



Preventing Fatalities in the Mining Industry by Validated Prediction of Preferred Risk Profiling

RussellConsultingTM
leadership – safety – people



Source – Minerals Council of Aust.

What's going on?

- Unrecognised risk is “baked into the system”
- Cognitive Bias in risk recognition
- Inadequate protocols
- In short – the value for identifying and removing risk is not in the DNA of the organisation

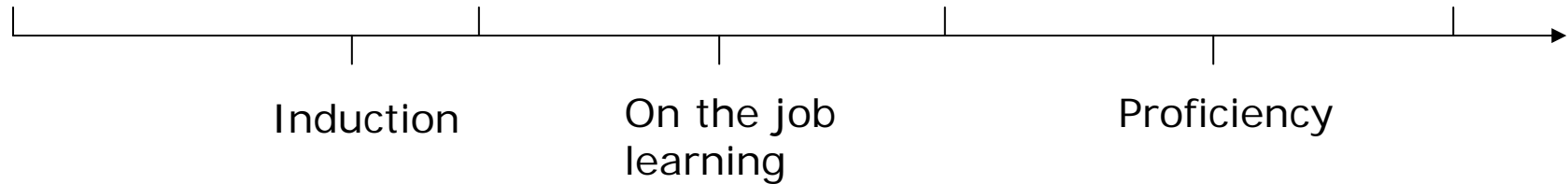
Employee Lifecycle

Selection &
Assessment

Training

Specialist
Support

Teaching
Others



What to measure?

Motivation is a good place to start, but not in isolation to everything else that person is expected to do. By this I mean;

- The job they do
- The environment they work in
- The people they work with



Key Safety Competencies

Safety Orientation

- Values safety, follows safety procedures
- Looks out for their own safety and that of others

Locus of Control

- Internal = takes responsibility for their own safety
- External = blames others or situation for incidents, makes excuses

Attention to Detail

- Identifies even minor mistakes or hazards early to prevent exposures
- Performs safety checks/procedures thoroughly and accurately

Conscientiousness

- Setting high standards for one's own safety and work
- Shows commitment and pride in safety performance

Teamwork

- Communicates effectively with team members regarding safety issues
- Is a team player; cooperates with others to achieve common goals

Key Safety Leader Competencies

Adapting to Change

- Embraces safety change initiatives
- Remains flexible and works well with others during stressful times

Empowering Others

- Provides necessary resources & support to achieve safety excellence
- Empowers reports to make decisions and be open about safety

Safety Leadership

- Adheres to the highest ethics in making safety decisions
- Takes strong ownership over safety decisions and outcomes

Decision Making Style

- Considers all possible consequences prior to making safety decisions
- Relies on logic and experience rather than emotions in making decisions

Personality and Safety Outcomes

Personality Factors

- Agreeableness, Emotional Stability predict incidents across industry and job type
- Openness to Experience, Conscientiousness predict incidents in some industries and jobs

Locus of Control

- Predicts incident frequency and severity
- Those with External Locus of Control have incident-related medical costs over 2.6 times higher than those with Internal Locus of Control

Validation Background

Assessment for entry-level manufacturing positions

Study 1

- 384 production employees at 14 facilities
- Validated against safety ratings and incident rates

