

Amy Stokes-Waters

MAY I HAVE YOUR **ATTENTION** PLEASE?

The ultimate
guide to
engagement
in immersive
learning.



Dedication

Well... This is cool!

May I Have Your Attention, Please?
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I never thought I'd have the patience to write something long enough to warrant a dedication. And yet here we are... twelve chapters, a business case, four research spreads, and enough references to dopamine that I now associate it with escape rooms.

So despite the hours, days, weeks... of work that have gone into this, I haven't put much thought into what to say here. Fuck.

I'll wing it. And apologise profusely to anyone I've forgotten.

Big thanks to my gorgeous other half, Dane, for repeatedly hearing the phrase "I'm just finishing this chapter, then I'll call you back" and never once getting mad at me about it. Even when I forgot to call him back.

To my daughter Margaux, for keeping me entertained with dances, keeping me fuelled with chocolate, and without whom I'd have probably got this finished

two months earlier. (But I wouldn't change it for the world).

To my Mum for her endless help with the business case. Who knew they were really hard to get right?!

To Michael and Rob for being excellent sounding boards about a thousand ideas I don't think they knew were going into here. But their patience is unrivalled, and I'm eternally grateful.

To Dee, for the proof-reading I've not asked her to do yet but will do. To Mike for filling my brain with new ideas every time we talk. To Liv for her scathing critique of my graphic design skills, and then very lovely help to fix things that looked, quite frankly, shit.

And dya know what? Thanks to me. For having the bleeding patience to write and design the thing. It's been a hard slog. But totally worth it. Cause I'm mega proud of it.

Yay me!

'Eilo! Most corporate training doesn't work.

There. I said it. And I'll be saying it a whole lot more throughout this book. So buckle up!

Yes, training exists. It gets completed. It gives us some nice shiny reports to show the board. Yada yada. But when we ask whether it actually changes behaviour... well, that's where the answers become far less convincing. And deep down, we all know that it bloody doesn't.

If it did, we wouldn't repeatedly see Verizon report year on year that human error accounts for the majority of all incidents.

And how do we respond to this brand new information? Well, we throw more content at the problem, of course. Better platforms. More reminders. More reports. The machine gets more efficient. The outcomes don't move.

And why? Well, as you'll read, the issue has never been about content. We have loads of that. It's all about behaviour. And that's where this book begins.

It's also worth noting, though, what this book isn't. It's not academic

research. It's not a theoretical model built in isolation from the real world. It's a collection of our experiences, built from working directly with some of the world's biggest brands, training thousands of people with immersive experiences. And watching how they behave when something feels even slightly real.

We've seen what people do when the clock starts ticking. We've seen where they rush, where they hesitate, where they overthink and where they don't think at all. We've seen what sticks, what gets ignored, what falls apart when the pressure's on.

More importantly, we've had the luxury of testing it properly.

As a small business, we can move quickly. We can build something, run it, break it, tweak it, and run it again. We don't need a six-month approval cycle to try a new idea. We can see what works, what doesn't, and adjust in real time. That matters.

Because what works in learning design isn't discovered in theory. It's discovered in the mess. In the iteration. In watching real people make real decisions. And asking why.

And sometimes... asking it again when the answer doesn't quite add up.

What you're about to read is built from those moments. Not the polished ones. The messy ones. The awkward clicks. The "I knew that" immediately followed by doing the exact opposite. The gap between knowing and doing is where all the interesting stuff lives. That's the bit we've been paying attention to.

This book is an attempt to make sense of that gap. To pull apart what's actually going on when people are under pressure, when attention is limited, when decisions have to be made quickly and without a safety net. Because that's the environment behaviour really exists in. Not in a calm training module with a progress bar and a cup of tea.

We're going to talk about engagement, but not in the fluffy "make it fun" way that it usually gets framed. We're going to talk about memory, but not as something you test once and forget about. We're going to talk about pressure, decision-making, consequence, and why those things matter far more than

another slide deck, beautifully designed or not, ever will.

