



Rail Accident Investigation Branch

Overview of RAIB PTI investigations

Rail Accident Investigators Seminar

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PTI – in context

- Every day, several million people get on and off trains at stations. While almost all of these events happen safely, there are several ways in which they can go wrong.
- As well as falling through the gap between train and platform, people can become trapped in the train's doors and dragged or fall onto the track and be struck by a departing or arriving train.
- The consequences of such events have the potential to be very serious, even fatal.

PTI – RAIB investigations

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Rail Accident Report




Fatal accident at James Street station, Liverpool
22 October 2011

Report 22/2012
October 2012

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Rail Accident Report




Passenger trapped and dragged under a train at West Wickham
10 April 2015

Report 03/2016
February 2016

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Rail Accident Report




Passenger trapped and dragged at Notting Hill Gate station, 31 January 2018

Report 14/2018
September 2018

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Rail Accident Report




Person struck by a train at Eden Park station, south-east London
26 February 2020

Report 01/2021
February 2021

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Rail Accident Report




Passenger injury at Ashton-under-Lyne tram stop
12 March 2019

Report 15/2019
November 2019

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Rail Accident Report



Serious injury to a passenger alighting from a train at Loughborough Central station
14 January 2023

Report 13/2023
October 2023



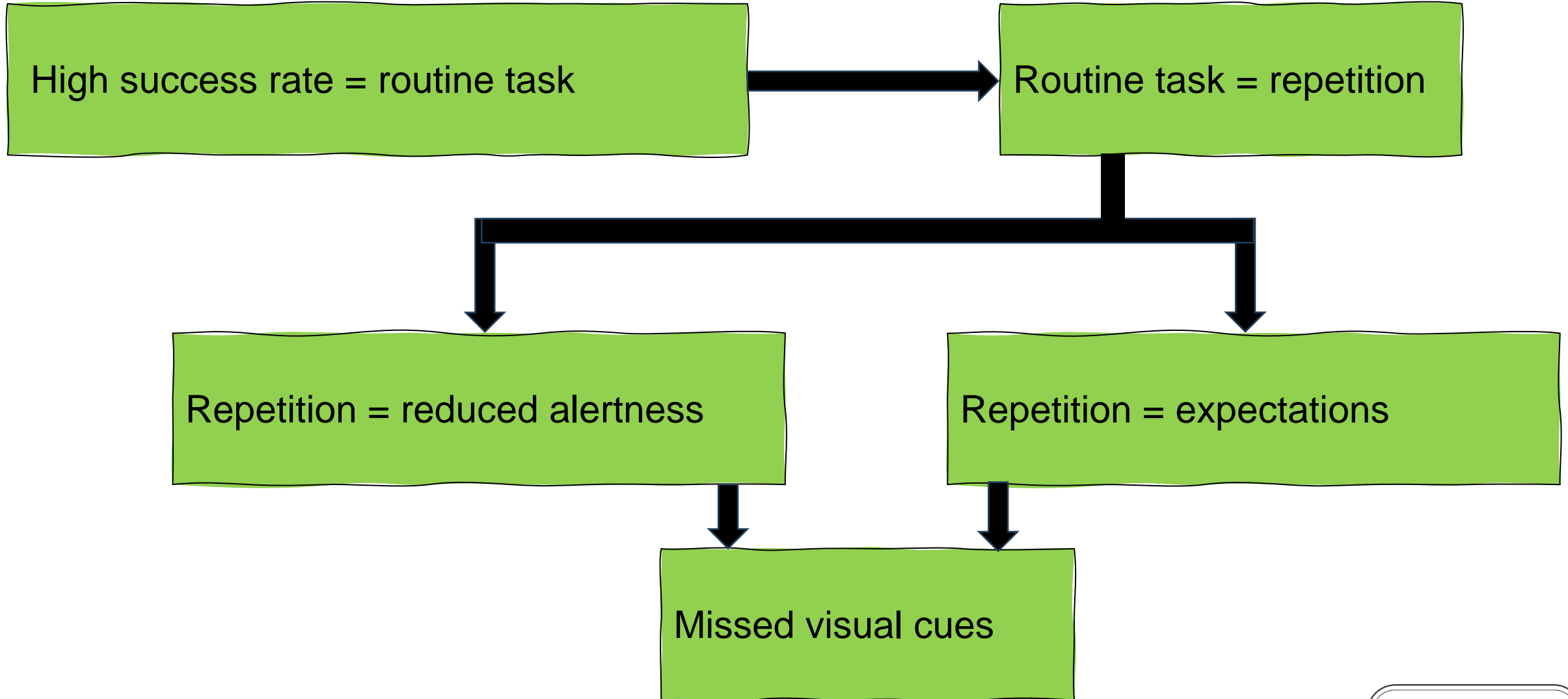
Safety learning: Door control systems

- Door control systems are not always capable of detecting objects trapped in closed and locked doors – especially clothing and straps but also hands and fingers.
- Once trapped, objects can be very difficult for a passenger to pull free.
- Important that staff are trained and understand the limitations of door control systems and the meaning of door interlock indications.
- Technology such as sensitive edge and anti-drag systems are already being used by some operators, and need be more widely adopted, particularly when new trains are being ordered and specified.

Safety learning: Final safety checks

- Not as simple as they sound . . .
- Often a dynamic process – sometimes started when door closing sequence begins.
- Quiet trains and platforms = people attempting to board or alight last second are sometimes missed.
- On the other hand, busy platforms can lead to obscuration by other passengers, or trains having to be dispatched from busy rush hour crowded platforms with restricted view of dispatch corridor.
