

AI Acknowledgement

I acknowledge the use of Google Gemini (<https://gemini.google.com/app>) between 13 August 2026 and 26 August 2026 to support my research for this Cognition in Action assignment using the prompt(s):

1. Please provide me with an essay structure based on the assignment guide attached.
2. Please help me rephrase sentences in proper academic English.
3. Please check the flow of my writing and suggest improvements.

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 Grammarly (<https://www.grammarly.com/>) between 13 August 2026 and 26 August 2026 to support proofreading and grammar checking of this Social Psychology assignment.

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

I confirm that I have not presented any AI-generated materials 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.

CASE REPORT

BACKGROUND TO THE REPORT

This report provides a detailed cognitive psychology investigation of a major infection control incident in the Glynafonshire Health Board, where a failure to ensure compliance with hand hygiene procedures by district nurses led to the infection of eight patients and one death. The local health board has a strict handwashing policy which all district nursing staff must adhere to before they enter a patient's property and after they leave the patient's property to ensure that there is no cross contamination and no community acquired infections. All district nurses receive systematic training in practice and theory, including extensive written and practical tests where they achieve a perfect score and fully understand the protocols during the initial induction. In addition, the nurses who were present had a significant level of clinical experience, so skill gaps or lack of procedural knowledge was an unlikely factor in the breakdown.

Even with these high baseline qualifications, internal quality reviews showed that there was a large volume of non-adherence on community care visits, which was multi-faceted. Nurses often did not wash their hands properly, or hurried through the sanitisation processes, or did not wash their hands at all before and after a patient visit. Comments from the impacted district nurses emphasized the high level of contextual stressors in the months leading up to the incidents of concern. Due to a large increase in community patient numbers, nurses were required to work long, consecutive shifts several times a week, as well as covering double the number of patient visits allocated to them on a daily basis.

This report is designed to go beyond the superficial explanations of the human failures of individuals and look instead at the mental architecture that led highly trained clinical professionals to such catastrophic failures in their operations. This report will explore the scenario within the framework of Cognitive Psychology to identify the cognitive processes that may lead to procedural faults in high workload scenarios, evidence-based procedures

that could prevent the scenario from recurring, the ethical implications and critically assess the explanatory power of the chosen cognitive framework.

THE COGNITIVE LOAD THEORY

The Cognitive Load Theory (CLT) is a broad theory developed by John Sweller (1988) to describe the human cognitive system and its hard processing restrictions in the execution of complex tasks. The human memory is a dual-memory system according to Sweller, consisting of the Working Memory (WM) and the Long-Term Memory (LTM). Long-Term Memory is effectively limitless in its ability to store knowledge in such a way that it is organized in structured mental frameworks called schemas; Working Memory is very limited in how much and long it can hold onto information. Working Memory operates as an active area of memory where sensory input is attended, processed and integrated. Classic cognitive research has shown that Working Memory is able to store just a handful of distinct information elements at a time, usually (4 ± 1) chunks of novel information, if they are not rehearsed for only a few seconds (Klepsch & Seufert, 2021; Sweller, 1988, 2024).

Given the role of Working Memory capacity as an information bottleneck, Sweller (1988, 2024) distinguished three forms of working memory cognitive load that can be added together. Intrinsic Cognitive Load is the natural or inherent complexity of the task or information being processed, and is determined by the element interactivity, which refers to the amount of elements that need to be processed simultaneously instead of sequentially. Extraneous Cognitive Load is mental effort required by the external environment, task presentation, irrelevant distractions or inefficient operating procedures. Extraneous load has no purpose for task completion or learning, and it uses up the resources of the Working Memory that may otherwise be used for the primary task. Germane Cognitive Load is the productive mental resources allocated to schema construction, schema automation, and higher-order problem solving, in newer accounts of CLT, Germane Cognitive Load is conceptualized as a storage of the Working Memory resources allocated to processing intrinsic load. (Sweller, 2024).

