erroneous recall). This may reflect the fact that deep encoding enhances the distinctiveness and durability of memory traces, thereby strengthening metacognitive discrimination between visually presented targets and irrelevant auditory information. As a result, participants may have been better able to distinguish target items from distractor intrusions at retrieval (cf. Dodson & Schacter, 2001; Marsh et al., 2015).

Taken together, these studies emphasise the conditional nature of interference. The disruptive impact of background speech cannot be explained by its acoustic characteristics or presence alone, but rather by whether it engages the same type of processing required by the focal task. In short, the meaning of background speech matters primarily when the processing of meaning is what the focal task demands.

These findings are also broadly consistent with Cowan's (1999) embedded-processes model of working memory. This account emphasises that interference arises when distractors activate representations that are similar to those required for the focal task. For example, background speech that triggers semantic representations may interfere with a task requiring semantic encoding. However, the interference-by-process framework (Jones & Tremblay, 2000; Linklater et al., 2024; Marsh et al., 2008, 2009) complements this representational view by focusing on the cognitive operations or procedures—such as sequencing or semantic integration—that mediate interference. From one perspective, the two standpoints are not mutually exclusive but rather offer insights at different levels: Cowan's model provides a general architecture of activation and interference in working memory, while interference-by-process specifies how competing cognitive processes may generate task-specific disruption. Nevertheless, Cowan's model has been critiqued for being insufficiently mechanistic in contexts where interference arises without representational overlap. For instance, changing-state vibrotactile sequences have been shown to disrupt verbal serial recall (Marsh et al., 2024, but see Skog et al., 2025) which suggests that shared processing, not shared representations, underlie interference. In addition, there is strong evidence that semantic processing occurs automatically during word reading (Stroop, 1935) even in phonological tasks like serial recall. For example, words are recalled more accurately than nonwords (Hulme et al., 1991) and ignored speech can produce semantic priming in later tasks despite not disrupting the immediate serial recall performance (Littlefair et al., 2025; Röer et al., 2017). Moreover, Marsh et al. (2009) found that semantically related distractors only impair performance when the task involves semantic processing (e.g. free recall), but not during serial recall even though the distractors are meaningful. This result illustrates an important theoretical insight: semantic representations can be co-active without causing interference. This emphasises the need for interference-by-process which explains disruption in terms of shared cognitive operations, not just representational overlap. Therefore, interference-by-process appears to have explanatory value beyond what is accommodated by Cowan's embedded-processes model.

Hemispheric asymmetries in auditory distraction and metacognitive blind spots

Another line of inquiry within Part III of this Special Issue revisits a neural determinant of auditory distraction: the role of hemispheric processing differences. Atienzar et al.

(2025) replicated and extended the left-ear disadvantage in auditory distraction (Hadlington et al., 2004, 2006). Prior research had shown that irrelevant speech disrupts serial recall more strongly when presented to the left ear, which projects primarily to the right hemisphere, than to the right ear, which has more direct access to left-hemisphere language areas.

While Hadlington and colleagues demonstrated that rapidly changing sound sequences impair verbal short-term memory more when delivered to the left ear, their studies lacked a direct manipulation of changing-state versus steady-state sequences within the same experiment (i.e. the changing-state effect). Atienzar et al. (2025) addressed this by comparing changing-state sequences of letters with steady-state ones and systematically manipulating presentation mode (left ear, right ear, both ears). They found that changing-state sequences were significantly more disruptive when presented to the left ear. This confirms and strengthens the claim that the laterality of auditory input modulates the magnitude of auditory distraction.

Critically, the study went beyond mere conceptual replication by assessing metacognitive awareness of these effects. Participants accurately judged that changing-state sounds were more disruptive than steady-state sounds overall. However, they failed to detect that disruption was greater from the left ear. This may represent a context-specific metacognitive blind spot, perhaps influenced by the unfamiliarity of monaural listening conditions, and echoes Part I's theme of imperfect metacognitive monitoring. Such metacognitive miscalibration highlights that individuals are often unaware of what is undermining their performance.

