



Culture, Technology and Competency – Shaping the Future of Falls Prevention

Working at Heights Association

Reaching new levels of safety

Scott Barber – CEO

October 2024

Associations are by their very nature a place for thought leadership;

- *When partnerships bring organisations together it harnesses collective thought leadership. This can help elevate ideas and best practice principles*
- *Collectively, associations have access to deep pools of knowledge and industry expertise that can help find innovative solutions to many of our most pressing problems.*

We can help elevate ideas and best practice principles, leveraging partner expertise allowing for more relevant content and deliverables, building the profile and professionalism of the network

Consequently, these ecosystems become trusted sources for information.

The WAHA is dedicated to supporting and influencing the ongoing development of safe practice, equipment innovation, systems and product design, continuous education of all stakeholders and the operational competency of all persons working at height and in confined spaces.

WAHA is a centre for the falls prevention, safety, engineering and design communities to come together to advance safety, increase knowledge and advocate for best practice in the discipline.

WAHA works in parallel with allied organisations to promote knowledge as the foundation for change, and how with the WAHA as a recognised SME, they are choosing to be active participants in the drive for better safety outcomes and an engaged and pro-active safety culture.

1

- **Working at height is an ongoing issue**

2

- **Considered by many industries as being in their top 3 fatal risks**

3

- **Despite our best efforts, the statistics are remaining stubbornly constant**

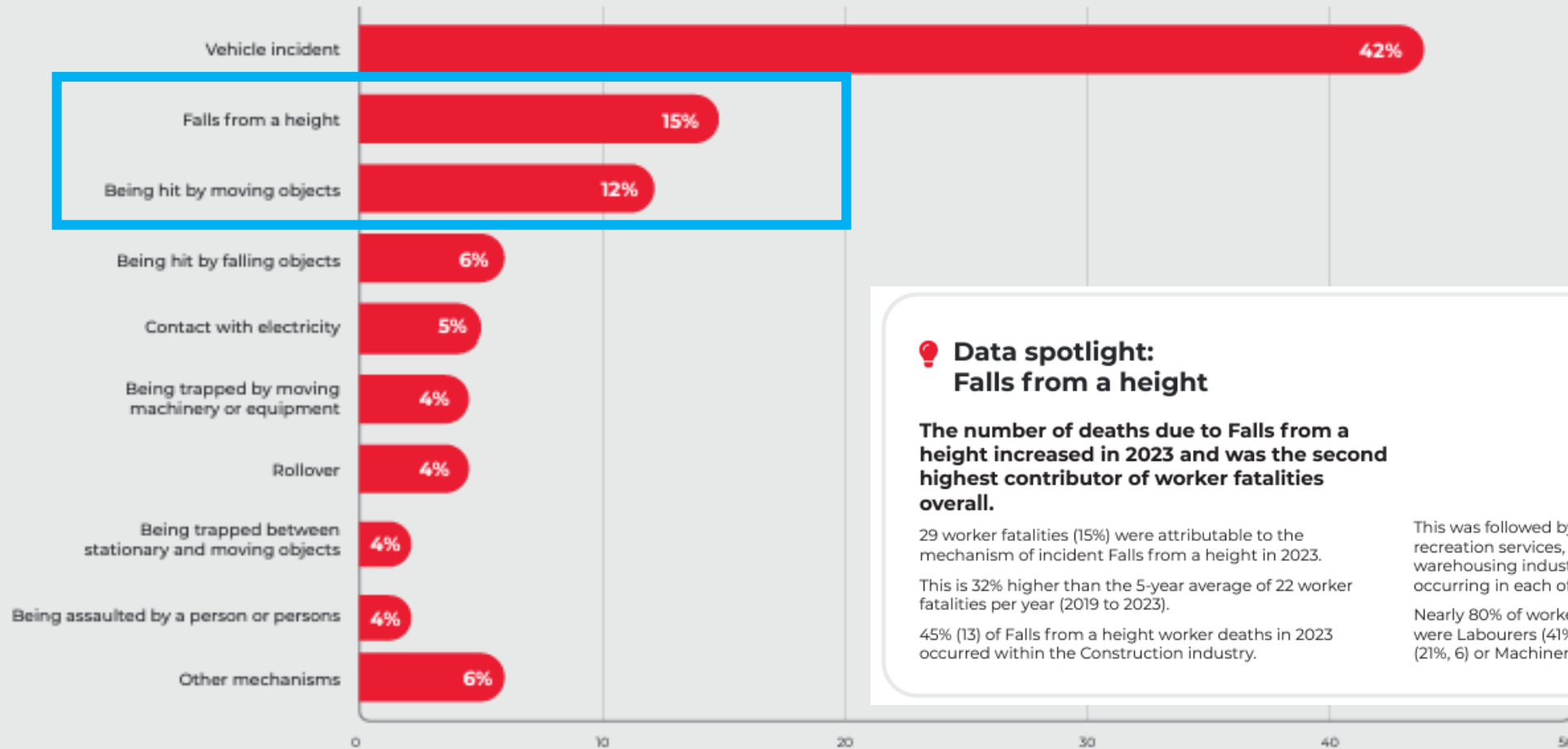
4

- **Collaboration is critical if we want to affect change**

5

- **Gravity is pervasive**

Worker fatalities by most common mechanism of incident, 2023



Data spotlight:
Falls from a height

The number of deaths due to Falls from a height increased in 2023 and was the second highest contributor of worker fatalities overall.