The basic principle of CLT is that the overall Cognitive load is the sum of Intrinsic load, Extraneous load, Germane load (Total cognitive load = Intrinsic load + Extraneous load + Germane load). Cognitive overload

happens when the amount of mental processing required to perform exceeds a person's limited working memory. Empirical studies have shown that an overload of information causes significant impairments in central executive functioning, selective attention, impaired decision making, and lapses in prospective memory which is the ability to remember to perform an intended action at a specific future cue (Klepsch & Seufert, 2021; Sweller, 2024).

HOW DOES THE THEORY RELATE TO THE CASE STUDY

There is a direct explanation for the clinical failures that occurred at Glynafonshire Health Board with the use of Cognitive Load Theory. There is a misperception that the failure to follow procedure is due to insufficient motivation or lack of understanding. However, all district nurses passed a written and practical exam on handwashing perfectly and had a large amount of experience of clinical practice. Therefore, the nurses had fully developed, automated schemas for proper hand hygiene stored in Long-Term Memory. They were not failing to retrieve the knowledge, but instead had failed dramatically in real time Working Memory processing due to excessive environmental overload.

The cognitive load of the operational environment outlined in the health board statement was an unsustainable mix of intrinsic and extraneous loads. Exhaustion of both physical and mental resources is also known to be a direct consequence of working back-to-back shifts for extended periods, which also directly affects the functioning of prefrontal cortex, and thus the overall baseline capacity of Working Memory (Aldabbour et al., 2026). In addition, operational issues with community care include modifying traffic patterns, parking, locating patients' homes and adapting to non-standardised domestic environments, which create enormous extraneous processing demands before clinical care is ever rendered. Nurses had to juggle all of the standard and additional patients, as well as a wide range of complex

clinical information, medication schedules, wound dressing procedures and time constraints, all in their head (Kurniawati et al., 2023).

In this heightened cognitive overload, prospective memory (the ability to perform a planned action at a specific environmental cue) was completely impaired. If the central executive is overloaded, it will focus on high salience, emergency survival or medical tasks, while maintaining focus on low salience, routine preventive tasks (Alshagrawi & Alhodaithy, 2024; Pakpahan et al., 2026). This meant that due to this, the nurses were experiencing "attentional tunnelling" which meant rushing through steps or forgetting to sanitise before crossing the threshold even though they knew the rule.

COGNITIVE OVERLOAD AND HYGIENCE COMPLIANCE IN CLINICAL SETTINGS

Studies in varied settings in health care indicate that when health care practitioners are cognitively overwhelmed, they have difficulty adhering to protocols, particularly in a fast-paced health care environment. Pakpahan et al. (2026) conducted a systematic review that showed that occupational stress and mental workload directly impact the quality of the nursing care rendered, which causes experienced nurses to skip or omit the necessary steps when they experience mental workload. In turn, Alshagrawi and Alhodaithy (2024) found that among healthcare workers, the biggest factors associated with hand hygiene non-adherence were the heavy workload, extreme fatigue, and time pressure, which are all factors that repeatedly tax cognitive resources and result in procedural omissions when the cognitive load is high.

In addition, the findings of the observational and cross-sectional study carried out by Lima et al., (2020) and Tomaszewska et al., (2026) highlights that over-straining of the operational workload is a key risk factor for omission errors in nursing care. The heavy staffing deficits put under pressure can lead to increased omissions in routine preventive measures like hygiene practices because there is a significant working memory constraint and a central executive exhaustion. The empirical results here confirm exactly the Glynafonshire scenario: non-adherence was not a matter of mishandling by any of the individuals involved, but a failure of the system as a whole that resulted from systemic overload.

SUGGESTIONS FOR NEW PROCEDURES BASED ON THE THEORY

The Glynafonshire Health Board should plan interventions for future infection control failures that are based on cognitive ergonomics. Procedures have to offload mental activity or preserve central executive function, not depend on the individual's will or repeated training, which in turn does not change the limitation of human working memory.

