

# Accident Causation: Psychological Factors – Part 1

Patricia Murray

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### Learning Outcomes

Having completed all of the learning activities associated with this lecture, you should be able to:

- Show understanding of the different approaches to analysing an accident
- Demonstrate an insight into the human factors approach to accident causation
- Suggest different reasons for any accident, including socio-technical, physical and psychosocial



### Accident Causation: Psychological Factors Part 1

Key frameworks and developments in accident causation – psychological factors

### Part 2

Safety culture – innovations and change

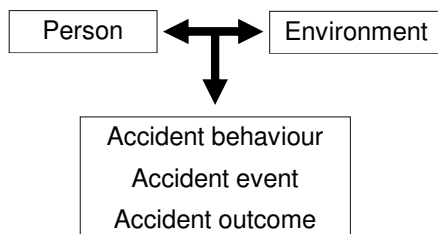


### Accident Causation: Psychological Factors

- Research
- Current view is that an accident is a dynamic process:
  - Causes
  - The event itself
  - Outcomes



### Model of Accident – Process



Behaviour is a function of the person and the organisation.

$$B = F(P \times O)$$

Accident behaviour

Lewin, K. (1932)  
Social psychologist



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## Traditional Approach

- Focus on the person:
  - Negative
  - Blame the person approach
  - Carelessness
  - Negligence

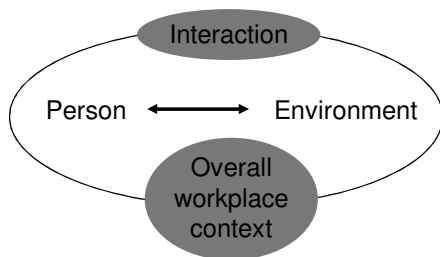


## Traditional Approach

- Work in recent years has highlighted the complexity of:
  - Accident causation
  - Solutions to accidents
  - Problems



## Current Approach



## Approaches to Accident Understanding

- Overall pattern
  - accident rates
- Behaviour over time distribution by:
  - months
  - weeks
  - days



## Approaches to Accident Understanding

- Severity of the accident:
  - to people
  - to property
  - medical
  - insurance
  - lost wages



## The Accident Sequence

- Interaction: person and environment
- Accident behaviour
- Accident event




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### Accident Theories of the Person


Accident proneness

- Early approach
  - faulty attitude of person
  - faulty judgment of person
  - impulsiveness
  - risk-taking




### Human Factors Approach

Physical abilities	➔	Vision Hearing Sense of smell Reaction time
Perceptual understanding	➔	Judgment Reasoning Training and learning Job knowledge
Personality traits	➔	Risk-taking Stable / neurotic



### Errors


The **error** process can be viewed as being similar to the **accident** process in that it is initiated by an interaction between human characteristics and a situation (setting, piece of equipment, etc.)



### Classification of Errors


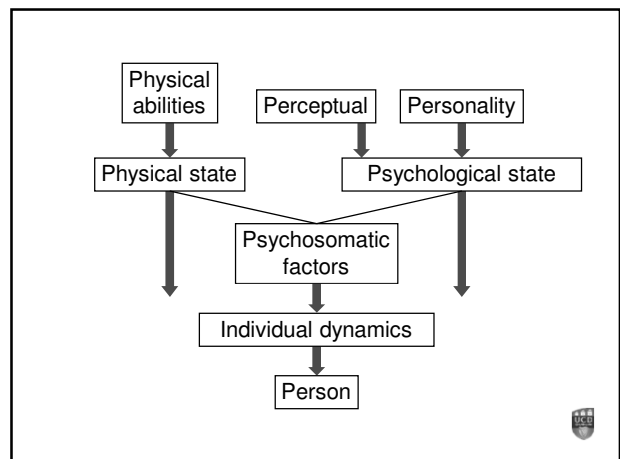
Questions about human error

A: Behaviour	What?
B: Contextual	Where?
C: Conceptual	How?
D: Source - cause	Why?



### Questions about Human Error

- Problem-solving
- Decision-making
- What are recurrent error forms?
- How much control do I have? (Cognitive control)

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## Organisational Factors

- Selection and training
- Development activities
- Practice - perfectionism
- Occupational health support
- Psychological support
- Management support
- Colleague support

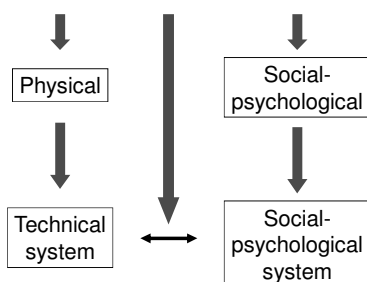


## The Environment: Physical

- State of equipment
  - Design
  - Ergonomics – for human use, every day?
- Environmental work conditions:
  - Design
  - Heat/Cold
  - Space
  - Noise
  - Light



## The Environment: Organisational Setting



## Recent Approaches to Risk assessment and Risk Prevention

- Socio-technical approach - machines and people, not just one or the other
- Attitude of organisation to safety – leaders and supervisors especially important
- Promotion of health and safety
  - safety consciousness/climate/'speak'
- Safety culture – influences perceptions, which go on to influence behaviours



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Key frameworks and developments in  
accident causation – psychological factors

## Part 2

Safety culture – innovations and change