29 worker fatalities (15%) were attributable to the mechanism of incident Falls from a height in 2023.

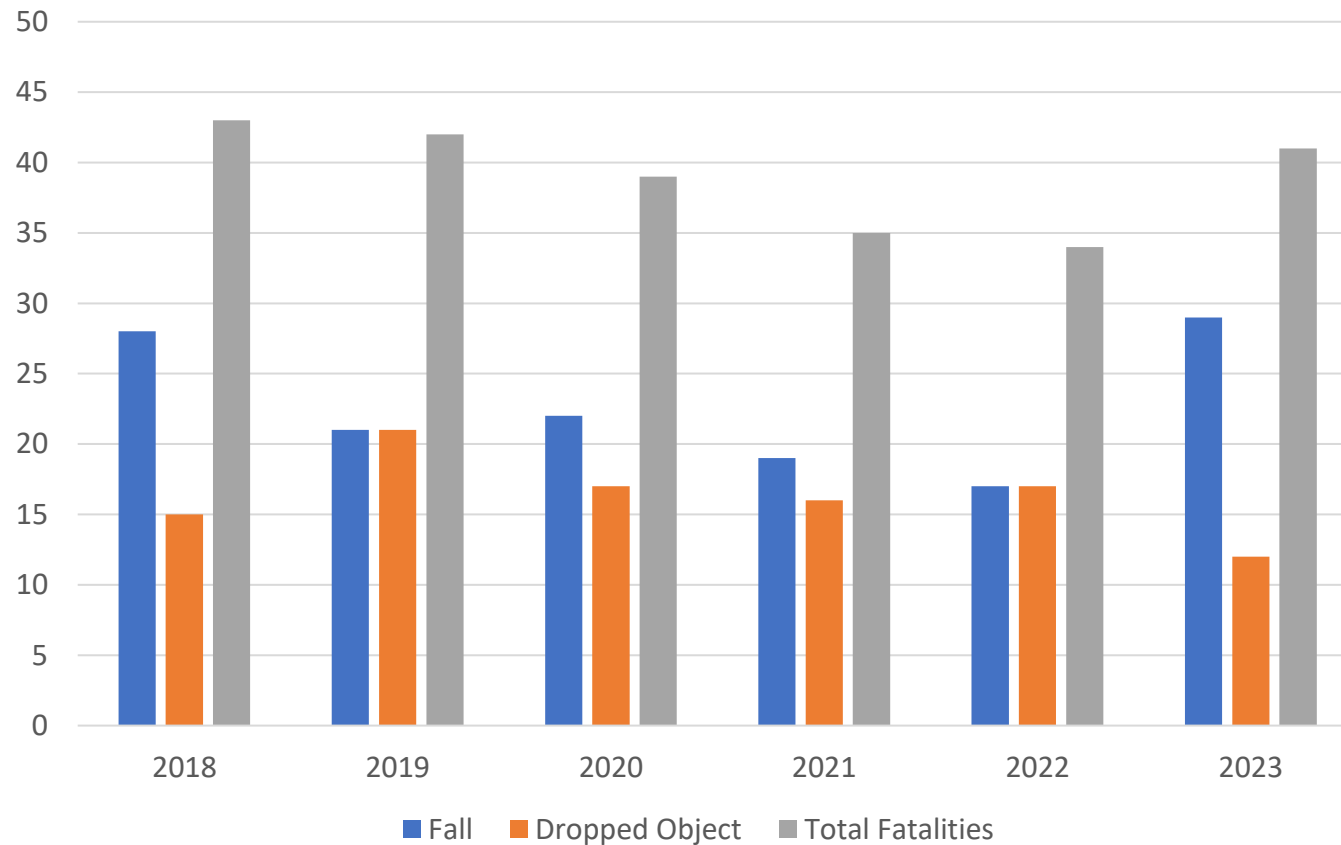
This is 32% higher than the 5-year average of 22 worker fatalities per year (2019 to 2023).

45% (13) of Falls from a height worker deaths in 2023 occurred within the Construction industry.

This was followed by worker deaths in the Arts and recreation services, Mining, and Transport, postal and warehousing industries, with 10% (3) worker fatalities occurring in each of those industries in 2023.

Nearly 80% of workers who died due to Falls from a height were Labourers (41%, 12), Technician and trades workers (21%, 6) or Machinery operator and drivers (17%, 5) in 2023.

SafeWork Statistics 2018–2023



WAHA works with the working at height and safety communities and industry groups to:

- I. reduce the number of injuries and fatalities resulting from falls from height and dropped objects;*
- II. drive “compliance” and best practice in the areas of equipment design, selection and use, as well as training competencies;*
- III. provide a forum for industry-based discussion, issue identification and resolution;*
- IV. be an information resource to members, industry and all parties interested in facilitating change.*
- V. work in parallel and in collaboration with industries and Regulators in the ongoing development of education and campaign content*



**Working
at Height
Association**

Reaching new levels in safety

Project

Compliance vs Competency

The core principles and design for working at height training has not substantially changed in the past 25 years. However:

- Courses are becoming condensed and commoditised.
- Achieving a “ticket” has become the goal versus attaining a skill.
- No consistency between training providers, or often even within a single training organisation, between instructors.
- Workers lack the knowledge to apply core theories and techniques to changing situations. Companies must re-train workers to their site systems to ensure compliance.

“Compliance Safety”

But doesn't our National VET system ensure quality training?