Theoretically, these findings raise an important question: why might right-hemisphere processing accentuate the effects of changing-state distractors? Atienzar et al. suggest that the right hemisphere's sensitivity to global auditory features and prosody may increase its susceptibility to acoustic variability. Alternatively, lateralised attentional biases may play a role, with left-ear input receiving more bottom-up attentional weighting. Regardless of the mechanism, this work demonstrates that auditory distraction can depend on the neural pathways engaged, and that subjective awareness may not align with actual disruption.

These insights have practical implications for environments like classrooms and offices, where individuals may underestimate the impact of background sounds on their performance. People frequently misjudge such effects not only with changing-state speech (Komar et al., 2024), but also with background music (Bell et al., 2023), suggesting that there is a lack of direct metacognitive access to the effects of auditory stimuli on performance.

Semantic priming by irrelevant speech: facilitation in the absence of performance costs

A novel contribution of Part III of this Special Issue is the demonstration that task-irrelevant speech can produce measurable cognitive aftereffects, even when it does not overtly impair performance on an ongoing task. Littlefair et al. (2025) showed that to-be-ignored background speech can induce implicit semantic priming. Participants completed a visual-verbal serial recall task while exposed to irrelevant speech that was either semantically coherent (e.g. eight animal names) or random (e.g. words from different categories). They then performed an ostensibly unrelated category-exemplar generation task (e.g. "name eight animals"). Only those exposed to coherent streams produced more exemplars from the speech stream—evidence of semantic priming from unattended input.

This replicates and extends earlier findings by Röer et al. (2017; see also Richardson et al., 2023), who similarly showed that semantically coherent, to-be-ignored speech can influence subsequent category generation despite leaving concurrent task performance unaffected. Littlefair et al. strengthened this claim through a within-participants control condition using reversed (i.e. meaningless) speech to confirm that semantic properties of the distractors were responsible for the effect. They also demonstrated that semantic coherence—not just the presence of meaningful speech—was critical for priming to occur. Therefore, predictability or coherence appears to facilitate deeper distractor processing and this chimes with recent work on the categorical deviation effect (Vachon et al., 2020; see also Röer et al., 2019; Littlefair et al., 2022). Here, an item that is unexpected given a semantically organised stream of items disrupts performance. However, while Vachon et al. documented impairment, Littlefair et al. found that semantic coherence yielded a lingering facilitation. Crucially, Littlefair et al. observed no performance decrement in the primary recall task, reinforcing the idea that semantic processing of irrelevant speech can occur in the absence of overt distraction. This dissociation highlights a key point: the absence of an immediate performance decrement does not imply that a distractor has gone unprocessed. In the case of Littlefair et al. (2025), semantic processing of background speech occurred despite no observable cost to primary recall—revealing that cognitive activity can be covert and revealed only in downstream facilitative effects.

From an applied perspective, these findings stood out because they suggest that ignored speech can activate relevant semantic networks, which may enhance subsequent performance on related tasks. Yet this also carries potential risks: such activation may introduce subtle, unintentional biases in downstream decision-making. In sum, the study prompts researchers to look beyond immediate task outcomes and consider how ignored auditory input may have downstream effects on later cognition and behaviour. This is a frequently overlooked dimension of distraction.

Distraction during Reading: eye-tracking insights from visual tasks with background speech

Reading is a complex cognitive activity that can be significantly disrupted by auditory distractions (Meng et al., 2020; Vasilev et al., 2018). Two eye-tracking studies reported in Part III of this Special Issue provide fine-grained, moment-to-moment insights into how background speech interferes with reading processes under different task conditions.