First, offloading the environment should be done in a high salience physical cue. This could be achieved by providing the nurses with brightly coloured door-hangers on entry points to patients' rooms as well as wearable dispensers of sanitiser attached to their clinical bags to act as external prospective memory prompts, which are considered to be effective under high cognitive loads. This translates hand hygiene to an automatic recognition response, making the trigger directly visible in the space of action to significantly alleviate the extra cognitive load and counteract the environmental barriers described in the literature on clinical adherence (Alshagrawi & Alhodaithy, 2024).

Secondly, the health board should include Digital cognitive forcing functions in mobile clinical management software. The inclusion of a brief (2-second) digital check-in prompt ("Hand Hygiene Completed") before opening or closing the patient's digital chart forms an external memory structure. That interrupts attentional tunneling in high-density patient visits and helps to make sure that routine hygiene actions are not overlooked and are not very time consuming to administer (Gillespie et al., 2022).

Thirdly, because mental strain builds up over time, it's vital to make systemic changes like shortening shifts and balancing patient-to-staff ratios to protect both clinicians and patients. The health board will implement rigorous operational limits on consecutive working hours, introduce emergency staffing cover for staff on back-

to-back shifts and limit numbers of patients seen per day. To protect staff from acute executive fatigue & sleep impairment, the working memory capacity needed to ensure procedural safety of high standards is preserved (Aldabbour et al., 2026; Kurniawati et al., 2023).

In the implementation of these cognitive-based interventions, there are a number of important ethical considerations that need to be taken into account. Implementing mandatory digital tracking or forcing functions should be done transparently, avoiding the perception of punitive or punishing surveillance by the nurse, thereby reducing stress, creating an additional cognitive burden, and worsening burnout (Alobayli et al., 2023). In addition, health boards have an ethical obligation not to discipline staff for a failure of memory that has been directly caused by the system's failure to provide them with adequate working time and staffing. Safety policies need to address nursing team dynamics and psychological safety, recognising that humans' cognitive limits should not be punished by individuals, but are supported through the system (Munn et al., 2023).

EVALUATION AND CRITIQUE OF THEORY

The Cognitive Load Theory is one of the most well-established and empirically-supported theories in cognitive science, offering unique insights into the influence of human processing limitations on performance under high-stakes conditions (Sweller, 1988; Sweller, 2024). It provides clear operational definitions of the architecture of memory that enable researchers to create interventions with clearly defined, measurable effects on memory performance that minimize the extraneous mental demands. There are, however, some well-known theoretical challenges associated with CLT, one of which is the difficulty of measuring in real-time (Klepsch & Seufert, 2021). Cognitive load has traditionally been measured through self-report questionnaires (e.g. NASA-TLX or Likert scales), which measure the cognitive effort perceived after the task, rather than tracking the real-time mental fluctuations that occur during task execution. Although biological measures, such as eye tracking and heart rate variability, are enhancing in-time measurement, this has proven to be methodologically challenging in more dynamic environments, such as district nursing (Klepsch & Seufert, 2021).

In the Glynafonshire Health Board scenario, CLT offers a remarkable account of why experienced nurses suffered from prospective memory failures in fatigue and double workload. However, the idea that individuals can be changed by having a CLT does not quite capture human behaviour. CLT tends to pay more attention to internal information processing bottlenecks, and may underestimate other wider socio-cultural and organisational factors (Tomaszewska et al., 2026). For example, CLT frequently fails to recognise the impact of emotional distress, moral injury, and burnout on clinical performance and thus refers to fatigue mainly as a decrease in cognitive function (Kurniawati et al., 2023). Furthermore, a purely cognitive model is inadequate to address how team dynamics, or informal culture in the workplace, may normalise “workarounds” or affect how errors are reported when schedules become unfeasible (Munn et al., 2023). Hence, CLT is a good tool to describe the failure of the processors, but must be combined with organisational psychology models for a complete risk management approach.

CONCLUSION AND RECOMMENDATIONS

The case of Glynafonshire Health Board is a vivid illustration of the fact that a combination of clinical practice and an optimum grade in an exam is no guarantee against the simple constraints of human mental design. If district nurses are forced to work double shifts, fatigue, and double the number of patients, they will have too much extraneous and intrinsic cognitive load to work with. This cognitive overload resulted in well-known impairments of executive function, attentional tunnelling and prospective memory failures, resulting in failure to perform routine hand hygiene steps.