Some of it might feel obvious. Some of it might make you wince. Good. That usually means we're getting somewhere.

If we keep treating human risk like a content problem, we'll keep getting content-shaped results. More modules. More completions. More reports. And the same damn outcomes.

If we want something different, well... we're going to have to design for something different. And that starts with understanding how people actually behave. Not how we wish they behaved. Not how policies say they should behave. But how they really, truly behave... in the moment... when it counts.

Amy.



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Foreword

My work as a behaviour change psychologist has been shaped by environments where the consequences of getting it wrong are immediate, visible, and human. Over twenty-five years applying behavioural psychology to national security - predicting the decisions of heads of state, military leaders, and actors operating under the most extreme pressures - I have observed one thing consistently: behaviour is not driven by knowledge. It is driven by context, and by the memory of every context that preceded it.



This is not a comfortable conclusion for organisations that have invested heavily in awareness-based training. But it is an accurate one.

The principles that underpin this are well-established. Memory is tied to the conditions in which it is formed - a principle known as encoding specificity. We do not simply store information; we store information alongside the context, the emotional state, and the environmental cues present at the moment of learning. When those conditions are absent at the point of recall, retrieval degrades. Transfer-appropriate processing extends this further: the cognitive demands of learning must mirror the cognitive demands of performance, or the knowledge simply will not transfer when it is needed most. Under pressure, people do not rise to the level of their knowledge - they default to what is familiar, to what they have practised, to what their environment has genuinely prepared them for. I have observed this at the highest levels of geopolitical decision-making.

The same dynamics are present in every organisation where security depends on human judgement.

The failures that concern me most rarely occur in moments of obvious crisis. They occur in moments that feel entirely routine. The familiar-looking request. The trusted colleague. The small decision made quickly because everything around it suggests it is safe to do so. These are the conditions under which human risk most reliably materialises - and they are, as this paper understands with clarity, precisely the conditions that most training fails to reach.

Human behaviour is not unpredictable. It is patterned. And patterns can be shaped.

In my own work, identifying risk before it becomes an incident depends on recognising the subtle shifts in behaviour and communication that precede a security event. What that work has reinforced, repeatedly, is that human behaviour is not unpredictable. It is patterned.

And patterns can be shaped - but only when the conditions for that shaping are deliberately and carefully created.

Much of organisational training still assumes that information will translate into action. It rarely does. The enactment effect - the well-documented finding that we remember what we do far more reliably than what we are told - points to why. Procedural and embodied memory, built through experience rather than instruction, is what surfaces automatically when time is short and attention is stretched. Layer onto that the mechanics of habit formation, and it becomes clear that behaviour under pressure is not deliberate - it is automatic. People default to what feels familiar, particularly in the mundane moments where risk is least visible. The gap between knowing and doing is not a failure of intelligence or intention. It is a predictable consequence of how human memory and decision-making actually work.

What this paper recognises, and what my own work has consistently confirmed, is that if we want behaviour to change we have to stop designing for the conditions we wish people

were in and start designing for the conditions they actually face. That means pressure. Ambiguity. Consequence. The kind of experience the brain treats as worth retaining, rather than discarding the moment the module closes.

That is what this paper is about. Not awareness. Not compliance. The deliberate creation of conditions in which better decisions become possible.

The scientific basis for this approach is sound, the evidence well-referenced. But its real value

lies in the alignment between what we understand about behaviour and how we design for it. This is a thoughtful, experience-led piece of work that reflects how people actually think, decide, and act. That alignment is exactly where meaningful change begins. And that is precisely why it works.

I recommend it without reservation.

NICOLA MEE

Former Head Psychologist,
Defence Intelligence

THE ENGAGEMENT PARADOX

Corporate learning still clings to the idea that information creates behaviour. *It doesn't.*

Humans forget almost everything that isn't emotional, urgent or felt, which is why annual training delivers immaculate audit trails and almost no instinct.

This is the engagement paradox: the gulf between what organisations want people to do and what their learning actually prepares them for. If you want behaviour to change, you have to change the moment itself.



