

CASE REVIEW BRIEFING REPORT

Using the Cognitive load theory 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 briefing report was created to assess the growing concerns surrounding antisocial behaviour in Glynafonshire, particularly within a specific group who had moved to the area over the past three years. It explored the challenges faced by the local police force in responding to these incidents, with a focus on a specific event involving a violent altercation between two subgroups. This incident resulted in numerous injuries and several individuals being detained by police. It had taken 53 minutes for the police to arrive at the scene, which had raised questions about the effectiveness of the police force and their response times. The briefing report looks at key issues that may have contributed to the delayed response, including increases in call volume, limited police resources and the complex nature of the cases being handled. By examining these factors, the report aims to provide a clearer understanding of the difficulties the police force may face in managing antisocial behaviour in Glynafonshire. To better understand the contributing factors behind the issues with timeliness and effectiveness in the police response, this report will use the cognitive load theory.

THE COGNITIVE LOAD THEORY

Sweller (2011) suggests that the Cognitive load theory argues human cognition such as memory relies largely on pre stored memories for example, schemas and that there are two types of knowledge: Biologically primary which is knowledge and behaviours humans are evolved to learn and this is done simultaneously by living, then there is Biologically secondary knowledge: this is knowledge that needs to be taught. The theory argues that humans can only process small amounts of information at once and to learn secondary knowledge humans rely on previously stored memory to help understand and create new memories.

Furthermore, according to the Cognitive load theory working memory has a limited capacity; as a result, too much information provided at once or tasks that require a lot of knowledge can overwhelm cognitive resources, therefore impair learning and result in cognitive overload (De Jong, 2010). There are three main types of cognitive load that can contribute to cognitive overload: extraneous, intrinsic and germane cognitive load. Intrinsic cognitive load is when there is difficulty in the material being learned, especially when multiple concepts must be understood and processed together. Extraneous cognitive load arises when information is presented in a confusing way, forcing learners to focus on irrelevant details or search for clarity, rather than engaging in meaningful learning. In contrast, germane cognitive load supports learning, and it involves the way information is presented in a way that encourages the formation of schemas (Paas et al., 2003)

Additionally, Cognitive Load Theory has been applied in the medical field to better understand how mental strain affects performance. For example, Fraser et al. (2012) found that individuals who felt less calm and more energised experienced higher cognitive load. This increase in cognitive load negatively impacted their ability to detect a heart murmur, despite having been trained to do so. These findings highlight the significant effect that emotional states and mental overload can have on an individual's ability to apply learned skills. They also emphasise how heightened emotions and excessive information can overwhelm working memory, reducing performance. As a result, managing emotional states and mental strain during learning and practice is crucial for minimising cognitive overload and improving outcomes.

Furthermore, when assessing cognitive load in police officers, Ta-Johnson et al. (2023) found that less-experienced officers exhibited higher levels of cognitive load compared to the more experienced officers. This was due to the increased mental effort required for processing new information, as these officers had not yet developed the schemas that come with experience. These findings support Cognitive Load Theory, particularly the idea that when too much unfamiliar information enters the working memory at once, it can lead to cognitive overload. This relationship between experience and cognitive load is further supported by Ayres (2006), who examined how instructional strategies affect learning in mathematics tasks. Ayers found that although breaking tasks into isolated components reduced cognitive loads for all learners, it did not enhance learning outcomes for those with low prior knowledge. In contrast, learners with more experience benefited more from a mixed approach which started with isolated tasks and then moved onto whole tasks. These findings support the broader understanding that excessive information can lead to intrinsic cognitive overload. As a result, tailored training approaches may enhance learning and decision-making by reducing the risk of overwhelming the working memory.

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

There are many ways the Cognitive Load Theory can be applied to this briefing report to help understand the failings in addressing antisocial behaviour.