- ASQA ensures that Registered Training Organisations comply to the ASQA standards and that courses meet the competencies on the RTO scope.
- ASQA does not assess if the training is “good”, “effective” or even “correct” – merely that it addresses and assesses the performance criteria outlined in the competency framework.
- It does not measure competency, only completion within the parameters of the syllabus

Current compliance training

- there is no guarantee genuine competency is being delivered, and it is these '*unknown unknowns*' from each worker which is of the greatest concern.
- Organisations simply do not have line of sight on the 'transparency of competency' and must assume training is relevant and workers safe to work at height.

Why is this important.

- There is an identifiable gap in the levels of competency which in turn increases the potential for safety incidents.
- This issue is compounded by skills shortages across multiple sectors which leads to engagement of work forces with lower levels of knowledge, skills and experience.

Why we are doing this

- Falls are a leading cause of fatalities and injuries across multiple sector. Despite high profile campaigns from Regulators and the implementation of safety initiatives and interventions at an operational level, injury and fatality rates remain alarmingly high. For example, the 2024 report from **SafeWork** shows a **32% increase in falls from heights in 2023**.
- Current training provision often fails to address the core competencies needed for safe working at heights. The new **WAHA AI Adaptive Learning course** complements existing “Work Safely at Heights” training by efficiently identifying and rectifying knowledge gaps, affecting safety behaviours and empowering workers to make better decisions around their work practices in falls environments. Consequently, this has a direct and positive effect on the frequency and type of falls incidents.
- The AI intelligence underpinning the training identifies any gaps in a person’s understanding of safety at heights practices. It then personalises and customises how the learning is delivered to the participant until the required level of competency is demonstrated. Adjusting in real time, like google maps, the platform effectively provides the user with a personalised teacher to guide them on their journey to competency!

Leveraging the right technology can streamline safety operations, enhance productivity increase employee competency, and contribute to the reduction of risk and safety incidences.

We have made huge advances in our understanding of safety behaviour and culture and with the ongoing development of technology, safety management systems and processes, these tools have help drive greater engagement and better support for workers across all areas of risk. Subsequently, with this evolution we have also seen workplaces undergo significant shifts in operational safety culture.

However, today's education and training systems are not necessarily keeping up with the current demands for skills, let alone future demands.

One of the primary hindrances to learning is the pervasive fear of judgement and criticism. Workers may be reluctant to ask questions, voice their opinions or share innovative ideas in a classroom environment if they fear negative repercussions.

Psychological safety is the concept by which individuals feel comfortable expressing themselves in a work environment, without fear of embarrassment or criticism from others. Psychological safety can be associated with improved safety outcomes, enhanced engagement and the fostering of a creative learning environment. Therefore, it is important to identify barriers to establishing psychological safety.

There is a direct correlation between psychological safety in a learning environment and knowledge retention. Engaging as an individual in a perceived “safe-space” allows for a more open approach to the new information, creating greater opportunities for learning.

The Rhapsode platform removes those barriers, allowing users to move through the process unencumbered by external pressures with what is effectively a personal teacher.

If awareness and experience leads to better decision making, then building an education model that is focussed on delivering practical outcomes and proficiencies is of critical importance.

WAHA and Area9 have created an opportunity for organisations to combine efforts, resources, and IP to develop a solution that provides not only validation of competencies across this workforce but eliminate the gaps in knowledge critical to safe work practices.

The combined focus of our partners has delivered a modular training package with targeted key learning areas and the flexibility to be tailored to suit roles, worksites and offer each learner a personalised learning experience. This will serve to reduce risk, save time, improve safety outcomes, and provide high levels of actionable data.

The AI intelligence underpinning the training identifies any gaps in a person's understanding of safety at heights practices. It then personalises and customises how the learning is delivered to the participant until the required level of competency is demonstrated. Adjusting in real time, like google maps, the platform effectively provides the user with a personalised teacher to guide them on their journey to competency

This innovative AI Adaptive Learning platform bridges the gap between traditional Registered Training Organisation (RTO) training and real-world operational safety practices across multiple sectors.

By leveraging the power of artificial intelligence, the platform provides personalised, dynamic training experiences tailored to individual learner needs. By enhancing education and awareness, this initiative aims to significantly reduce the risk of falls and ultimately save lives in the workplace.

A Proof of Concept (POC) was introduced via WAHA partner industry associations (WSAA, WIOA, ACA, ARA, FMA) as means to confirm relevancy to these sectors, draw industry specific subject matter expertise, and as a step towards developing an industry-wide standard safety program ensuring consistent and verifiable competency for all operators exposed to fall risks.

The prime motivation from our partners was the provision of transparency of competency and the assurance workers exposed to falls risk are doing so with a clear understanding of the hazards associated, and the agency to manage those risks appropriately. The entire project has been designed as complimentary to the RTO delivered “Work safely at heights” (not a replacement for) and serves as a primary, evidence based, VOC tool, identifying and eliminating critical knowledge gaps.

Licences were provided to cohorts from major water services, tier 1 construction, rail services and industry SMEs, covering all stakeholder groups

- This POC is a step towards developing an industry-wide standard safety program ensuring consistent and verifiable competency for all operators exposed to fall risks
- The course has been positioned with an industry '**white card**' lens, providing transparency of competency and ensuring workers exposed to falls risk are doing so with a clear understanding of the hazards associated, and means to manage those risks. It has been designed as complimentary to the RTO delivered "Work safely at heights" (not a replacement for) and serves as a VOC tool, identifying and eliminating critical knowledge gaps.
- The training is comprised of three modules, including industry-based learning scenarios designed to reflect the unique risk factors and work environments found in the water sector.
- The total course will take between 45min – 60 min to complete, depending on the participants level of experience and existing competency.