There is a curious delusion that haunts corporate learning. It sits quietly in boardrooms and budget meetings, wearing the pleasant expression of common sense. The delusion goes like this: if you give people the right information, in the right order, they will do the right thing. It sounds reasonable. It is also demonstrably untrue.

Culture doesn't shift because a policy says it should.

The brain is not an obedient filing system. It is a miser. It hoards energy, not knowledge, and it discards anything that feels dull, safe or distant. Ebbinghaus proved it in the nineteenth century and modern evidence keeps humiliating us: humans forget roughly 50 per cent of new information within an hour, around 70 per cent within 24 hours and, without reinforcement, up to 90 per cent within a week.

This is why an employee can pass a phishing quiz at 9 a.m. and confidently hand over their credentials to a convincing stranger by 3 p.m. They have knowledge. What they lack is activation.

The engagement paradox is the truth at the heart of most training programmes. Organisations want behaviour change but invest in formats optimised for efficiency, consistency and legal defensibility. They want instinct but fund awareness. They want vigilance but approve courses engineered for rapid completion. They want a cultural shift yet deploy tools designed only to meet compliance obligations. And compliance, in the psychological sense, is the enemy of memory.

The paradox deepens when you look closely at what employees actually experience. Nobody arrives at work intending to misjudge a suspicious email or misplace a device.

Yet these incidents accumulate because employees have been told what to do but have rarely felt what it's like to get it wrong. They have never navigated the discomfort of uncertainty, the pressure of incomplete information, or the pull of a shortcut that feels harmless until it isn't. They have learned the rules but not the stakes.



The data makes this hard to argue with. A 2025 UC San Diego study of 19,500 employees found that mandatory awareness training had no measurable impact on phishing susceptibility; employees who had completed their modules were just as likely to click as those who hadn't. Meaningful change appeared only when learning was made situational, contextual and timely. Meanwhile KnowBe4's global analysis showed that when training becomes immersive and sustained, phishing-prone behaviour can drop by 86 per cent in twelve months.

The contrast isn't ambiguous, it points directly to what's broken. Organisations struggle to link learning investment to behavioural outcomes because they design for the mind they wish people had: rational, consistent, obedient. But

humans are emotional, contextual and distractable, and they lean on instinct far more than instruction.

This is the heart of the engagement paradox: you cannot change behaviour by telling people to behave differently. You can only change behaviour by reshaping the moment itself. Training that feels safe rarely produces behaviour that keeps organisations safe. Training that feels alive (relevant, emotional, unpredictable) does.

The question is not whether engagement matters.

The question is not whether engagement matters. The question is whether organisations are finally ready to design for it.

Notes

WHAT THE BRAIN *ACTUALLY* RESPONDS TO

The human brain is a spectacular contradiction. It can pull apart the most intricate patterns, forecast outcomes with icy precision... and yet, in practice, it often behaves like a nightclub bouncer with a clipboard: *ruthless, selective, and emotionally biased.*

Corporate training often treats the brain like a thirsty sponge. In reality it's the bouncer deciding which moments get past the velvet rope. Knowledge doesn't seep in, it must earn admission.

If you want people to remember something, you need to embed it in the neurological special-effects reel. That means leaning in hard on the triggers the brain genuinely responds to: novelty, emotional arousal, effort, pressure, identity, and meaning.



The Brain Loves Weird Stuff

When the brain encounters something new, something unfamiliar... odd... slightly off-centre... it doesn't observe the situation like a museum visitor reading a placard. It reacts. Instantly. Neuroscience has mapped this response in remarkable detail. Stick with it while I explain the science...

Novel stimuli provoke heightened activity in the hippocampus, which communicates with midbrain and striatal systems to allocate attention and prepare the brain for action. Or in plain English: your brain has a built-in "ooh, what's that?!" circuit. When that neural alarm rings, the brain sharpens

its senses. Perception heightens. Curiosity spikes. Exploratory behaviour kicks in. It's the mental equivalent of someone nudging you and saying "hey! Pay attention, something interesting just walked into the room!"

