

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

In the past year, Glynafonshire has experienced a significant rise in antisocial behaviour, mainly linked to a group that moved into the area within the last three years. This behaviour encompasses vandalism, loud noise, public intoxication, and reckless driving. The situation escalated on June 8, 2024, when a conflict between two subgroups at a gathering near a community park turned violent, alarming the public and forcing families to leave. The incident led to seven individuals being hospitalised, one with life-threatening injuries, and the police arrested twelve people. Despite numerous complaints prior to this event, the police response has faced extensive criticism for being ineffective and slow. Particularly, during the incident on June 8, police allegedly took 53 minutes to respond to the first emergency call. These delayed responses have heightened residents' perceptions of inadequate law enforcement in dealing with persistent antisocial behaviour.

The police are encountering various operational difficulties, such as limited resources from budget cuts, a considerable rise in call volume, and the intricate nature of antisocial behaviour often tied to wider social problems. The absence of visible policing in key areas has encouraged offenders, and a lack of community engagement has caused trust between the police and residents to erode. Additionally, legal and procedural limitations have delayed prompt action against offenders. Nevertheless, Catrin Wyn-James, Chief Superintendent of Glynafonshire Police, has recognised these issues and pledged to tackle them. She stressed the importance of a collaborative approach with multiple agencies and urged residents to report all incidents to enhance policing effectiveness.

Cognitive Load Theory suggests that human cognitive processing has a limited capacity, which helps explain the challenges encountered by both the police and the community in Glynafonshire. Clearly the police department is inundated with calls, limited resources, and complex social problems related to antisocial behaviour. Consequently, their ability to process information effectively and make prompt decisions suffers. This saturation results in delayed responses, a lack of follow-up investigations, and inadequate proactive patrolling. On the community side, ongoing frustrations with insufficient police action and heightened feelings of vulnerability can increase cognitive load, making it harder for residents to interact with the police and report incidents. Both the police and the public experience cognitive overload, reducing their effectiveness in dealing with pressing issues. Enhancing resources, streamlining processes, and fostering better communication could help alleviate this load and potentially improve the response to antisocial behaviour in Glynafonshire.

THE COGNITIVE LOAD THEORY

Cognitive Load Theory (CLT) is based on cognitive theories that explain how humans process information, with a specific focus on the structure of working memory. A fundamental premise of CLT is that working memory has a restricted capacity to handle new information (Sweller, 1988). While learning, individuals allocate considerable cognitive resources to oversee this process; however, poorly designed instruction can often create overwhelming demands, resulting in cognitive overload. Consequently, a key principle of CLT is to reduce extraneous cognitive load, which arises from the instructional format, thereby allowing cognitive resources to be directed toward effective learning and improving knowledge transfer (de Jong, 2009).

Baddeley's (2003) working memory model offers a foundational basis for comprehending how cognitive resources are utilised in learning. It identifies three main components: the phonological loop, which handles verbal and auditory information; the visuospatial sketchpad, responsible for visual and spatial data; and the central executive, which focuses attention and coordinates these subsystems (Baddeley, 2003). This complex framework corresponds with CLT, which argues that instructional design should reduce extraneous cognitive load to enhance learning (Sweller, 1999). Excessive demands on the phonological loop or visuospatial sketchpad from poorly structured resources can lead to extraneous cognitive load, impeding the learner's ability to engage meaningfully with the content (Sweller, 1999). Consequently, Baddeley's model reinforces CLT's focus on minimising unnecessary burdens on working memory to improve learning outcomes.

According to cognitive load theory, instructional materials can impose three distinct types of cognitive load on learners: intrinsic, extraneous, and germane. Accurate measurement of these types of cognitive load can provide valuable insights into why the effectiveness and efficiency of learning environments vary based on instructional design and individual learner characteristics (Leppink et al., 2013). In this context, the cognitive load framework may be applied to analyse and interpret potential reasons behind the operational shortcomings observed within the Glynafonshire police force. A core tenet of cognitive load theory is that working memory has a limited capacity, and that optimising the use of this capacity is essential for effective knowledge acquisition and learning outcomes – in turn 'why' the police failings have happened.