The health board must move from individual effort to creating a cognitively supportive workplace, to ensure patient safety and support clinical staff. The health board should immediately provide external cues for prospective memory by attaching high visibility sanitisers and markings to the community equipment bags (Alshagrawi & Alhodaithy, 2024). At the same time, mobile clinical software needs to be updated to incorporate low-friction digital checklists that supplement memory with just a minimal amount of load (Gillespie et al., 2022). Systematically, the organisation should put in place mandatory limits of maximum shift times and also limiting the number of patients seen per day to prevent baseline working memory capacity from being overtaxed due to

prolonged exposure to fatigue (Aldabbour et al., 2026; Kurniawati et al., 2023). Lastly, all procedural changes need to be handled in a psychologically safe culture that mitigates system cognitive load instead of blaming individual(s) (Munn et al., 2023).

REFERENCE LIST

- Aldabbour, B., Alkhaldi, M., Alkordi, I., Harara, N., Jouda, K., Elyazoury, O., Eid, M., Elhendi, M., Ibrahim, M., Matter, M., Ayesh, O., Irfan, B., & Lahlouh, A. (2026). Sleep impairment and its predictors among frontline physicians and nurses in Gaza during wartime: A cross-sectional study. *Middle East Current Psychiatry*, 33(1). <https://doi.org/10.1186/s43045-026-00650-1>
- Alobayli, F. Y., O'Connor, S., Holloway, A., & Cresswell, K. (2023). Electronic health record stress and burnout among clinicians in hospital settings: A systematic review. *Digital Health*, 9(9). <https://doi.org/10.1177/20552076231220241>
- Alshagrawi, S., & Alhodaithy, N. (2024). Determinants of hand hygiene compliance among healthcare workers in intensive care units: A qualitative study. *BMC Public Health*, 24(1). <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-024-19461-2>
- Klepsch, M., & Seufert, T. (2021). Making an effort versus experiencing load. *Frontiers in Education*, 6. <https://doi.org/10.3389/feduc.2021.645284>
- Kurniawati, F., Fikaris, M. F., Eryani, I. S., Rohendi, A., & Wahyudi, B. (2023). The effect of workload, burnout, and work motivation on nurse performance. *Jurnal Aplikasi Manajemen*, 21(4). <https://doi.org/10.21776/ub.jam.2023.021.04.05>
- Lima, J. C. de, Silva, A. E. B. de C., & Caliri, M. H. L. (2020). Omission of nursing care in hospitalization units. *Revista Latino-Americana de Enfermagem*, 28(e3233). <https://doi.org/10.1590/1518-8345.3138.3233>
- Munn, L. T., Lynn, M. R., Knafl, G. J., Willis, T. S., & Jones, C. B. (2023). A study of error reporting by nurses: The significant impact of nursing team dynamics. *Journal of Research in Nursing*, 28(5), 354–364. <https://doi.org/10.1177/17449871231194180>
- Pakpahan, Y. M. U., Komariah, M., & Agustina, H. R. (2026). A systematic review of stress-related work and missed nursing care among clinical nurses. *Healthcare*, 14(3), 304. <https://doi.org/10.3390/healthcare14030304>

- Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257–285. [https://doi.org/10.1016/0364-0213\(88\)90023-7](https://doi.org/10.1016/0364-0213(88)90023-7)
- Sweller, J. (2024). Cognitive load theory and individual differences. *Learning and Individual Differences*, 110(1), 102423–102423. <https://doi.org/10.1016/j.lindif.2024.102423>
- Tomaszewska, K., Kowalczyk, K., Kadučáková, H., Krátká, A., Durejova, E., Kalita, K., & Majchrowicz, B. (2026). Excessive workload as a risk factor for patient and medical staff safety: A multicenter cross-sectional study in central Europe. *Frontiers in Public Health*, 14. <https://doi.org/10.3389/fpubh.2026.1851838>