Think about walking into a room where nothing has changed for ten years. Same chairs. Same slides. Same presenter voice doing that slow corporate hum that sounds suspiciously like a white-noise machine. Your brain powers down like a laptop on low battery.

Now compare that to a scenario that opens on a locked-down system, conflicting logs, multiple suspects, and a slightly smug attacker leaving clues in plain sight. Suddenly the room buzzes


a little. Something's wrong. Your brain sits bolt upright like a guard dog hearing the gate creak open.

That disorientation? That's the ignition. Novelty hits you like cold water on the face. The brain wakes up. ZING!

Emotional Arousal: When Things Get Interesting...

Decades of neuroscience research tells us something slightly inconvenient for anyone designing polite corporate training: memory isn't built on calm neutrality. It needs emotional charge.

Or arousal. And yes, before anyone in the back row starts sniggering, scientists really do call this arousal. Which is a perfectly respectable scientific term, thank you very much.

Here's what actually happens. (Why does this feel like the Margot-Robbie-in-a-bath scene from The Big Short?!)


Emotionally significant events trigger the release of stress hormones, which activate a structure in the brain called the basolateral amygdala, or BLA. Think of it as a priority stamp inside the brain. When the BLA lights up, it signals to other memory systems, particularly the hippocampus, that whatever is happening right now is worth storing properly. Synaptic connections strengthen. The memory gets filed somewhere sturdier than the usual mental junk drawer.

Long-term studies confirm this pattern over and over again. Experiences that provoke emotional engagement, tension, surprise, even a small spike of "oh shit, what now?!" are recalled with far greater clarity weeks later.

Which explains why you can vividly remember that chaotic meeting from three years ago when Simon told Liz to piss off, but struggle to recall last week's mandatory training module.

THE CYBER ESCAPE ROOM CO.

SCENARIO SPOTLIGHT

THE BREACH



🕒 30 Minutes

👥 5 Players

A ransomware attack with five suspects and five possible compromise paths. Use logs, emails, bad decisions and red herrings to crack the case, call the hackers, and earn the decryption key.

LEARNING OUTCOMES



Social Engineering

Spot vishing attack techniques and see them in action.



Everyone's Responsible

Recognise that security isn't just IT's job, it's everyone's responsibility.



Role Based Attack

See how attackers target specific roles and understand your profile



Social Media Privacy

Understand how oversharing online arms attackers with data.

Psst.. find out more **CYBERESCAPEROOM.CO**

Emotion, it turns out, is the brain's highlighter pen.

The Brain Likes a Bit of a Struggle

Here's something no adult learning brochure has told you before.

Ease is forgettable. Friction is where the memory gets built. Research in neuroscience and learning psychology repeatedly shows that productive difficulty strengthens memory and deepens understanding. When the brain has to put some effort in, the learning sticks.

Think about real investigations. They don't arrive neatly labelled and colour-coded. They arrive messy. Weak log entries. Conflicting timestamps. Partial metadata. A locked file that refuses to cooperate. To make sense of it, you have to test ideas. Argue with colleagues. Revisit earlier information. And occasionally stare at a screen thinking "what the fuck?"

Your brain starts behaving less

like a passive sponge and more like one of those detectives with a corkboard full of photos and red string everywhere. That mental effort isn't a barrier to the learning. It is the learning.

It works like lifting weights. Repetition strengthens muscles. Mental effort strengthens neural pathways. By the time the answer finally clicks into place, the knowledge has weight behind it.

The Clock Changes Everything

For most of human history, decision making didn't happen in calm reflective workshops with biscuits. Our ancestors didn't have an hour to debate whether the rustling in the bushes was a rabbit or a tiger.

Reaction, fast and instinctive under uncertainty, was the default operating system.

Time pressure reveals something slides never can.

Introduce time pressure and something interesting happens. The brain shifts gears. Five minutes instead of an hour forces a change in cognitive posture.

It becomes decisive. Heuristic. Resourceful. The mental clutter clears out and attention narrows onto what matters.

It's not panic. It's activation.