Goals of the collaboration:

1. Save lives in the workplace.
2. Deliver more robust, relevant and verifiable competencies and skillsets to better address falls risks.
3. Partnerships and collaboration to elevate best practice philosophy principles and connect SMEs to develop and evolve knowledge and solutions
4. Reduce the risk and improve safety outcomes specific to industry sectors
5. Improve productivity through effective and efficient educational delivery and the knowledge retention of operational stakeholders

WHAT IS ADAPTIVE LEARNING?

- An online delivery method that automatically adjusts to the needs of each learner
- Recreates at scale the optimal teaching approach of a one-on-one personal tutor
- Uses proven data analytics and intelligent technologies to adjust in real-time to deliver an optimal experience

Creates measurable competency

Reduces training times by half

Eliminates training fatigue

Improves business and safety outcomes

Uncovers and addresses unconscious incompetency

Better retention and reinforcement of learning outcomes

No-one is left behind

Module One – Theory, defining the risk and responsibility

Module Two – Application, equipment selection and use

Module Three – Scenarios

Module Four – Refresher

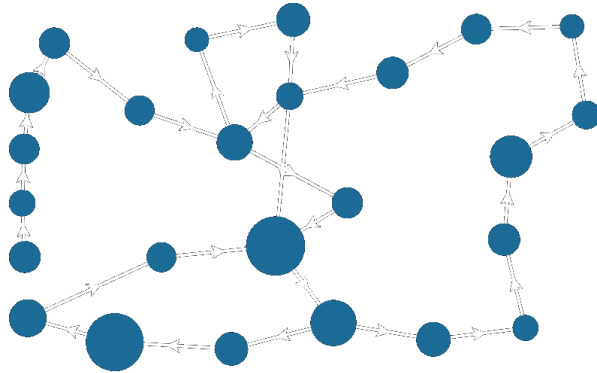
Utilities and Water

Construction

Facility Management

Elevator Industry

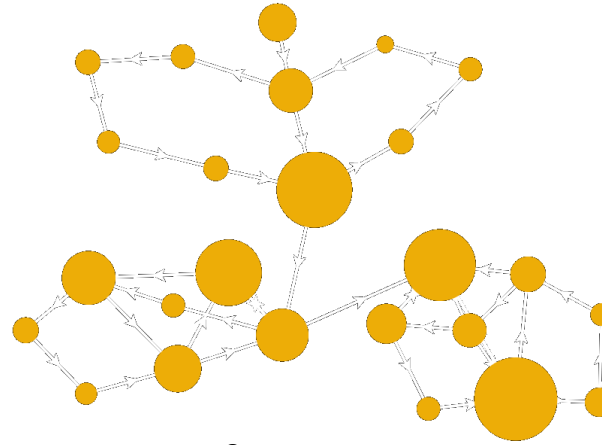
Rail Sector



Learner 1

100% proficient
8m 25s

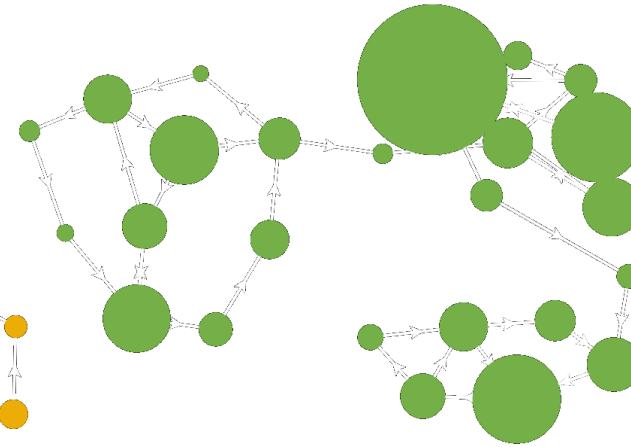
88% correct
9% consciously incompetent
3% unconsciously incompetent



