

CASE REVIEW BRIEFING REPORT

Using the Working Memory from Cognitive Psychology to understand police failings in addressing antisocial behaviour in a local authority, and suggestions of new working practices/measures based upon knowledge of the cognitive mechanisms proposed by the theory.

BACKGROUND TO THE BRIEFING REPORT

The present case review highlights the major shortcomings in the police response to antisocial behaviour in Glynafonshire, South Wales. In recent years, the area has seen a significant increase in incidents such as vandalism, noise disturbances, and public intoxication, primarily linked to a specific group that relocated to the community approximately three years ago. This group is known for reckless driving, excessive noise, and occasional public disorder.

On Saturday the 8th of June 2024, at approximately 16:30, a physical altercation reportedly broke out between two subgroups during a large gathering near the community park. This incident caused panic among local residents, prompting families to vacate the area. Several individuals were hospitalised, five of whom were involved in the gathering and two members of the public who intervened. One individual sustained life-threatening injuries. Twelve individuals were detained at the scene. Despite repeated community complaints over the past year, there remains a strong perception that police have failed to act effectively. Notably, their response to the altercation was severely delayed, arriving 53 minutes after the initial emergency call.

The handling of the antisocial behaviour in Glynafonshire has been marked by several key failures. Delayed response times, with some cases showing hours between initial call and police arrival. Follow-up investigations were poor, with victims and witnesses reporting minimal contact or updates. Despite increasing reports, patrols remained limited, contributing to residents' feelings of vulnerability. Poor community engagement and ineffective resource allocation further impacted their trust, leaving many feeling their safety is no longer a priority.

An earlier or more urgent response might have reduced the severity or prevented the incident entirely. Understanding why these failures occurred is essential to avoid similar failures in the future and to ensure proper protocols are followed. This briefing report will apply a cognitive psychological theory to explore these issues and identify strategies for improvement.

THE WORKING MEMORY THEORY

This briefing report applies the Working Memory, a key cognitive psychological theory, to help explain the events outlined in the case review and propose strategies to prevent similar occurrences in the future. Understanding how working memory operates, along with its limitations, is essential for examining how cognitive overload and divided attention may have contributed to the failures observed.

Working memory refers to the limited capacity for temporarily holding and actively using information during cognitive tasks, such as reasoning, learning, and comprehension (Adams, 2018). This model builds on earlier ideas between long-term and short-term memory. Long-term memory is a large store of knowledge, such as language comprehension, while short-term memory involves more readily accessible information with a short retention span, such as recalling a short sequence of numbers (Chai, et al., 2018). To build on this, Baddeley and Hitch (1974) proposed a new model that challenged the traditional short-term vs long-term memory view, introducing three components (Chai et al., 2018). These included the phonological loop (which processes verbal information, such as repeating a phone number), the visuospatial sketchpad (which handles spatial and visual tasks, such as mentally mapping out a route), and the central executive (focusing on driving while having a conversation), which acts as the systems control centre. The central executive is responsible for directing attention, coordinating information between components, and using that information to guide behaviour (Adams et al., 2018). In 2000, a fourth component, the episodic buffer, was added to the working memory model. The episodic buffer acts as a temporary storage system that brings together different types of information (e.g., combining visual and verbal information to understand a scene) and connects working memory to long-term memory (Chai et al., 2018).

The model was developed to address two main concerns (Baddeley & Hitch, 1974). First, earlier models of short-term memory failed to explain how people could actively manipulate information in conscious awareness without relying on or being influenced by long-term memory (D'Esposito & Postle, 2014). Second, research found that individuals could perform two tasks simultaneously as long as the tasks involved different types of information, specifically verbal and visuospatial. This led them to propose two independent short-term memory systems, or buffers, each handling different types of information. Both are managed by the central executive system, which coordinates attention and task management (D'Esposito & Postle, 2014). Together, these components enable attention management and task-relevant information processing, supporting cognitive functions such as reading comprehension, spelling, and fluid intelligence (Wynn & Coolidge, 2011).

However, working memory is susceptible to interference from various factors such as cognitive load, stress, and both biological and environmental factors. Cognitive load, in particular, refers to the decline in memory performance when task demands exceed attentional capacity (Langerock et al., 2025). This is linked to the concept of a memory restoration process, where attention consumed by task processing becomes unavailable for memory restoration, ultimately resulting in reduced memory performance (Langerock et al., 2025). Biological factors such as age also affect working memory. A large-scale of participants aged 8 to 75 found that the ability to bind visual features, such as colours and shapes, declined with age. Peak performance was observed around age 20, followed by a notable decline beginning around 55 (Brockmole & Logie, 2013). These findings demonstrate that while working memory essential to cognitive functioning, it is highly sensitive to overload and individual differences. With this understanding, the next section will explore how these limitations may have contributed to the outcomes observed in the review.