For example, according to Sweller (1988) human knowledge and memory rely heavily on schemas/ previously stored memories. Therefore, this may explain why there was a delay in the police response to the antisocial incident that occurred. The area has experienced an increase in antisocial behaviours in the past few years, thus police may have developed schemas in which such incidents typically do not escalate out of hand. Therefore, this may have caused them to underestimate the severity of the situation based on their prior experience. As a result, this can explain why they took longer to respond.

Additionally, according to the cognitive load theory humans can only process and take in a limited amount of information at one time (Sweller, 2011). Therefore, if only a small amount of information can be processed by humans when they are overwhelmed with numerous situations and too much information, they may put their working memory system in overload (Mugford et al., 2013). Therefore, if police in Glynafonshire have had increased call volumes and complex cases where there are overlapping social issues not just antisocial behaviours this could lead to cognitive overload. Thus, this overload could result in delays or errors in judgement, contributing to the failures in the police force when handling antisocial incidents. Additionally, this can explain why they may struggle to prioritise tasks and choose an appropriate response as their working memory is filled with too much information resulting in delayed response times.

According to Paas et al. (2003) the germane cognitive load supports learning however, intrinsic cognitive load is when information refers to the difficulty of the material being learned, particularly when a range of concepts and information must be processed. This suggests that providing more information is not always helpful for learning or decision-making, especially when the material exceeds an individual's cognitive capacity. Therefore, this can explain the difficulty Glynafonshire police forces have when dealing with antisocial behaviour. Officers are provided with a range of complex cases which require further knowledge outside of policing resulting in them requiring input from other professions. As a result, officers may experience high levels of intrinsic cognitive load, as they are expected to understand and respond to problems that involve unfamiliar skills or a range of knowledge. This cognitive strain could

explain the reason for the delayed response to the recent antisocial incident, as officers may have struggled to process and act on the demands of the situation efficiently.

SUGGESTIONS FOR NEW PROCEDURES BASED ON THE THEORY

There is evidence suggesting that less-experienced police officers experience higher levels of cognitive load due to increased cognitive effort required when processing and learning, in comparison to more experienced officers (Ta-Johnson et al., 2023). This may indicate a need for more experienced officers to be positioned on the front line when responding to live incidents. As heightened cognitive load in inexperienced officers could lead to slower decision-making and delayed response times, this may be particularly problematic in high-pressure situations, such as rapidly escalating antisocial incidents like those recently reported in Glynafonshire.

In addition, increasing the number of police officers in the area could help address staffing shortages and reduce individual workload. According to De Jong (2010), when working memory is overloaded with too much information, it can lead to cognitive overload and impaired performance. By distributing tasks more evenly among a larger workforce, officers may face fewer demands, reducing pressure on the working memory. This, in turn, could improve cognitive efficiency and response times, potentially preventing the escalation of incidents and enhancing overall public safety.

Furthermore, research suggests that certain types of cognitive load specifically germane cognitive load can be beneficial, depending on the learning task. For example, Hollender et al. (2010) found that germane cognitive load can enhance the effectiveness of e-learning. These findings may help improve police training practices, as officers are required to efficiently process and retain complex information in highly pressured environments. Therefore, training programs could be designed to incorporate levels of germane load, tailored to individual learning preferences and prior experience. By aligning training methods with how each officer learns best, it may be possible to optimise cognitive engagement and improve learning outcomes across the force, this can help deal with the ineffectiveness of Glynafonshires police force when dealing with crimes.

Additionally, as Paas et al. (2003) suggest, when individuals are required to process multiple complex concepts or unfamiliar information, it results in increased intrinsic cognitive load. This is particularly relevant in the context of the Glynafonshire police force, where officers are often confronted with a wide range of cases that extend beyond their training for example, incidents involving mental health crises. To reduce this cognitive burden, it may be beneficial to integrate professionals from other sectors, such as psychologists or social workers, to work alongside police officers. By distributing responsibilities based on each professional's area of expertise, the cognitive demands placed on individual officers can be reduced. As a result, this collaborative approach could help lower intrinsic cognitive load, as each person would be required to process fewer unfamiliar concepts and make decisions within their area of training.