Learner 2

100% proficient
19m 39s

52% correct
7% consciously incompetent
41% unconsciously incompetent



Learner 3

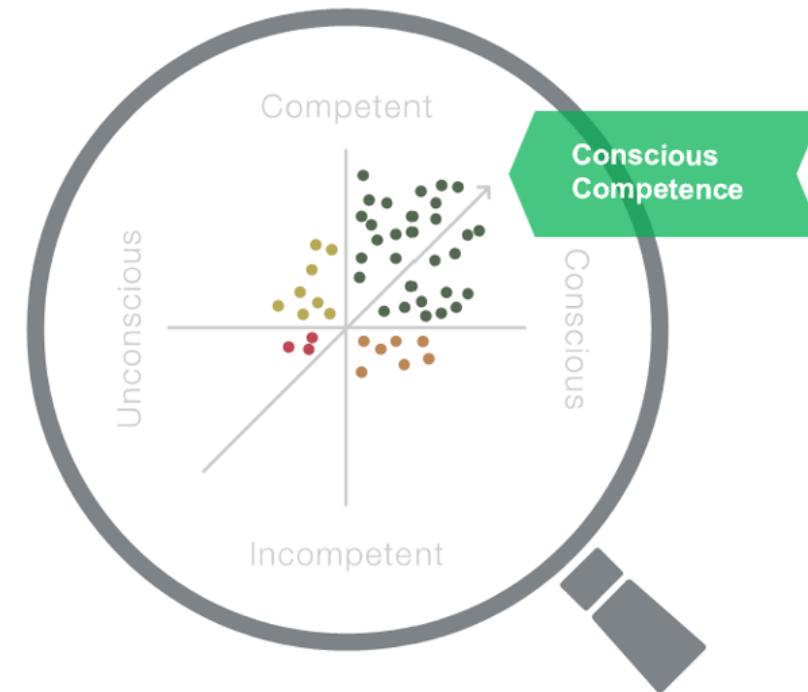
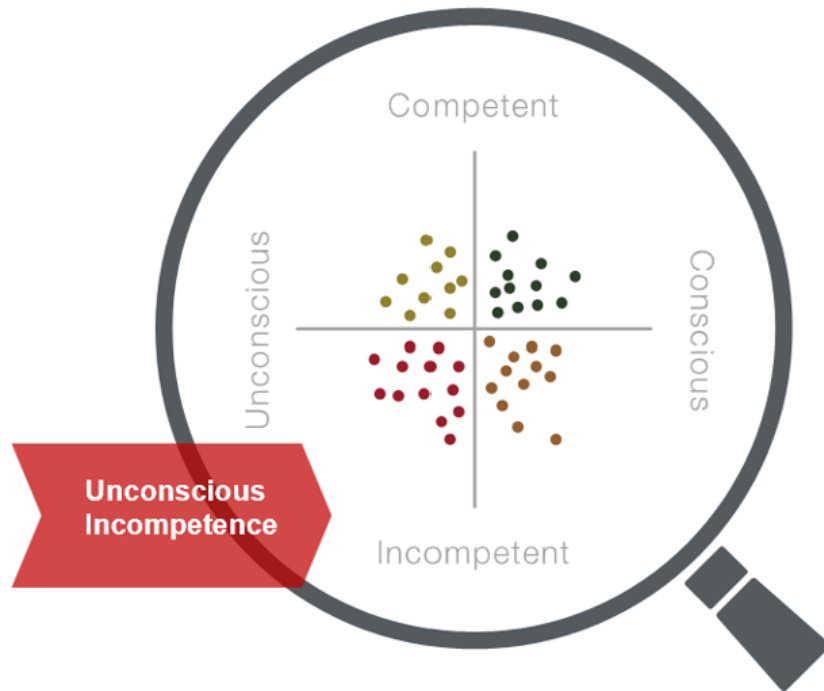
100% proficient
33m 40s

47% correct
29% consciously incompetent
24% unconsciously incompetent

These diagrams illustrate the actual paths three learners took as they built proficiency in an adaptive course. These paths are typical of learners across every subject in every industry.

Each bubble represents a learning objective. Bubble size represents the number of interactions the learner had with each learning objective.

The adaptive engine moved backwards and forwards through the learning objectives as the learners succeeded and struggled to learn.

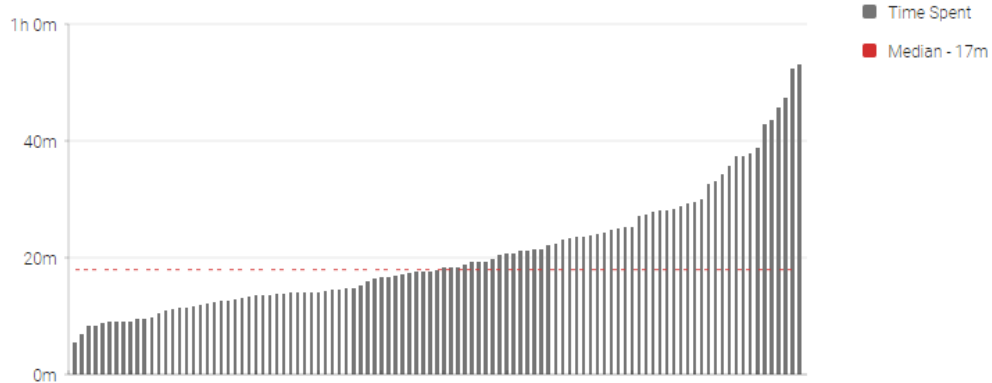


A REPORT SHOWING METACOGNITION PROGRESS BY CLASS

Class Name	Progress	Initial Conscious Competence	Initial Unconscious Competence	Initial Conscious Incompetence	Initial Unconscious Incompetence	Improvement Conscious Competence	Improvement Unconscious Competence	Improvement Conscious Incompetence	Improvement Unconscious Incompetence	Current Unconscious Incompetence	Current Conscious Incompetence	Current Unconscious Competence	Current Conscious Competence
Falls Prevention	95%	45%	2%	13%	40%	54%	-2%	-13%	-39%	1%	0%	0%	99%