Intrinsic cognitive load is determined by the inherent complexity of a learning task and is primarily influenced by element interactivity, the number of information elements that must be processed simultaneously and their interrelations. As task complexity increases, so does intrinsic cognitive load. In contrast, extraneous cognitive load arises from the manner in which instructional materials are designed and presented. Poorly structured instructional content can impose unnecessary cognitive demands, thereby impeding learning. Conversely, effective instructional design can reduce extraneous load and enhance learning outcomes (Paas et al., 2003; Plass et al., 2010). Germane cognitive load refers to the cognitive resources allocated to learning processes such as schema construction and automation. Unlike intrinsic and extraneous load, germane load is influenced primarily by learner characteristics, including prior knowledge and motivation. It reflects the mental effort a learner invests in managing the complexity associated with intrinsic cognitive load. Although it is connected to the content through the structure of interacting elements, germane cognitive load does not represent a separate or additional source of working memory demand (Sweller, 2010)

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

Cognitive Load Theory offers a valuable perspective on the various challenges faced by police in their efforts to address antisocial behaviour within Glynafonshire. This theory is grounded in the concept of working memory, which has a limited capacity. It suggests that when cognitive demands exceed this capacity, it can significantly hinder decision-making and responsiveness among individuals (Sweller, 1988). In the context of policing, the intricacy of antisocial behaviour is often compounded by a myriad of interrelated social issues. These include, but are not limited to, substance abuse, a lack of engagement among youth, and various economic hardships that the community faces. Each of these factors contributes to a heavy

intrinsic cognitive load on police officers, who must navigate and respond to a complex web of interacting issues and pressures (Paas et al., 2004).

Moreover, this challenging situation is further aggravated by extraneous cognitive load stemming from inefficient organisational systems. These include pervasive problems like delayed communication between departments, under-resourced teams that struggle to meet demands, and bureaucratic processes that can detract from essential policing functions and hinder timely responses to incidents (Chandler & Sweller, 1991). As a result of these overlapping pressures, officers often find it increasingly challenging to act quickly or effectively when addressing situations that require immediate intervention.

Additionally, it is not only the police who are affected; the public also experiences a diminished capacity for what is referred to as germane cognitive load. This aspect of cognitive load is critical as it pertains to the mental energy necessary for self-reflection, learning new strategies, and engaging in proactive problem-solving. However, both police and community members are often overwhelmed by urgent demands and continual stress, which impedes their ability to engage in these important cognitive processes.

When viewed collectively, these interrelated cognitive loads provide a clearer understanding of the systemic delays that plague police responses, the inadequacies in community engagement, and the declining trust between law enforcement and the public in Glynafonshire. It becomes evident how cognitive overload can severely diminish institutional effectiveness and compromise public safety, as highlighted by multiple authors in studies on this subject (Mayer & Moreno, 2003). This

understanding calls for a re-evaluation of current policing practices and the introduction of strategies aimed at reducing cognitive load to enhance effectiveness and ensure public safety in the community.

This situation is aggravated by extraneous cognitive load from inefficient organisational systems, which include delayed communication, under-resourced teams, and bureaucratic processes that detract from essential policing functions (Chandler & Sweller, 1991).

SUGGESTIONS FOR NEW PROCEDURES BASED ON THE THEORY

To prevent similar failures in the future, Cognitive Load Theory suggests that policing operational procedures need redesigning to reduce unnecessary cognitive strain while maximising limited working memory usage. A crucial step is to reduce extraneous cognitive load by streamlining administrative tasks and enhancing information systems, enabling officers to focus more directly on their critical responsibilities. For example, digital triage tools and prioritisation algorithms, as utilised in healthcare (Plass et al., 2010), have proven effective in improving decision-making under stress by filtering out non-urgent cases and clarifying data presentation. In a policing context, adopting similar decision-support systems could enhance efficient dispatch and real-time risk assessment. Additionally, reducing intrinsic cognitive load through specialised training can help officers better manage complex, high-pressure situations.