Think of it like the difference between browsing in a bookshop and sprinting for a train that's leaving in thirty seconds. Suddenly your brain becomes astonishingly efficient.

Inside a training environment, time pressure acts like a kind of emotional metronome. It sharpens situational awareness and reveals something slides never can: how people actually behave when the lights go red. And that's where the honest insights live.

Give Someone A Role And Watch What Happens

People don't learn best as spectators. Trust me, I've watched about a hundred rugby matches and I still don't know the bloody rules. They learn best when they're involved.

Give someone a role inside a story... investigator, infiltrator, crisis manager... and something subtle shifts. Decisions start to feel personal. Consequences feel more immediate. Suddenly, they're not watching a scenario about security. They're inside it. The brain responds differently when identity enters the picture. Emotional engagement rises. Cognitive investment deepens.

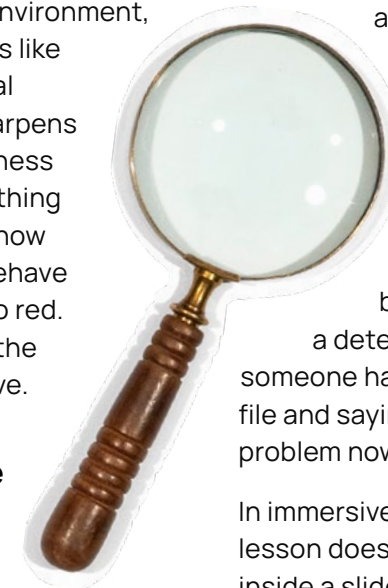
The learner isn't just absorbing information any more. They're navigating a situation. They're part of something bigger.

It's the difference between watching a detective drama and someone handing you the case file and saying, "Right. Your problem now, sunshine."

In immersive scenarios, the lesson doesn't gather dust inside a slide deck. It becomes something closer to lived experience, even if only for a short while.

Why This Actually Matters

Facts rarely inspire action.



Relevance does. The brain doesn't light up for abstraction. When cyber security is explained through frameworks, policies, control matrices, and best practice guidelines, the information may be perfectly accurate, but it often lands somewhere between polite nodding and quiet daydreaming about lunch.

Meaning arrives the moment you show what actually happens. A rushed click after lunch. A password saved in a notes app. A link that looked legitimate enough. Small decisions. Ordinary moments. Then the dominoes start falling. The intrusion, the spread, the data loss, the headlines, the awkward executive calls. Suddenly, the story isn't theoretical any more. It's recognisable. It's relatable. It's real.

Meaning requires context. Context requires narrative (we'll get onto that next). And narrative, whether we like it or not, is a design choice. Without context, compliance becomes a tick-box exercise. But with it? Something much more interesting happens. Behaviour begins to shift because people understand what their

everyday decisions can set in motion.