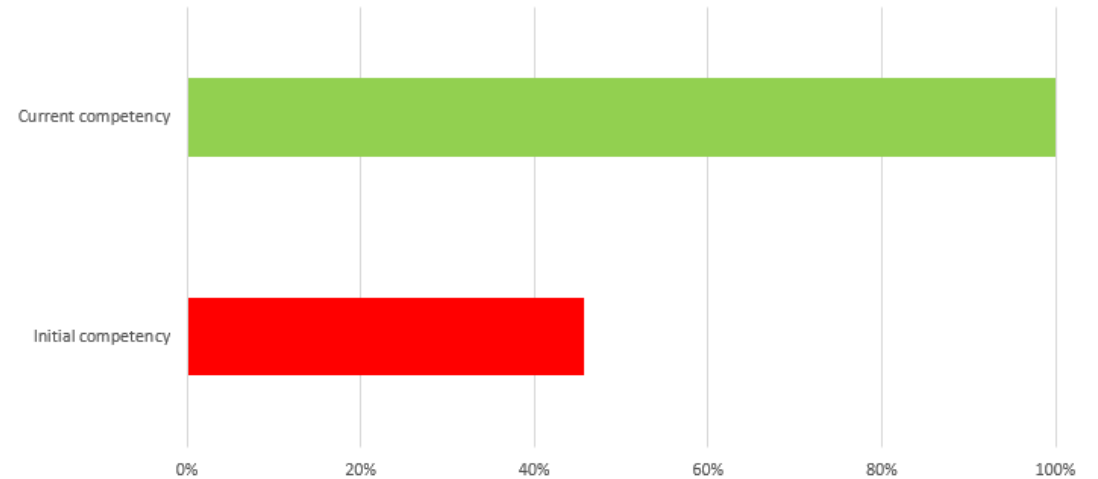
**This table shows the analytic data across the group with gaps in competency
Final competency on RHS**

TIME TO PROFICIENCY WITH MEDIAN VALUE



Time to completion

Falls Prevention

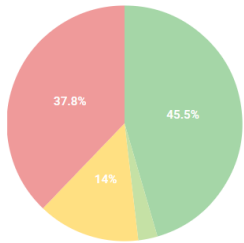


**Journey to competency
Final competency in green**

The following graphs provide insight to the competency development across all learners. Standard eLearning provides compliance outcomes and leaves gaps, this is highlighted by the significantly high levels of unconscious incompetence across the group.

Normal range of unconscious incompetence is 15–20%, the POC results indicate a considerably higher result and pose a risk to operational safety

INITIAL METACOGNITION



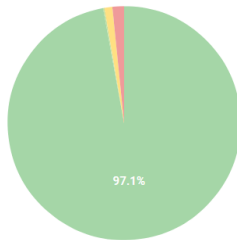
Pie chart 1: Initial Metacognition

Data explanation:

- **Green:** An average of 45.5% existing knowledge of the course content, the information that learners came into the course with.
- **Red:** Underlying Unconscious incompetence

The average of 37.8% of the course where the learner had assumed knowledge, this in high-risk activities is dangerous

CURRENT METACOGNITION



Pie chart 2: Current Metacognition (post competency verification)

Data explanation:

- **Green:** current competency which is now 97.1% across all completed learners (100% once all learners complete the course)
- Reduction of unconscious incompetence to < 3% (will be eliminated once all learners complete)

- ✓ **From a macro level, this data shows that there were significant gaps in the learner group’s competency, and more critically, in assumed knowledge which creates risk on the workplace.**
- ✓ **Standard eLearning does not address these gaps and organisations do not have line of sight of the impact of actual competency outside of ‘compliance data’**
- ✓ **Current levels of competency are high and allow the safety team to measure the impact of education and continued improvement**

Falls Prevention Competency - Learner Data Examples

Metacognition for individual learners

The table below shows the variation across a sample size of learners reinforcing the challenge that organisations face with regards to high-risk safety training. All learners have pre-existing knowledge and unconscious incompetence, Rhapsode helps each learner at personal level, recognising these gaps and supporting them to reach competency.

Learner one: Blue: High levels of initial conscious competence (81%) average levels of unconscious incompetence (19%), now at 100% competency

Learner two: Red: Significantly lower levels of initial conscious competence (26%) and high levels of unconscious incompetence (37%) now at 100% competency

METACOGNITION PROGRESS
A REPORT SHOWING METACOGNITION PROGRESS

Learner Name	Progress ↓	Initial Conscious Competence	Initial Unconscious Competence	Initial Conscious Incompetence	Initial Unconscious Incompetence	Improvement Conscious Competence	Improvement Unconscious Competence	Improvement Conscious Incompetence	Improvement Unconscious Incompetence	Current Unconscious Incompetence	Current Conscious Incompetence	Current Unconscious Competence	Current Conscious Competence
Nicholas	100%	44%	4%	0%	52%	56%	-4%	0%	-52%	0%	0%	0%	100%
David Chi	100%	30%	4%	41%	26%	70%	-4%	-41%	-26%	0%	0%	0%	100%
Andrew V	100%	81%	0%	0%	19%	19%	0%	0%	-19%	0%	0%	0%	100%
Benjamin	100%	70%	0%	0%	30%	30%	0%	0%	-30%	0%	0%	0%	100%
Mahesha	100%	78%	0%	0%	22%	22%	0%	0%	-22%	0%	0%	0%	100%
Nazdana	100%	26%	7%	30%	37%	74%	-7%	-30%	-37%	0%	0%	0%	100%
Eric Borle	100%	52%	0%	15%	33%	48%	0%	-15%	-33%	0%	0%	0%	100%
Bella Máz	100%	52%	4%	26%	19%	48%	-4%	-26%	-19%	0%	0%	0%	100%
Irena Mal	100%	52%	7%	4%	37%	48%	-7%	-4%	-37%	0%	0%	0%	100%
Steven Vi	100%	52%	4%	7%	37%	48%	-4%	-7%	-37%	0%	0%	0%	100%



