The Field Guide to Understanding Human Error

A Review

Andy Evans
RAeS EMSG
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Introduction

• Sidney Dekker is Professor of HF & Flight Safety at Lund University, Sweden
• This book was published in May 2006
  – Dramatically rewritten version of ‘The Field Guide to Human Error Investigations’
• Contrasts a ‘New View’ with an ‘Old View’
  – Some may consider certain elements controversial
• Some key concepts have been extracted here
  – Paraphrased & abbreviated where necessary
    • Any errors in this summary are mine alone
  – My own ‘original’ input is in italics
## On What Goes Wrong

<table>
<thead>
<tr>
<th></th>
<th>Old View</th>
<th>New View</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human error is...</strong></td>
<td>Found at the end of a HF investigation. Cause of trouble. Abnormal.</td>
<td>Found at the start of a HF investigation.</td>
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<tr>
<td></td>
<td></td>
<td>Symptom of systemic trouble.</td>
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<tr>
<td></td>
<td></td>
<td>Often ‘normal’ - there are always holes in Swiss Cheese.</td>
</tr>
<tr>
<td><strong>A function the...</strong></td>
<td>An individual</td>
<td>The system</td>
</tr>
<tr>
<td><strong>Explained by ...</strong></td>
<td>Applying labels to the poor decisions &amp; actions</td>
<td>Focusing on why the decisions &amp; actions made sense at the time</td>
</tr>
</tbody>
</table>
### On How to Get it Right

<table>
<thead>
<tr>
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<th>Old View</th>
<th>New View</th>
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</thead>
<tbody>
<tr>
<td><strong>Complex systems</strong></td>
<td>Inherently safe but <em>humans are the hazard</em> (bad apples theory)</td>
<td>Not inherently safe with continual balancing of safety vs efficiency</td>
</tr>
<tr>
<td><strong>To enhance safety</strong></td>
<td>React to minimise freedom at the sharp end (e.g. automation, tight SOPs &amp; close supervision)</td>
<td>People make the systems safe (<em>humans are the heros</em>) so we use people to drive proactive improvement</td>
</tr>
<tr>
<td><strong>Solutions are...</strong></td>
<td>Very specific, often local, quick fixes <em>or reminders not to...</em></td>
<td>Wider changes based on deep systemic learning</td>
</tr>
</tbody>
</table>
Responses to Errors

- **Old View:**
  - Blame & Train
    - Alternatively:
      - ‘Just Investigate’ then Train
        - Still reactive but better reporting
      - Just Train (on HF) – Then Blame
        - Proactive & reactive but with more severe reaction
  - Closer supervision
  - Tighter procedures
  - Weed out the bad apples - “Being bad is an individual choice”
    - Reactively pre-empt their next failure

- **New View:**
  - Only people keep complex systems safe
  - People don’t come to work to fail
  - Safety is created through practice
    - Proactively equip people to succeed
Hindsight Bias

• When investigating errors you need to be aware of your potential reactions to errors:
  – Retrospective: You have plenty of time to gather data & analyse. You can have the luxury of knowing the outcome & being able to research the circumstances.
  – Proximal: You now focus on the people you think are close to the events.
  – Counterfactual: You then work out how they could have avoided the outcome that they didn't know was coming.
  – Judgemental: You then make judgement on their failure to prevent that outcome.

• If an investigator is not truly independent they can do a ‘Performance Appraisal’ not an investigation
  – Digging out ‘relevant’ past evidence - knowing what to look for

• To have a hindsight bias is to be ‘Old View’
  – You will not be able understand human error this way
To Understand Human Error

• Reconstruct the actual changing circumstances the person was working in:
  – Easier than ‘recreating’ unobservable ‘human factors’ (e.g. labelled as ‘fatigue’, ‘distraction’, ‘loss of situational awareness’)
  – There is a strong two-way relationship between circumstances & behaviour:
    • Peoples behaviour changes the situation
    • The situation changes people behaviour

• You will then be able to show:
  – How system changed over time
  – How assessments & actions evolved in parallel
  – How the system influenced those assessments & actions
Labelling

• The label ‘Human Error’ is an unsatisfactory explanation for accidents
  – But so is the use of narrower labels:
    • ‘Crew had a loss of situational awareness’
    • ‘They did not comply with the procedure’
    • ‘The shift supervisor was complacent’

• Valuable learning is obscured by fixating on bland ‘folk law’ labels
  – Yet classifying / labelling errors is a popular activity, and the associated schema & their occurrence rates are frequent research topics
Folk Law Labelling Example

• **Scenario:**
  – Engineer with 2 hrs to end of shift starts a job
  – It is estimated to take <90mins
  – In fact this time it proves troublesome - 3 hr job

• **The choice then is a Catch 22:**
  – 1) Stay on after hours
  – 2) Hand over a part finished job to a fresh engineer

• **If an incident occurs due to an misorientated component it would be easy to label as either:**
  – 1) *Fatigue* affected completion of demanding task
  – 2) *Poor hand over* of a half finished demanding task
  – And add *poor planning* too for starting it at all!

• **But do these labels really help us understand what happened or how to avoid it?**
Safety Culture

• A good safety culture allows the management to hear bad news so they can act on it.

• Two challenges:
  – The ‘Easy’ One: People need to feel relevant & be empowered, have a mechanism to pass the bad news & there to be a commitment to act.
  – Far Harder: To decide what is genuine bad news.
    • Complex systems are noisy
      – There is lots of news (good, bad & uncertain)
    • Independent audit / monitoring helps.

• All organisations have room to improve.
  – One with a poor safety culture does not necessarily have more room to improve.
  – It is just less willing & less capable of improving.
Safety is a Tough Job!

• Safety Departments are sometimes pushed into:
  – Tabulating regular statistics that are then just filed
  – Compiling compliance evidence to have on the shelf
  – Cheerleading or nagging over the past accident rate
  – Being seen only as a cost centre that slows down production
  – Being excluded from advising on production trade-offs that affect safety
  – Providing just enough evidence to nail the guilty
  – **Being the apologist to external auditors & investigators**
    • Including: “We found this so why didn’t you?”

• Diversion from asking the real hard questions
A Safety Department Needs

- Significant independent resources
- Direct high level access
- Constructive involvement in management activities & decisions
- To favour qualitative intelligence on safety performance over quantitative metrics
- To be staffed by safety professionals who are grounded in the operational realities
  - *Not simply ‘ex-pilots’ or ‘ex-engineers’*
A Safety Dept Should

• Be sensitive to wider concerns:
  – Investment in safety is easier if production goals are being achieved

• Provide persuasive safety intelligence

• Be concerned ‘outsiders’ who understand the ‘inside’ of the organisation

• Be above all:
  – Informed, independent, informative & involved
Accepting the New View

• Recognise that human errors are symptoms of organisational problems
• Develop an unease with your organisation, rejecting blame & knee-jerk quick fixes
• Recognise that people make the system safety
• Invest in systemic improvements
• Ultimately: learn how to learn from failure, manage how you manage safety