HOW DOES THE THEORY RELATE TO THE OUTCOME FROM THE LOCAL AUTHORITY?

Various biological and environmental factors, such as stress, cognitive workload, individual differences, and environmental distractions can influence the capacity and efficiency and capacity of working memory (Barrett et al., 2006). Psychological stress, in particular, has a well-documented negative impact on both the encoding and retrieval process of working memory (Luethi et al., 2009). Elevated cortisol levels associated with acute stress can compromise the central executive functioning, reducing the ability to manage complex or competing tasks simultaneously (Luethi et al., 2009).

In response to the growing concerns surrounding antisocial behaviour, the Chief Superintendent of the Glynafonshire Police Department acknowledged an increase in call volumes and limited resources, highlighting a high-pressure environment for officers. Prolonged exposure to such occupational stressors has been linked to reduced problem-solving ability, impaired attention, and increased likelihood of procedural errors (Gutshall et al., 2017). Luethi et al. (2009) found that stress significantly impaired working memory performance, shown by reduced reading span, highlighting the system's vulnerability under pressure (Luethi et al., 2009). This may impair officers' ability to recall details, result in overlooked or forgotten tasks, such as documenting reports or gathering follow-up statements, and negatively affect their mood, potentially limiting effective engagement with residents during patrols or meetings. However, Luethi et al.'s (2009) study only included male participants, thereby limiting the generalisability of the findings across genders.

Cognitive load, defined as the mental effort required by a task, is another key factor likely contributing to the case review outcomes. High cognitive load has been linked to diminished decision-making capacity, particularly in complex or unfamiliar situations that demand greater cognitive resources (Zucchelli et al., 2025). Under such conditions, working memory becomes overloaded, reducing the resources available for other essential functions (Blackley et al., 2021). For instance, a police officer managing a complaint call while completing unrelated paperwork may experience cognitive overload, increasing the likelihood of forgotten facts, overlooked details, or misfiled information. High cognitive overload can also impair moral judgement, with adults under such strain displaying more immature patterns of reasoning, affecting how they assess the severity of an action (Blackley et al., 2021). This is particularly relevant policing, where officers must make complex moral and ethical decisions under pressure.

Cognitive control refers to the ability to direct processing and behaviour in line with task goals (Unsworth et al., 2022). It is essential in detecting and monitoring conflict, maintaining

goal-directed behaviour, and adjusting control when challenges arise, all fundamental aspects of policing. Officers are expected to effectively manage conflict, de-escalate tensions and ensure public safety.

Research shows a strong correlation between working memory capacity and cognitive (attentional) control (Unsworth et al. 2022). Individuals with higher working memory capacity typically sustain attention more effectively, whereas those with lower capacity experience more lapses. Kane et al. (2007) found that individuals with lower working memory capacity reported more frequent mind-wandering and off-task thoughts. This may help explain the limited engagement of some officers during community meetings or in collecting information on the antisocial behaviour. Similarly, Unsworth et al. (2007) found that participants with lower working memory capacity demonstrated slower, less consistent reaction times during attention control tasks. In a policing context, this may result in slower responses under pressure, missed procedural steps, or delays in task completion. Over time, such lapses can contribute to disorganisation and confusion within operational processes.

The next section will examine specific findings from empirical research studies that reinforce the relevance of working memory theory to the observed issues in this case.

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SUGGESTIONS FOR NEW PROCEDURES BASED ON THE THEORY

Research has shown strong association between working memory capacity, mind-wandering, and deficits in executive attention (Adam & Vogel, 2017). However, performance-based feedback can enhance working memory performance by increasing individuals' awareness of their attentional state, enabling them to re-engage with tasks. Feedback that highlights errors or performance issues may also boost cognitive performance by increasing motivation and arousal (Adam & Vogel, 2017). For instance, Adam and Vogel (2017) found that weighted feedback, including both positive and negative responses, reduced poor performance trials by up to 27%. These findings suggest that structured feedback systems could be integrated into professional settings, such as policing, to reduce operational errors. In practice, this might involve regular supervisor led performance reviews or real-time digital feedback. For example, report-writing platforms could offer prompts such as “insufficient detail provided”, “elaborate further”, or include a checklist of required elements. Such interventions may encourage more thorough and accurate documentation, helping to ensure that critical information is not missed.