- People sometimes not conspicuous on CCTV images – may only occupy a small part of the overall image and/or not stand out from the surrounding environment.
- More monitors = more images to check = scanning technique is critical.
- Over reliance on door interlock indication to mean that nothing is trapped.

Safety learning: Loss of attentiveness



Safety learning: Interaction of passengers with trains

- Rushing to board/alight when the door closure warning sounds.
 - the 'hustle alarm' can encourage people to rush to get on/get off.
- Placing hands/objects in between doors to get them to reopen.
 - RSSB research has shown that 58% of passengers mistakenly believe that the doors of a train will reopen like a lift door
 - On some types of train fitted with sensitive edge control systems, the doors may re-open in this way, so passengers may see this behavior and think it applies to all trains.
- When trapped, a passenger may expect that a train will not move because they are trapped in the doors, or a member of staff will know they are trapped.
- We have recommended research to better understand the way that passengers interact with rail vehicle/tram doors.

Safety learning: Gaps between platforms and trains

- This is more than the stepping distance – though large stepping distances can cause people to lose their footing and fall in the gap between the train and platform edge.
- Gaps exist between the train bodyside and the platform edge and between vehicles.
- Curved platforms result in narrowed and enlarged gaps at different points along the train and platform edge.
- We have recommended that the industry considers the actions needed to mitigate the risk created by these large gaps and that its risk assessments take account of platforms where such gaps exist.

Safety learning: passengers whose use of the railway exposes them to greater risks

- Passengers with visual, mobility or other impairments may be at greater risk on station platforms and when boarding or alighting from trains.



Platform with no tactile surface markings at Eden Park.



RAIB investigations; broad lessons

- Those responsible for dispatching trains or trams need sufficient support, equipment (including that associated with driver only operation) and training.
- Operating companies must continue to educate passengers, particularly that train and tram doors do not behave like lift doors, a commonly held misconception.
- Gaps should be minimized; not just stepping distances at the doorways, but also platform to bodyside, and inter-vehicle gaps.
- The pursuit of technologies to better assist train dispatch staff to detect people or items which may become trapped in train doors.
- Risk should be assessed, and consequent spending decisions made, at individual platforms and not aggregated over many, in an area or on a particular line.

Thank you