Continuing the theme of semantic processing and distraction, Meng et al. (2025b) examined whether background speech disrupts reading performance when the primary task emphasises either semantic comprehension or phonological analysis. Chinese participants read tongue-twister sentences—comprised of highly similar syllables requiring phonological discrimination—while exposed to either meaningful speech (intelligible Chinese), meaningless speech (phonotactically legal but nonsensical Chinese-like speech), or spectrally rotated speech (preserving acoustic complexity but eliminating intelligibility), or silence. The demands of the focal task were varied. In one condition, participants read for comprehension, in the other, they identified the character with the most frequently repeated initial phoneme. The eye-tracking measures revealed that meaningful speech disrupted the comprehension task but not the phonological task. In contrast, the phonological properties of the distractor speech disrupted both tasks, but more markedly for the phonological task. The authors' findings support the concept of conditional interference—pronounced distraction arises when the cognitive processes engaged by the background sound overlap with those required by the focal task. This pattern echoes other findings within this Special Issue (Marsh et al., 2025; Meng et al., 2025a) and aligns with the interference-by-process framework (Jones & Tremblay, 2000; Linklater et al., 2024; Marsh et al., 2008, 2009). Importantly, this study also highlights how eye-tracking can detect subtle interference effects even when task performance appears intact.

The second eye-tracking study, by Zang et al. (2024), explored whether meaningful background speech impairs contextual prediction during sentence reading. Fluent reading often benefits from predictive processing, where high-constraint contexts facilitate faster recognition of upcoming words—a phenomenon known as the predictability effect (e.g. Staub, 2015). Zang et al. tested whether these effects are attenuated by background speech. Chinese participants read sentences containing either high- or low-predictability words while exposed to speech that was either meaningful (Chinese), or unintelligible (Uyghur) to their participants, or silence. While meaningful speech increased overall fixation times and regressions, the predictability effect at the target word remained intact across conditions. This suggests that early lexical processing is relatively resilient to auditory distraction. However, in later measures—such as second-pass reading times in post-target regions—predictability effects were attenuated in the meaningful speech condition. This pattern suggests that sentence-level integration, rather than initial lexical access, is vulnerable to interference from meaningful background speech (see also Vasilev et al., 2019).

Zang et al. (2024) provide further support for the interference-by-process account (Jones & Tremblay, 2000; Linklater et al., 2024; Marsh et al., 2008, 2009), which posits that disruption arises when background sound engages the same cognitive operations—here, semantic integration—as the focal task. The concurrent semantic processing of speech appears to compete with sentence-level comprehension, mirroring other findings in the domain (see also Vasilev et al., 2019).

Taken together, Zang et al's evidence indicates that disruption during reading is layered. Predictive facilitation at early stages remains invulnerable to disruption, but higher-level integration appears susceptible to interference from meaningful speech. In applied settings such as classrooms or open-plan offices, the findings suggest that individuals may still process surface-level text fluently but may experience impaired deeper comprehension when exposed to intelligible background speech.

Synthesis: theoretical implications and emerging trends

The seven empirical studies reported in Part III provide a detailed and diverse account of how distractions and interruptions can affect cognition, and under what conditions this occurs. Despite the differences in tasks and methods used, several theoretical threads are woven through these studies, and these reveal new directions and challenges for research on distraction.

Task-dependent disruption: evidence for interference-by-process

A central theme observed across the studies in Part III is the strong support for the interference-by-process framework (Jones & Tremblay, 2000; Linklater et al., 2024; Marsh et al., 2008, 2009). The study by Marsh et al. (2025) offers direct support for the core prediction of the interference-by-process framework: that distraction is most pronounced when the background input engages the same type of processing as the focal task. Between-sequence semantic similarity impaired recall only when participants engaged in deep semantic encoding, not shallow encoding. The studies by Meng et al. (2025a, 2025b) and Zang et al. (2024) also revealed interference patterns that fit naturally within this framework.