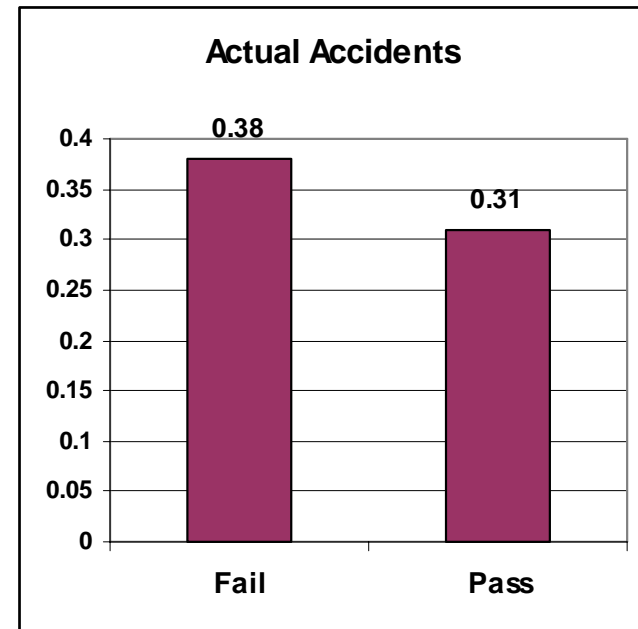
Study 2

- Employees hired using assessment over past 24 months
- Compared incident rates for employees hired with assessment vs. those hired without it

Findings

Study 1 – Employees who failed Safety Orientation scale:

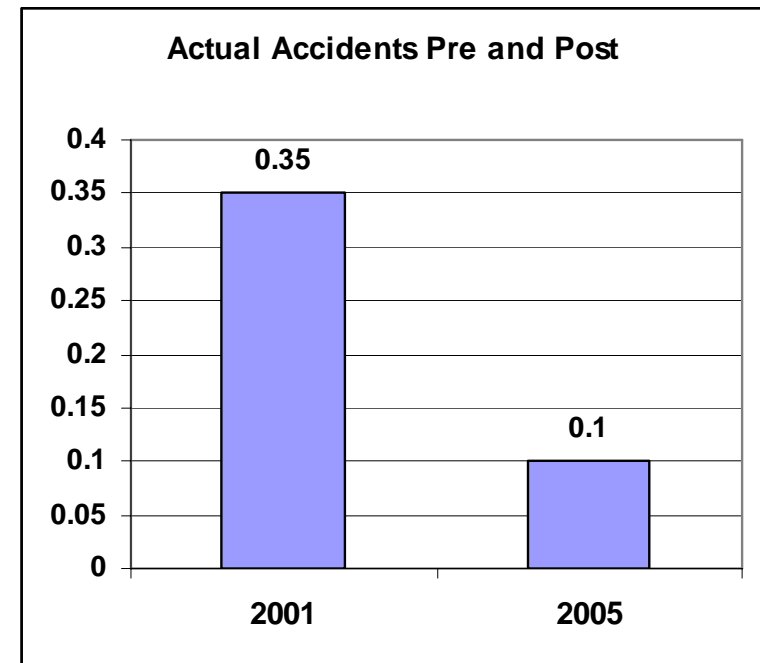
- Had **lower** safety ratings
- Had **more** incidents



Findings

Study 2

- 70% fewer incidents 2 years after assessment was in place
- Significantly lower incidents for those hired with assessment vs. those hired without it



Predictive Job Performance

Coefficient Range

Strength of Relationship between Predictor and Criteria

$r = .00 - .19$	-	Little, if any, relationship
$r = .20 - .29$	-	Small/Moderate relationship
$r = .30 - .39$	-	Moderately strong relationship
$r = .40 - .50$	-	Strong relationship
$r > .50$	-	Very strong relationship

Normative Data

	Overall Predictor Score	Flexibility	Org. Citizenship	Problem Solving	Quality	Organisational Discipline	Teamwork	Work Tempo
Blasting Technician Predictor Score	.83	.31	.23	.98	.85	.83	.95	.55
Roof Bolter Predictor Score	.57	.59	.63	.32	.63	.61	.62	.56
Haul Truck Driver Predictor Score	.46	.34	.43	.69	.36	.51	.23	.63

How not to kill people ...

Consciously recruiting for ‘safe’ people goes beyond awareness;

- It’s a process that must have **reliable objective measures**
- Valid results only come from applying the process **consistently**
- It must happen **early** - as a part of a structured process
- What you’re looking for is ‘**propensity**’ not the behaviour itself
- What you get is a reliable indicator that one person is **inherently safer** than another



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177B Dorcas Street, South Melbourne Victoria 3205 Australia
Tel: +61 3 9696 3166 Fax: +61 3 9696 6788 www.russellconsulting.com.au