Research by van Merriënboer and Sweller (2005) shows that breaking down complex tasks into smaller, sequenced segments- referred to as “segmenting” can improve performance and reduce overload. In this vein, scenario-based training modules concentrating on essential skills (e.g., conflict de-escalation, multi-agency collaboration) can strengthen mental frameworks, enabling officers to respond more instinctively in real-world situations. Finally, enhancing germane cognitive load involves cultivating a culture of reflective practice and knowledge sharing. Structured debriefings and collaborative learning platforms can empower officers to convert experiences into actionable strategies, akin to practices in military and emergency response organisations. By aligning operational modifications with the tenets of Cognitive Load Theory, police departments can boost their efficiency, lessen errors, and rebuild public trust.

EVALUATION AND CRITIQUE OF THEORY

Cognitive Load Theory (CLT) provides a valuable framework for understanding cognitive processes in controlled settings, particularly in the context of instructional design. It emphasises the importance of minimising extraneous cognitive load to improve learning outcomes. However, applying it to more intricate, real-world situations, such as the policing issues in Glynafonshire, shows some limitations.

In Glynafonshire, the police force is encountering a rise in antisocial behaviour, notably associated with a group that has relocated to the area in recent years. The increasing number of service calls, exacerbated by constrained resources and budget cuts, reflects CLT's concept of cognitive overload. According to Cognitive Load Theory, excessive demands on cognitive resources impede individuals' ability to make informed decisions and respond effectively. This is akin to the challenges faced by the Glynafonshire police force, where operational issues, such as a surge in call volume, restricted resources, and a complicated social environment, result in delayed responses and inadequate proactive policing. Additionally, if the officers on the ground are relatively new to the role, this adds organisational pressure to double crew or ensure sufficient staffing for call-outs based on the officers' skill sets.

However, CLT may oversimplify cognitive load by mainly focusing on external and intrinsic factors, while neglecting broader systemic influences on cognition. For instance, police not only face an influx of calls but also deal with intricate legal restrictions, public perceptions, and the complexities of antisocial behaviour rooted in deeper social problems. These elements heighten the cognitive burden for officers. However, CLT does not adequately consider how these external pressures might impact decision-making or cause procedural delays. Additionally, the theory's focus on reducing cognitive load does not sufficiently address the larger socio-political and resource limitations that hinder the police's ability to act decisively and efficiently in this environment, proving that not one size fits all.

From the residents' viewpoint in Glynafonshire, ongoing frustrations regarding the police's slow responses and lack of visible presence contribute another layer of cognitive load. As cognitive load rises, individuals' capacity to process information and engage effectively decreases. For residents, this elevated cognitive load, arising from safety concerns, perceived inadequacies in law enforcement, and diminished trust in the police, makes them less inclined to report incidents and engage with authorities. Cognitive Load Theory suggests that this overwhelming frustration could further hinder residents'

capability to interact with police or to provide accurate information, potentially worsening the situation. It was noted that there has been a public decline in the number of calls regarding anti-social behaviour, which may be due to the preconception of failings of the force in previous months. Undoubtedly, this has caused more issues for the public, the force and management, adding to the workload of Glynafonshire's policing team.

Another limitation of CLT in Glynafonshire is its inability to acknowledge variability in cognitive load among individuals. The theory tends to generalise cognitive load without adequately considering factors like prior knowledge, expertise, or cognitive capacity. For police officers, their capacity to manage the cognitive demands of intricate social issues, such as understanding the root causes of antisocial behaviour or resolving conflicts between different groups, relies heavily on their experience, training, and stress management skills. More experienced officers might be better positioned to tackle such challenges, while newer or less informed officers may find themselves overwhelmed by the complexity of the problems. CLT doesn't adequately consider how these individual differences shape cognitive load in practical contexts like policing.