Meng et al. (2025a) found meaningful background speech disrupted only a semantic lexical judgement task, not a phonological one. While conversely, phonological judgments were impaired by speech possessing phonological properties, regardless of its meaning. This dissociation provides evidence that the impact of distraction is determined not merely by the physical properties of the sound alone, but by the degree to which the processing elicited by the distractors corresponds to the type of processing engaged by the task. Similarly, Meng et al. (2025b) showed that meaningful speech disrupted a sentence comprehension task but had no effect on a phonological task, while the phonological properties of background speech impaired performance in both tasks, but especially in the phonological one. The pattern of these findings shows another dissociation that aligns closely with the interference-by-process account: distraction arises when the background speech engages similar processing systems to those required by the focal task.

Going beyond demonstrations of domain-level dissociations, Zang et al. (2024) show how a process-based framework can be used to pinpoint which specific types of semantic processes are vulnerable to disruption. They found that meaningful background speech did not disrupt early lexical prediction during reading—readers still showed faster reading times for predictable words. However, in later eye-tracking measures, such as second-pass reading and sentence wrap-up times, background speech caused subtle delays. This pattern suggests that while automatic predictive processes remain robust under distraction, later-stage integrative or reflective processing is more susceptible to disruption from meaningful background speech which competes with the visual input for semantic processing.

Overall, these studies strengthen the view that distraction is not a fixed property of stimuli, but rather emerges from a dynamic interaction between task demands and distractor properties. This supports a broader theoretical shift in the field: distraction is increasingly being understood not in terms of what the distractor *is*, but in terms of what the individual is *trying to do* when exposed to it. Recent work reflects both a growing conceptual emphasis on task-dependent interference and a methodological move toward designs that make such interactions observable. As a result, researchers are not only more likely to theorise distraction in terms of interference-by-process, but also more likely to detect it—by using tasks and measures that capture how cognitive overlap drives interference. Going beyond domain-level dissociations, this theoretical shift offers the potential to analyze distraction in terms of the specific processes affected within particular tasks, and to do so with increasing granularity, advancing toward mechanistic accounts of distraction. While this trend toward process-level theorising is valuable, it is also important to recognise the contributions of representational models such as Cowan's (1999), which emphasise that interference tends to arise when distractors and focal items share similar content. However, emerging evidence suggests that such similarity does not always lead to disruption. For instance, semantic representations from ignored speech can be coactive with target content in memory without producing interference (Meng et al., 2020)—especially in tasks like serial recall that rely on vocal-motor sequencing (Littlefair et al., 2025; Röer et al., 2017). This implies that representational similarity alone may not be sufficient; the nature of the cognitive operations engaged is also important.

Modulation within interference-by-process: hemispheric and temporal dynamics

While many findings are well explained by the interference-by-process framework, some results from Part III invite a closer examination of how and when such interference arises. For example, Atienzar et al. (2025) found that changing-state speech was more disruptive when presented to the left ear (i.e. processed primarily by the right hemisphere). Rather than suggesting a distinct attentional mechanism, this hemispheric asymmetry may reflect lateralised sensitivity to auditory variability (where the right hemisphere is more susceptible to disruption from acoustic change). This supports an expanded view of interference-by-process in which vulnerability is shaped not only by task–distractor overlap, but also by the neural locus of distractor processing (see also Sörqvist et al., 2010).

Littlefair et al. (2025) demonstrated that structured, to-be-ignored background speech influenced later semantic decisions through priming, even though it did not impair performance on the primary task. Thus, there is evidence that the semantic properties of distractors can be processed and encoded even when they do not cause immediate disruption. In this case, interference-by-process did not emerge during the focal task because it did not require semantic processing. However, semantic activation of the distractors still occurred—producing delayed, downstream effects on subsequent tasks.

Collectively, these findings indicate that interference and facilitation can manifest in both immediate and delayed forms, depending on the alignment between distractor properties, task demands, and the timing or stage of processing. Rather than invoking separate systems, these effects may instead reflect different functional outcomes of how distractor information interacts with task processing within a unified attention-and-memory system —shaped by attentional processes, neural pathways, and temporal dynamics.

