



In this series, human performance issues are addressed by leading researchers and practitioners in the field. **Steven Shorrock** gives some insights on the concept of 'human error' and the idea of 'honest mistakes'.

What is 'human error' anyway?

It's a good question, and one that is surprisingly difficult to answer. There is little agreement on what 'human error' means. Psychologists prefer to define errors according to deviations from intentions, expectations, cognitive processes and states, or personally preferred outcomes. Safety and design specialists may refer to deviations from norms, rules and standards, such as those prescribed in procedures or design documentation. For the judiciary, what is relevant is the law, which may be infringed unintentionally or knowingly. A key difference is the standard for 'non-error' against which we judge an act or omission. That standard may belong to the subject person, another person or group, an organisation, or society. It may be applied in foresight or only in hindsight. Some 'errors' have no unwanted outcomes, or even outcomes that are better than we intended or expected. The outcome is relevant to whether we judge something to be erroneous...but that outcome may take many forms and be affected by many things.

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So how can we define 'human error'?

To be comprehensive, we could say: "Human error" is the commission or omission of a human action, or a psychological state or activity, which is inappropriate in light of personal

expectations, and/or intended behaviours/states, and/or prescribed written or unwritten rules or norms, and/or potential or actual outcomes and/or others' evaluations." But that is quite complicated, so we could reduce it to: "Someone did (or did not do) something that they were not (or were) supposed to do, according to someone."

And what about an 'honest mistake'?

This isn't much easier because it sounds tautological; real mistakes are honest. But you could say that dishonest acts (such as forgery) may ultimately be a mistake for a person because things do not work out as they want. With the term 'honest mistake', people are emphasising that the intent is sincere, they are trying to achieve a good outcome, and that the conduct is reasonable. The latter is usually the main discussion point.

Why is 'human error' a controversial concept?

We all do and say things that we don't mean to do and say. Such 'slips' and 'lapses' concern action execution, attention, perception, and memory, in the wider context in which we act. We all also do things that we do mean to do, but with outcomes that we do not expect or want. These are typically decisions. Such 'mistakes' combine limitations in underlying

information gathering, planning, prediction, judgement and reasoning, with aspects of the context in which we make decisions. To some extent, we can design tasks, tools and the environment, and train people, to reduce such occurrences, and in some instances eliminate them, but they will always happen in some form.

There is controversy about how we can put all of these things together under one label. But the bigger controversy is associated primarily with causality. We often think of errors as ‘causing’ unwanted events such as accidents, even counterfactually (an omission caused an accident). But especially in high-hazard, safety-critical systems, this ignores all of the other relevant ‘causes’. How could an action or omission in a volatile, uncertain, complex, and ambiguous operational situation ‘cause’ a disaster? What about prior actions and omissions, such as an organisational omission to protect operators and the public from such normal, inevitable and predictable variations in behaviour?

This brings to mind my favourite comic of all time: Gary Larson’s absurdist Far Side illustration. Ted, seated on an aircraft by a window, is thumbing for the recline button. Just below the armrest is a set of buttons, including volume, channel, light, cabin crew call button, and in place of the recline button is red toggle switch labelled “WINGS STAY ON” and “WINGS FALL OFF”. “Fumbling for his recline button, Ted unwittingly instigates a disaster”, reads the caption.

In some situations, ‘errors’ would be the norm, because of the context (e.g., a badly designed interface). Are these errors? You could say, yes; no-one would want the wings to fall off. But how could it be possible? It’s errors all the way back, unfortunately, but only one is in the spotlight. Of course, Ted’s situation is absurd, except that some staff are not protected from situations where disaster is just around the corner. The point is that when we assign ‘error-as-cause’ in a complex system, we focus on one decision or fragment of behaviour, usually in difficult circumstances, while ignoring thousands of others, earlier in time.


How are errors considered in psychology and human factors?

There are many methods for the classification and analysis of errors. The most well known is probably James Reason’s distinction between slips (unintended actions and speech), lapses (forgetting), mistakes (decisions with unwanted outcomes). But several methods make fine distinctions between errors, resulting in hundreds of error types that

we recognise even in everyday life. But in an organisational setting, identified ‘errors’ can become detached from the inseparable context. And so, we’re left with ‘human error’ as the focus, instead of the complex interplay of societal and organisational life – including the associated values, decisions, and non-decisions – that make it too easy for things to go disastrously wrong.

To make things more complicated, we learn from our mistakes (less so from our slips and lapses), or at least we hope that we do. In a sense, mistakes are necessary for learning, but ideally in a fail-safe context.

What other terms are used instead ‘human error’?

It is helpful to use a variety of terms to be more specific. We might, for instance, talk about how someone was resolving a goal conflict. If someone didn’t do something, it is likely they were doing something else that was or could have been important. We might talk about trade-offs. Often, we can be very efficient or very thorough, but not both. We might also talk about performance variability. Our performance varies constantly, in ways we want and do not want. Or we might talk about how we make decisions under uncertainty. Sometimes, it helps not to use a term at all – just state what you mean more precisely. This helps to avoid different interpretations of terms that we assume have a shared meaning (assumption being efficiency-thoroughness trade off, in itself). 

Further Reading

Read, G. J. M., Shorrock, S., Salmon, P. M., & Walker, G. H. (2021). State of science: Evolving perspectives on ‘human error’. *Ergonomics*, 64, 1091-1114.
<https://www.tandfonline.com/doi/abs/10.1080/00140139.2021.1953615>



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