PSS 1: Identify Patients Correctly **Proficient Learner**

Introduction to Adaptive Learning	1	-	-
Module Introduction	2	-	-
Section 1: Overview of Correct Patient Identification	-	-	-
Define correct patient identification	3	-	-
Section 2: Patient Identifiers	-	-	-
Define a Patient Identifier	4	18	-
Recognize approved and NOT approved patient identifiers	5	-	-
Know the elements of correct patient identification	6	19	-
Recognize when to perform patient identification	7	-	-
Section 3: Importance of Correct Patient Identification	-	-	-
Recognize consequences of patient misidentification	8	25	-
Identify safety errors in a case study	9	32	34
Section 4: Steps to Performing Correct Patient Identification	-	-	-
Recall the four checks of correct patient identification	10	20	-
List the steps in each of the three checks of correct patient identification	11	-	-
Section 5: Color Coding of ID Bands	-	-	-

PSS 1: Identify Patients Correctly **Non-Proficient Learner**

Introduction to Adaptive Learning	1	-	-	-	-	-	-	-	-	-	-
Module Introduction	2	-	-	-	-	-	-	-	-	-	-
Section 1: Overview of Correct Patient Identification	-	-	-	-	-	-	-	-	-	-	-
Define correct patient identification	3	-	-	-	-	-	-	-	-	-	-
Section 2: Patient Identifiers	-	-	-	-	-	-	-	-	-	-	-
Define a Patient Identifier	4	12	-	-	-	-	-	-	-	-	-
Recognize approved and NOT approved patient identifiers	5	10	19	26	-	-	-	-	-	-	-
Know the elements of correct patient identification	6	25	33	39	-	-	-	-	-	-	-
Recognize when to perform patient identification	7	36	42	48	52	54	58	60	64	66	70
Section 3: Importance of Correct Patient Identification	-	-	-	-	-	-	-	-	-	-	-
Recognize consequences of patient misidentification	8	11	22	28	-	-	-	-	-	-	-
Identify safety errors in a case study	9	46	53	59	65	71	-	-	-	-	-
Section 4: Steps to Performing Correct Patient Identification	-	-	-	-	-	-	-	-	-	-	-
Recall the four checks of correct patient identification	13	21	-	-	-	-	-	-	-	-	-
List the steps in each of the three checks of correct patient identification	14	-	-	-	-	-	-	-	-	-	-
Section 5: Color Coding of ID Bands	-	-	-	-	-	-	-	-	-	-	-

- x Learning Resource
- x Probe answer is correct
- x Probe answer is partially correct
- x Probe answer is incorrect

Falls Prevention Competency – Difficult Learning Objectives

? THE MOST DIFFICULT LEARNING OBJECTIVES
CLICK THE ICON TO OPEN THE MODULE IN CURATOR



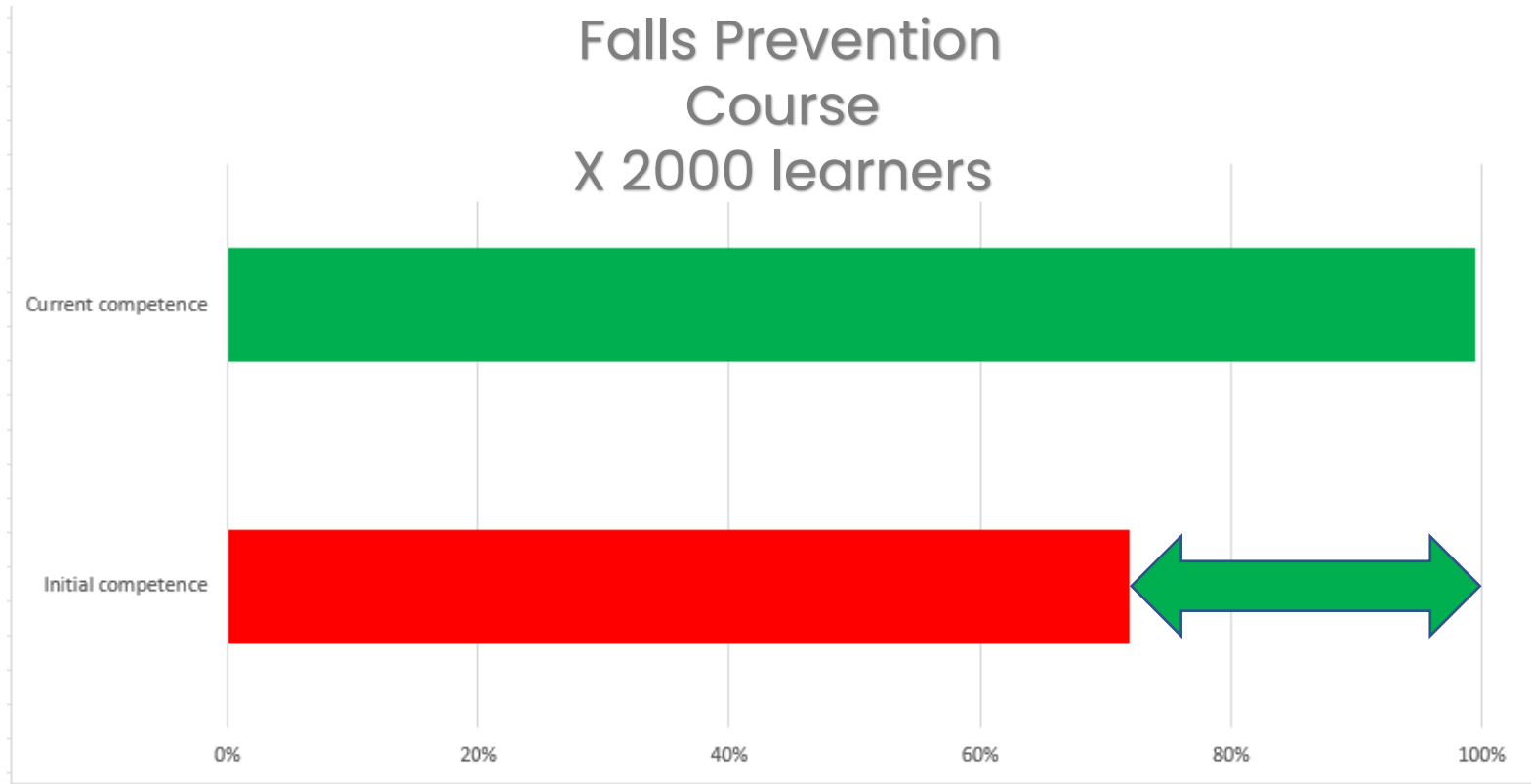
Module	Learning Objective	↓ Unconsciously Incompetent	Wrong Answers
Module One Falls Prevention	Identify ways of reducing the risk of falling objects	68%	82%
Module One Falls Prevention	Match the timeframe to the correct safety equipment / activity	60%	60%
Module One Falls Prevention	Describe how the level of training is determined	50%	50%
Module One Falls Prevention	Recall when to use which ladder	46%	69%
Module One Falls Prevention	Define the role of each person involved when working at height	43%	50%
Module One Falls Prevention	Explain each level of the hierarchy of control	33%	50%
Module One Falls Prevention	Recall the process in the event of an emergency at height	33%	33%
Module One Falls Prevention	List some of the hazards associated with scaffold	30%	40%
Module One Falls Prevention	Describe the requirements surrounding access and egress	22%	22%
Module One Falls Prevention	Recall the elements to consider when completing risk assessments and planning	22%	22%
Module One Falls Prevention	Define the purpose of barricades	20%	30%
Module One Falls Prevention	Recall how often training is required	18%	27%