Moreover, these patterns of delayed facilitation and lateralised disruption indicate that interference is not solely determined by the presence of representational overlap. For instance, semantic properties of distractors can be activated without causing immediate disruption if the task does not engage semantic processing, and cross-modal distractors can impair recall despite minimal representational similarity. Such findings suggest that the timing, format, and neural pathway of distractor processing all modulate its impact. While

Cowan's (1999) embedded-processes model provides a foundation for understanding activated representations, it does not readily account for these modality- and process-specific effects which highlights the added value of the interference-by-process framework (Jones & Tremblay, 2000; Linklater et al., 2024; Marsh et al., 2008, 2009).

The role of memory in distraction and facilitation

Multiple studies within Part III of our Special Issue highlight the role of memory systems in explaining both interference and facilitation. For example, Hirsch et al. (2025) found that residual activation of a primary task during an interruption facilitated responses on the secondary task (when there was congruence), but impaired task resumption—consistent with goal activation and interference models (e.g. Altmann & Trafton, 2002). In addition, Marsh et al. (2025) observed that semantic distractors were more likely to intrude during recall under deep processing, supporting a spreading activation or source-monitoring failure account. Finally, Littlefair et al. (2025) demonstrated that unattended background speech left memory traces that influenced later behaviour—without disrupting concurrent performance—suggesting implicit memory encoding of irrelevant material.

What these findings reveal is that interference-by-process need not always manifest immediately. In some cases, semantic processing of distractors may occur during their presentation without affecting performance at the time—particularly when the focal task does not rely on semantic operations. However, the semantic representations activated by those distractors can persist and later compete with, bias, or facilitate focal processing—even after the distractor stream has ended. This form of lagged interference or facilitation reflects residual activation in memory and supports a broader, temporally dynamic view of interference-by-process. Thus, memory-based models must account not only for the degradation of target representations, but also for the downstream cognitive effects of residual distractor activation, which can subtly shape performance even after the distractors themselves have ceased. Notably, Hirsch et al. discuss that interference effects may not reflect attentional failure per se, but rather interference between memory representations—pointing to memory-based competition as an alternative explanation for performance disruption. Although their study focused on interruptions, this logic extends naturally to distraction more broadly, where similar mechanisms of residual activation and representational conflict may be at play. This emphasises the need for further theoretical and empirical work to distinguish between attentional and memory-driven sources of interference, particularly in complex, temporally extended tasks.

Metacognitive blind spots and unconscious influence

A recurring theme in Part III is the disconnect between actual and perceived distraction. Atienzar et al. (2025) showed that participants were unaware that left-ear changing-state speech impaired performance more than right-ear changing-state speech. Similarly, Littlefair et al. (2025) found that participants were unaware of the semantic priming effects of background speech, even though it influenced their later behaviour. These examples highlight the limits of metacognitive monitoring: people are not always able to access or report the ways in which distraction affects their performance.

This has important implications. It suggests that subjective reports of distraction (e.g. "I was distracted", "I wasn't distracted") may be misleading, and that researchers must therefore rely on objective indicators of interference if the goal is to understand how cognitive processing or task performance is affected by distraction. Such indicators may include eye-tracking measures, such as increased regressions or longer re-reading times (e.g. Vasilev et al., 2019); response latencies, such as slowed reaction times in the presence of distractors (e.g. Parmentier, 2008); memory intrusions involving distractor-related material (e.g. Marsh et al., 2008); physiological responses such as pupil dilation that signal elevated cognitive effort or interference (e.g. Marois et al., 2019); and behavioural aftereffects, including semantic priming or post-task influences (e.g. Röer et al., 2017).