The expertise reversal effect (Sweller et al., 2011) illustrates that more experienced individuals are capable of handling higher cognitive loads, which is relevant in Glynafonshire. More knowledgeable officers may manage the complexities of antisocial behaviour and community interactions more efficiently, while those with less experience might face delays in decision-making, adding to public frustration. This contrast reveals that CLT's assumption of a "one-size-fits-all" approach may fail to account for the subtle distinctions in cognitive processing that arise from varying levels of experience and expertise.

Moreover, as CLT has faced criticism for its narrow focus on instructional contexts, it fails to consider the fluid and changing characteristics of real-world environments. In Glynafonshire, antisocial behaviour and the associated social issues are not fixed; they evolve, necessitating that police strategies adapt in response. CLT does not sufficiently incorporate these variations in task complexity, potentially overburdening officers' cognitive abilities in ways not fully acknowledged by the theory. For instance, the variable nature of antisocial behaviour may compel officers to frequently modify their strategies, thus further increasing their cognitive load.

In summary, while CLT offers a valuable framework for understanding the cognitive obstacles encountered by both the police and community members in Glynafonshire, its usefulness is limited

when it comes to grasping the entire complexity of the situation. The theory's emphasis on extraneous load is important, yet it overlooks the intricate nature of real-world challenges that law enforcement faces in this area. To enhance policing effectiveness in Glynafonshire, it would be advantageous to complement CLT with additional theories that address the evolving nature of social issues, the variability in individual capabilities, and the systemic limitations impacting cognitive processing. An integrated approach to cognitive load could better refine policing strategies and foster community collaboration in tackling antisocial behaviour. Relevant training, meetings, and co-working with other organisations may reduce the cognitive pressures on officers, regardless of experience, and promote a multidisciplinary working environment, in turn helping the community of Glynafonshire.

CONCLUSION AND RECOMMENDATIONS

The practical application of Cognitive Load Theory (CLT) in policing practices, exemplified by the case in Glynafonshire, is intricately linked to addressing technological challenges and deeply rooted organisational cultures. Although decision-support systems and streamlined processes promise significant theoretical advantages, the reality is that many police departments continue to be encumbered by outdated digital infrastructures and disjointed data platforms. These limitations inadvertently increase cognitive load on officers, forcing them to expend invaluable mental resources on navigating through fragmented systems, which ultimately diminishes the potential benefits of instructional redesign initiatives.

Moreover, there exists a notable resistance to change, largely driven by the rigid hierarchical structures often found within law enforcement organisations, combined with a prevailing culture that prioritises tradition over innovative practices. This resistance can significantly hinder the effective implementation of crucial training reforms that are specifically designed to manage both intrinsic and germane cognitive load. For instance, methods such as reflective practices and scenario-based learning require an environment of openness, psychological safety, and robust leadership support, elements that are frequently lacking in the high-pressure context of policing.

Hence, for interventions based on Cognitive Load Theory to achieve their intended outcomes, it is imperative that they are integrated into a comprehensive strategy. This strategy must not only address systemic inertia but also foster a culture of continual learning and improvement, while simultaneously embracing contemporary, interoperable technologies that can streamline operations and enhance overall efficiency in policing. Such an approach is essential for ensuring that officers can perform their duties effectively without being overwhelmed by unnecessary cognitive burdens.