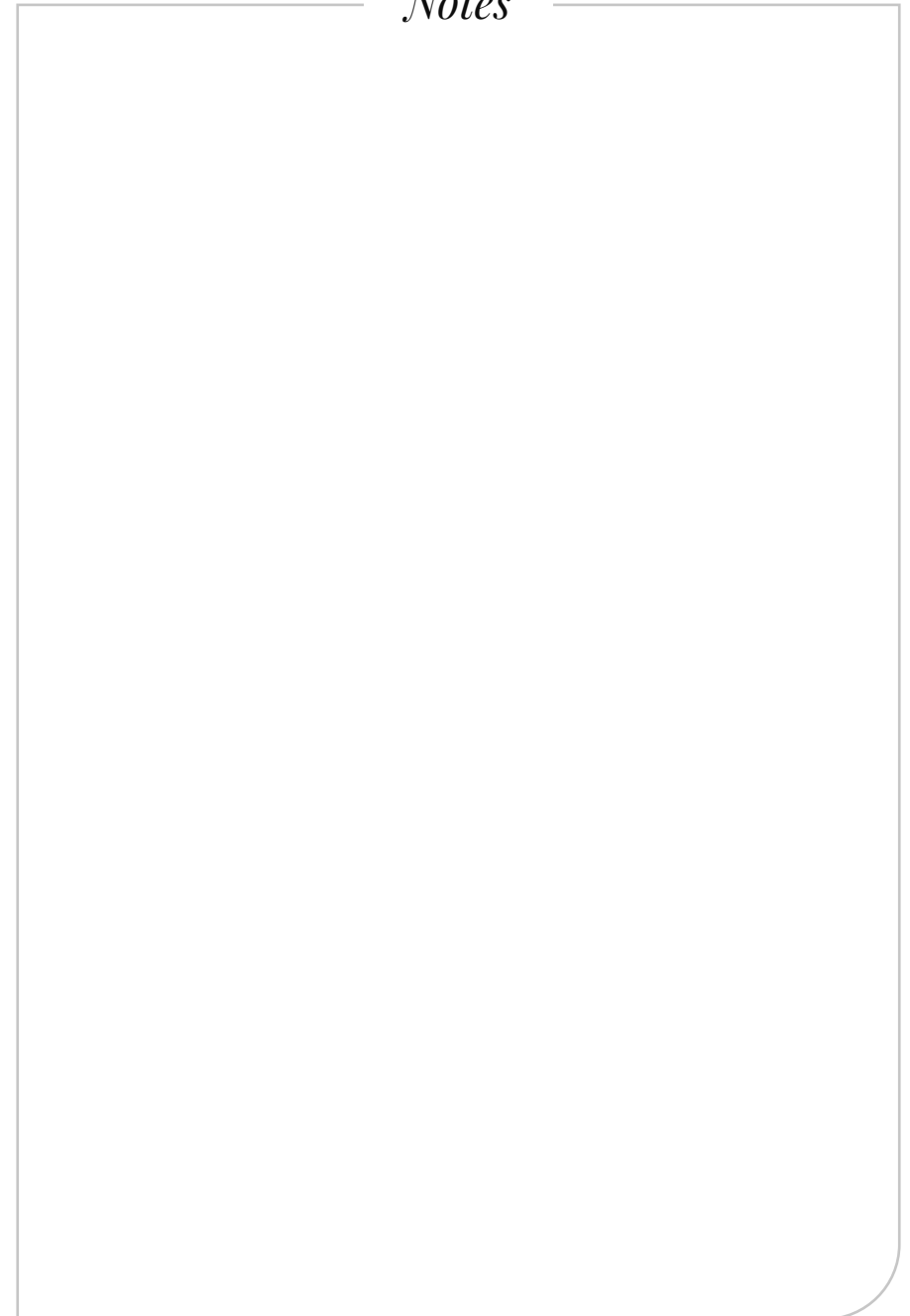
Put It All Together and Something Changes

Attention. Emotion. Effort. Pressure. Identity. Meaning. Combine those ingredients and you don't get polite awareness or surface familiarity.

You get change.

You don't just deliver knowledge. You alter instinct. And instinct is what people fall back on when the stakes are real and the seconds are ticking.

Notes



THE BRAIN DOESN'T LEARN THROUGH *SLIDES*

The brain doesn't store information. It stores experience. Here's why - and what it means for every training programme that still thinks a completed module counts as learning.



56%

Better test scores with active vs passive learning. Same students, same content, different format.

1.5x

More likely to fail if taught passively. Format does more work than anyone admits.

40%

Longer engagement and stronger retention in flow state - the right kind of difficult.

THE FINDING

Active learning consistently and significantly outperforms passive instruction - across subjects, age groups, and decades of research.

FREEMAN ET AL • PNAS • 2014 • META-ANALYSIS OF 225 STUDIES

Students in passive lectures were 1.5x more likely to fail

Researchers at the University of Washington analysed 225 independent studies comparing active and passive learning across STEM subjects. In every case, active learning produced better outcomes. Students in traditional lecture formats were one and a half times more likely to fail the same test on the same material. The authors described continuing to use passive lectures as “a failure of evidence-based teaching practice.”