Data Insights:

- High levels of unconscious incompetence on certain learning objectives
- Critical knowledge gaps in high-risk environments
- Rhapsode has helped each learner eliminate these gaps on the path to competency

How does this help?

- Insightful analytics to build additional safety and educational interventions such as SWMS and workshops
- Insight to continuous improvement including ongoing refreshers within the adaptive learning platform
- Macro data to continue to benchmark improvements across the industry



Competency Verification identified an average of **28% unconscious incompetency** across learners, representing in initial risk to operational safety. The training addressed the gaps in knowledge, guiding learners to 100% proficiency.

The Falls Prevention program has already provided valuable analytics and insights, reinforcing the needs of the project brief and objectives of the project, in a high-risk environments standard train leaves gaps and the outcomes outlined below have helped each learner through personalised journey to competency. Eliminating critical gaps in knowledge and understanding especially in relation to unconscious *incompetence* (*I think I know it but I am wrong*) which can lead to an increase in operational risk.

Key outcomes:

1. Personalised approach leading to Improvements in knowledge, confidence, and competence for each learner

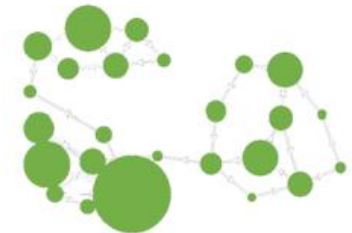
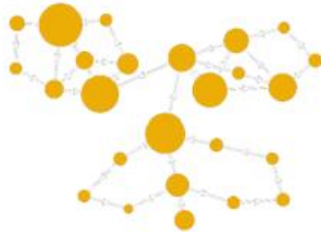
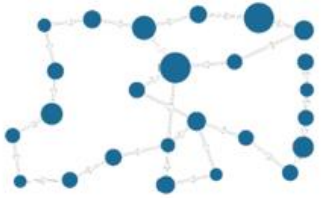
Standard eLearning with the *one size fits all* simply does not allow focus each person's learning needs. The identified average of **28%** in the levels of **unconscious incompetence** across "Proof Of Concept" learners, representing a significant risk to operational safety. Rhapsode has created an opportunity for each learner to effectively work with a personal tutor to achieve '*competence / proficiency*'.

2. Benchmarking leading to improvements

The gap that exists between compliance and proficiency is considerable risk for the organisation, Rhapsode eliminates this gap at a personal level, but also provides insightful and powerful data and analytics helping build stronger and more impactful learning and development strategies. This allows more specific and valuable training programs to support the objectives of the members safety educational strategy and WSAA overall focus.

3. Productivity savings back to workplace

Time and productivity are a precious resource in any organisation, and as the employee completes the course there must be a significant investment both in resources and time. Rhapsode reduces time to competency when compared to the standard eLearning course (40-50%).



Partnerships and collaboration are key:

- ✓ *Consistency in messaging and language*
- ✓ *Increased reach and effectiveness of actions*
- ✓ *Stronger outcomes of actions = increased ROI*
- ✓ *Reduction in injuries and fatalities*
- ✓ *A more empowered, aware and competent workforce = better decision making*
- ✓ *Leadership engagement and support*

Foundations Partners:



Supporting Organisations:





**Working
at Height
Association**

Reaching new levels in safety



<https://www.linkedin.com/company/working-at-height-association>



Thank You