These objective measures allow researchers to detect distraction even when participants are unaware of it. They can reveal cognitive influences that are subtle, delayed, or inaccessible to metacognitive introspection. As the studies in this Special Issue demonstrate, distraction is often invisible to subjective awareness (Atienzar et al., 2025), but still leaves measurable cognitive traces (Littlefair et al., 2025). Notably, such findings illustrate that increasingly sophisticated accounts of auditory distraction, for example, involving lateralised sensitivity to acoustic variability as a function of hemispheric asymmetry, are likely to produce insights that diverge markedly from a naive understanding of distraction inferred directly from subjective experience. However, dissociations between metacognitive judgments of distraction and objective distraction effects—so-called metacognitive illusions—have also been observed in response to more prosaic manipulations, such as the comparison of native versus foreign speech, which also lead to pronounced misjudgments of distraction (Bell et al., 2023; Komar et al., 2024). Such misperceptions may have practical consequences, potentially leading people to make poor choices when selecting and designing their working and learning environments. It is therefore a valuable research goal in its own right to understand how people arrive at metacognitive judgments of distraction, and under what conditions those judgments align or fail to align with objective indicators of distraction.

Distraction-Induced facilitation: when interference helps

While distraction is typically viewed as harmful, some studies in Part III of this Special Issue demonstrate facilitative effects. For example, Hirsch et al. (2025) found that residual activation of task goals improved performance on a congruent secondary task. Similarly, Littlefair et al. (2025) showed that irrelevant speech containing semantically related items primed responses in a subsequent, ostensibly unrelated task. The pattern of these results challenges the assumption that distraction invariably undermines performance and instead suggests that irrelevant inputs may sometimes be co-opted by the cognitive system for later benefit.

Both studies show that facilitation emerges when there is structural or semantic overlap between the distractor and future task demands. This raises the possibility that certain forms of distraction might not only be tolerated but harnessed. Such harnessing might particularly occur when the distractor content aligns, even incidentally, with upcoming cognitive goals. This follows naturally from a process-based account: the very same mechanisms that may impair performance when the processing of a distractor conflicts with task goals may facilitate performance when it aligns with them. Of course, such cases challenge traditional definitions of distraction: if a stimulus helps rather than harms, does it still make sense to refer to it as distraction? Yet it makes conceptual sense to consider these phenomena together, as both interference and facilitation may arise from the same core processing dynamics. Understanding when and how such facilitative effects arise could help improve our theories of attention and suggest practical ways to make use of helpful distractions in real-world settings such as learning or problem-solving.

Conclusion

To conclude, Part III of Emerging Perspectives on Distraction and Task Interruptions reports on a maturing field that is increasingly focused on the conditions under which distraction occurs, the cognitive mechanisms that mediate its effects, and the subjective awareness (or lack thereof) of being distracted. Rather than viewing distraction as a simple nuisance or uniform interference, the findings indicate a more complex reality.

Crucially, these effects are not dictated by the distractor alone, but emerge from the interaction between environmental input and the current cognitive state. These studies emphasise the importance of integrating multiple theoretical perspectives. Cowan's embedded-processes model provides a useful framework for understanding how representational overlap may contribute to distraction. However, the findings reviewed in Part III also reveal clear limitations of a purely representation-based approach. In particular, interference can arise from process similarity or cross-modal input, even when content overlap is minimal or absent, and conversely, coactive semantic representations may not interfere when the task does not recruit corresponding cognitive processes. These cases are more clearly accounted for within process-oriented frameworks such as interference-by-process (Jones & Tremblay, 2000; Linklater et al., 2024; Marsh et al., 2008, 2009), which hold that disruption arises from overlapping cognitive operations. However, appreciating the contributions of both representational and process-level accounts may prove crucial for developing a fuller understanding of distraction and its consequences.

By grounding distraction in its task-specific, memory-based, and metacognitively opaque contexts, the work in Part III of this Special Issue pushes the field forward—offering both theoretical refinements and practical insights. In our view, the most exciting direction for future research is not simply how to block distraction, but how to understand, anticipate, and—where appropriate—leverage it.

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