HOWARD-JONES • INSTRUCTIONAL SCIENCE • 2009 • UNIVERSITY OF BRISTOL

Uncertain outcomes deactivate the brain's “not engaged” mode

Howard-Jones demonstrated that learning environments involving uncertain rewards (where the outcome is genuinely unpredictable) produce measurably stronger learning outcomes than those with fixed or predictable rewards. Uncertainty deactivates the brain's Default Mode Network, the cognitive state associated with disengagement. Immersive scenarios engineer uncertainty by design. Compliance modules eliminate it entirely.

DESLAURIERS ET AL. · PNAS · 2019 · UNIVERSITY OF BRITISH COLUMBIA

**Active group scored 70%. Passive group scored 45%.
The passive group felt they'd learned more.**

Matched student cohorts were given identical physics content under two conditions: traditional lecture and active learning. The active group scored 70% on the follow-up test. The lecture group scored 45%. When asked how much they felt they had learned, the lecture group rated themselves higher. Passive formats don't just fail to teach, they produce false confidence that removes the motivation to learn differently.

CSIKSZENTMIHALYI & SCHNEIDER · 2000 · SHERNOFF ET AL. · 2014

The right level of challenge produces 40% longer engagement and deeper retention.

Flow state (the condition where challenge and skill are in balance) produces measurably higher task persistence and retention. Shernoff's classroom research confirmed this holds in structured educational environments, not just individual performance contexts. The implication for training design is direct: the format needs to be genuinely difficult, not optimised for rapid completion.

THE PATTERN

These findings span different disciplines, different countries, and four decades of research. The result is the same every time. Active learning outperforms passive instruction. The only variable that keeps changing is the format of the training. Go figure.

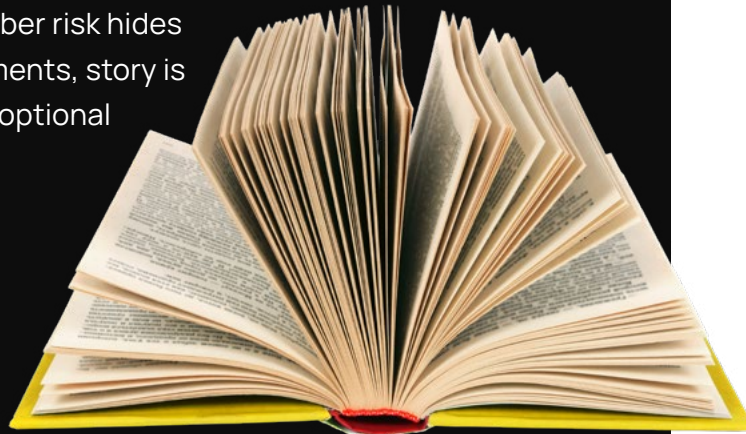
Notes

ONCE UPON A **TRAINING** SESSION

Story is the oldest learning technology we possess, wired so deeply into the human brain that we struggle to separate a well-told narrative from lived experience. When people slip into a story, their caution loosens, their instincts sharpen and their defences forget to stay folded.

Narrative transportation turns information into emotion, emotion into memory and memory into behaviour that survives pressure.

In a world where most cyber risk hides in those tiny human moments, story is the mechanism, not the optional extra.



Long before organisations invented security policies, before there were compliance modules, SOC teams or phishing simulations, humans learned through stories. Stories were our first risk models. They told us who to trust, what to fear, when curiosity might get you into trouble. And, usually, what happened to the person who ignored the warning signs anyway.

A tribe didn't sit round a fire listening to a lecture about predators. They heard the story about the person who wandered too far from the path and didn't come back.

Story is the brain's default operating system.

Story is the brain's default operating system. Modern learning often treats it as decoration, a little sugar added to help the medicine go down, something to make the content easier to swallow. But narrative isn't the sugar. It's the structure that makes meaning possible.

The brain isn't a filing cabinet

waiting patiently for facts to be dropped into labelled drawers. It's a pattern-seeking animal that tries to make sense of the world through sequences, characters, motives, causes and consequences. When something confusing happens, we don't instinctively ask for bullet points. We ask "what happened?" And the answer to that question is almost always a story.