EVALUATION AND CRITIQUE OF THEORY

Overall, the Cognitive Load Theory is effective in explaining how too much information in working memory can create a cognitive overload (De Jong, 2010). It does not fully consider how certain types of cognitive load may enhance learning, depending on the context. For example, Hollender et al. (2010) found that germane cognitive load can be beneficial when designing e-learning environments. This challenges the original concepts of the theory, which suggested that any form of cognitive overload is detrimental to learning. Although this evidence shows an advancement in the Cognitive load theory, it also causes confusion regarding which types of cognitive load are helpful or harmful to learners when taking in information.

Cognitive Load Theory has been widely used to explain how the limited capacity of working memory can impact learning. However, a key limitation of the theory is that it does not fully account for individual differences in how people learn. It overlooks how factors such as prior experience and existing knowledge can shape cognitive processing and influence the way individuals engage with learning material. For example, Ta-Johnson et al. (2023) discovered that less-experienced police officers engaged more cognitively when attempting to understand complex training scenarios, leading to higher levels of cognitive load compared to experienced officers. Whilst these findings support the applicability of Cognitive Load Theory in the context of police training, they also suggest that individuals may process the same information in different ways based on their experience levels. This highlights a limitation of the theory, as it tends to oversimplify the role of individual differences, particularly in terms of prior knowledge and expertise.

Furthermore, although empirical evidence supports the argument that excessive information can negatively impact decision-making and cognitive performance, Cognitive Load Theory does not explore in depth how to effectively reduce this overload, nor does it account for individual differences in the effectiveness of strategies used. For example, findings by Ayres (2006) suggest that strategies to manage cognitive load should be tailored to the learner's level of prior knowledge. Therefore, while it is important to understand why individuals may experience difficulties with learning and decision-making, it is equally important for the theory to offer more specific, adaptive solutions to minimise the negative effects of cognitive overload.

However, Cognitive Load Theory is highly applicable to the scenario presented in the vignette and offers a useful explanation for why the police in Glynafonshire have struggled to manage antisocial behaviour effectively. According to Sweller (2011), the theory suggests that the working memory has a limited capacity, and when this capacity is exceeded, it can result in cognitive overload, which negatively impacts decision-making and task performance. In the case of Glynafonshire, the vignette highlights several stressors including staff shortages, high call volumes, and complex cases all of which can place excessive demands on officers' cognitive resources. These challenges may overwhelm even trained professionals, as they are required to juggle multiple responsibilities and process a wide range of information. As a result, the cognitive overload experienced by officers may help explain their difficulty in effectively responding to antisocial behaviour and other incidents.

CONCLUSION AND RECOMMENDATIONS

Overall, the Glynafonshire police force appears to be under significant stress and pressure, which may affect how officers process information and make decisions in high pressured situations. Cognitive Load Theory offers a useful framework for understanding some of the challenges the force faces in responding to antisocial behaviour, particularly in relation to the recent incident that escalated due to delayed response times. Officers are increasingly required to manage complex cases that often extend beyond their training and knowledge. This may lead to cognitive overload, as their working memory is overwhelmed by demands that require knowledge and skills outside their expertise.

Moreover, the high volume of calls the force receives means officers are constantly shifting between a range of situations, which further increases cognitive load and may compromise their ability to respond efficiently. This helps explain the difficulties the police encountered in managing the antisocial incident in a timely manner.

However, while Cognitive Load Theory provides valuable insight into these issues, it has limitations. The theory tends to oversimplify cognitive processing by not fully accounting for individual differences, such as expertise and prior experience, which can influence how much information a person is able to handle. Additionally, the literature presents some ambiguity regarding whether all forms of cognitive overload are detrimental, as some studies suggest that certain types like germane cognitive load can actually enhance learning and problem-solving in specific contexts.

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