Working memory is essential for situational awareness, yet its limited capacity can affect the ability to integrate multiple information sources, especially in high-focus tasks like driving a police car or making an arrest (Yuan et al., 2024). Individuals with lower working memory capacity are more prone to distraction-related errors. Research shows a positive link between working memory and situational awareness, which can be strengthened through targeted training. Yuan et al. (2024) investigated the effects of 15 days of dual-modality working memory training using auditory and visual stimuli and found improvements in inhibitory control, attentional flexibility, and situational awareness, resulting in fewer errors. Integrating cognitive training into police development programs or refresher sessions could improve officers' cognitive functioning, information processing abilities, and confidence when managing complex or high-pressure situations. These improvements could address several of the failings identified in the case study, such as poor decision-making and improperly recorded information.

High-stress environments like police stations often involve frequent disruptions, multitasking, and information overload, which can impair cognitive performance and increase the likelihood of errors (Kalakoski et al., 2020). Kalakoski et al. (2020) proposed a workplace ergonomics intervention that aligns tasks with human cognitive capabilities. The involved small group workshops where employees discuss workplace challenges and agree on behavioural rules and workflow strategies to implement. This is followed by weekly reminders and progress checks to reinforce practices and avoid regression (Kalakoski et al., 2020). The goal is to reduce cognitive strain and support long-term workplace improvements. Measures could include designated quiet zones to support concentration for those prone to distraction, workplace coffee mornings or lunch activities for stress relief, and collaborative work or shared workload initiatives. These small yet constructive changes can foster a more supportive and positive working environment, enhancing mood, improving productivity, and reducing the likelihood of workplace errors.

EVALUATION AND CRITIQUE OF THEORY

The working memory model, originally developed by Baddeley and Hitch (1974), remains one of the most extensively studied theories in cognitive psychology, supported by decades of empirical research and theoretical development (Chai et al., 2018). The later addition of the episodic buffer in 2000 demonstrates the model's ability to evolve in response to emerging evidence (Chai et al., 2018). Its continued development and relevance underscore its enduring importance across psychology, cognitive science, and neuroscience research (Baddeley, 2003). Moreover, extensive neuroimaging evidence, including positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) scans, provides substantial support for the model (Smith & Jonides, 1997). These studies reveal activation across distinct working memory systems, particularly as memory load increases, contributing significantly to the theory's empirical foundation.

However, several limitations should be considered when evaluating the theory's applicability to real-world contexts such as this case briefing. First, environmental influences must be acknowledged. Working memory and cognitive overload cannot fully explain all instances of disengagement or inattention, as individual circumstances and environmental factors also play a part (Zuccheli et al., 2025). For instance, when responding to reports of antisocial behaviour involving teenagers, officers must simultaneously manage the situation, ensure safety, gather information, and later compile a report. While working memory may function more reliably in a quiet police station, real-world environments, particularly crime scenes, are high-pressure, placing additional strain on cognitive processing (Luethi et al., 2009).

Ecological validity is another important concern in working memory research. Many studies are conducted in laboratory settings or use virtual reality simulations (Fanuel et al., 2020). Although technological advancements have improved the simulation of real-world scenarios, a gap remains between controlled lab environment and the complexity real-world tasks. Laboratory tasks cannot fully replicate the stress, unpredictability, or trauma that police officers may face on duty. As such, the cognitive mechanisms behind police decision-making are too complex to be explained by a single lab-based theory. This highlights the need for further research using methods that better reflect real-world conditions.

CONCLUSION AND RECOMMENDATIONS

To conclude, the working memory model provides valuable insights into the cognitive processes involved in decision-making, attention and memory. It enhances our understanding of how these processes work and how they can be influenced, providing a framework to explain various failures within the Glynafonshire police department. The model also suggests practical strategies, such as working memory training and performance-based feedback, to prevent recurring errors. However, while the theory effectively highlights how cognitive overload can impair police performance, it also has limitations that may limit its full applicability to this case review. Based on the findings, it is recommended that police departments implement strategies to mitigate cognitive overload. These include regular staff training, mindful task distribution to prevent burnout, and frequent performance feedback to ensure officers meet required standards. Furthermore, fostering a supportive work environment that encourages collaboration and stress relief is essential for reducing errors. Acknowledging the limitations of lab-based research and advocating for more real-world testing is crucial for advancing these theories and their practical implications.

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I acknowledge the use of Grammarly (<https://app.grammarly.com/ddocs/2752884027>) on the 12th of May to proofread the final draft of this case briefing using the prompt:

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