REFERENCE LIST

- Baddeley, A. (2003). Working memory: looking back and looking forward. *Nature Reviews Neuroscience*, 4(10), 829–839. <https://doi.org/10.1038/nrn1201>
- Bannert, M. (2002). Managing cognitive load—recent trends in cognitive load theory. *Learning and Instruction*, 12(1), 139–146. [https://doi.org/10.1016/s0959-4752\(01\)00021-4](https://doi.org/10.1016/s0959-4752(01)00021-4)
- Chandler, P., & Sweller, J. (1991). Cognitive Load Theory and the Format of Instruction. *Cognition and Instruction*, 8(4), 293–332. https://doi.org/10.1207/s1532690xci0804_2
- de Jong, T. (2009). Cognitive load theory, educational research, and instructional design: some food for thought. *Instructional Science*, 38(2), 105–134. <https://doi.org/10.1007/s11251-009-9110-0>
- Leppink, J., Paas, F., Van der Vleuten, C. P. M., Van Gog, T., & Van Merriënboer, J. J. G. (2013). Development of an instrument for measuring different types of cognitive load. *Behavior Research Methods*, 45(4), 1058–1072. <https://doi.org/10.3758/s13428-013-0334-1>
- Mayer, R. E., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist*, 38(1), 43–52. https://doi.org/10.1207/s15326985ep3801_6
- Paas, F., Renkl, A., & Sweller, J. (2003). Cognitive Load Theory and Instructional Design: Recent Developments. *Educational Psychologist*, 38(1), 1–4. https://doi.org/10.1207/s15326985ep3801_1
- Paas, F., Renkl, A., & Sweller, J. (2004). Cognitive Load Theory: Instructional Implications of the Interaction between Information Structures and Cognitive Architecture. *Instructional Science*, 32(1/2), 1–8. <https://doi.org/10.1023/b:truc.0000021806.17516.d0>
- Paas, F., Tuovinen, J. E., Tabbers, H., & Van Gerven, P. M. (2003). Cognitive load measurement as a means to advance cognitive load theory. *Educational Psychologist*, 38, 63–71.
- Plass, J. L., Moreno, R., & Brünken, R. (2010). *Cognitive Load Theory*. Cambridge University Press. 53-61
- Spiro, R. J. (1990). *Cognitive flexibility theory : advanced knowledge acquisition in ill-structured domains*.

- Sweller, J. (1988). Cognitive Load during Problem Solving: Effects on Learning. *Cognitive Science*, 12(2), 257–285.
- <https://mrbartonmaths.com/resourcesnew/8.%20Research/Explicit%20Instruction/Cognitive%20Load%20during%20problem%20solving.pdf>
- Sweller, J. (1999). *Instructional design*. Camberwell Acer Press.
- Sweller, J. (2010). Element Interactivity and Intrinsic, Extraneous, and Germane Cognitive Load. *Educational Psychology Review*, 22(2), 123–138. <https://doi.org/10.1007/s10648-010-9128-5>
- Sweller, J., Ayres, P., & Kalyuga, S. (2011). The Expertise Reversal Effect. *Cognitive Load Theory*, 38(1), 155–170. https://doi.org/10.1007/978-1-4419-8126-4_12

ACKNOWLEDGEMENT USAGE OF AI

I acknowledge the use of Grammarly (<https://www.grammarly.com/>) on 12 May 2025 to check my work using the prompt(s):

1. Please check the following text for readability, grammar and spelling.

I confirm that I have not presented any AI-generated text as my own work. I confirm I have copies of my drafts, notes, and other resources I used before and after the use of AI tools which I may be asked to provide in evidence

I acknowledge the use of Google Scholar <https://scholar.google.com> on throughout to support my research using the prompt(s):

1. Please provide me with materials on Cognitive Load Theory

2. Please provide me with materials on Policing Cognitive Load Issues

3. Please provide me with materials on Better policing Strategies

I confirm that I have not presented any AI generated text as my own work. I confirm I have copies of my drafts, notes, and other resources I used before, and after the use of AI tools which I may be asked to provide in evidence.

I acknowledge the use of Google Scholar <https://www.jstor.org> on throughout to support my research using the prompt(s):

1. Please provide me with materials on Cognitive Load Theory

2. Please provide me with materials on Policing Cognitive Load Issues

3. Please provide me with materials on Better policing Strategies

I confirm that I have not presented any AI generated text as my own work. I confirm I have copies of my drafts, notes, and other resources I used before, and after the use of AI tools which I may be asked to provide in evidence.