When a Story Pulls You In

Neuroscientists have a name for what happens when a story really grabs your attention. They call it "narrative transportation". It's the moment you stop watching a story from the outside and start experiencing it from the inside. The boundary between observer and participant softens a little.

You know the feeling: halfway through a film or a novel you catch yourself leaning forward, reacting emotionally to events that aren't actually happening to you. Your brain has stepped inside the scene. When that happens, something interesting follows. Attention deepens. Emotional engagement increases. And the small sceptical voice most adults

carry into training environments goes quiet for a while.

This is one reason story-based learning so often outperforms purely informational formats. Information travels through the brain with friction; it needs effort and repetition to stick. Story moves more easily because it gives the mind something to instinctively understand: a sequence of events that makes sense.

What the Brain Does With a Story

Narrative transportation is not passive immersion. It doesn't mean someone is zoning out. In fact, the opposite is happening. It's a full-body cognitive event.

When people become absorbed in a story, the brain changes how it stores the information it encounters. Instead of treating it as abstract knowledge, it begins encoding it as episodic memory, the same system used to store experiences from everyday life.

Neuroimaging studies show that when story engagement is high, sensory, motor and emotional regions light up alongside the areas involved in language and

reasoning. In other words, the brain begins simulating the situation. This explains something most people recognise from experience. You can usually recall the plot of a film you saw once many years ago, yet struggle to remember a training module you completed last week.

The difference is not intelligence or effort. It's how the brain chose to encode the information. One experience triggered the episodic machinery. The other skimmed politely across the surface.

Three Things That Change Inside a Story

When someone becomes immersed in a narrative, three subtle psychological shifts tend to happen.

First, the learner begins processing information from the character's point of view. Facts gain emotional texture because they are attached to a person and a situation rather than presented as isolated information. Decisions feel more consequential because the brain is engaging the same networks it uses for empathy and social reasoning.

Second, people start making choices that make sense within the narrative world they are inhabiting. They look for actions that fit the unfolding situation. This creates coherence between the logical and emotional layers of the experience, and that coherence helps the brain bind information to feeling.

Finally, the emotional component begins to reinforce the learning. When thought and emotion are activated together, knowledge does not sit separately from the experience that produced it. It becomes part of it. That fusion is what allows information to behave more like instinct than instruction later on.

Why Story Lowers Resistance

Let's be really real. Most adults enter a corporate learning environment with a degree of scepticism, the emotional equivalent of folded arms and a pout. Years of mandatory training has convinced them to expect another hour of their life they won't get back.

A good narrative changes that dynamic. It doesn't demand attention. It earns it. Stories invite participation not by asking the learner to accept a lesson but by offering a situation. Instead of being told what they should know, the learner becomes curious about what is happening.



They arrive with the emotional equivalent of folded arms and a pout.

Imagine two openings to the same training session. In the first, a slide appears explaining the importance of verifying unexpected requests. In the second, a message arrives from a senior colleague asking for urgent help with a “confidential transfer” before the end of the day. Nothing is explained yet. The learner simply has to decide what to do next.

One format delivers information. The other creates a moment. And the moment invites participation, because the brain immediately starts asking the same question

it asks whenever something slightly suspicious happens in real life: what’s going on here?!

Research on narrative transportation consistently shows that when people become immersed in a story, their cognitive

resources concentrate on following the narrative rather than resisting the learning environment.

Neuroeconomist Paul Zak found that emotionally engaging stories trigger the release of oxytocin, a neurochemical linked to empathy, attention and trust. When that response is activated, people are significantly more likely to act on what they’ve heard.

The effect carries into memory as well. Research from Stanford found that 63% of people remembered stories from a presentation while only 5% could recall a single statistic. Stories aren’t just more engaging. They’re twelve times more likely to be remembered.

Story doesn’t remove scepticism entirely. But it does redirect attention for long enough for the lesson to slip in.

Curiosity Does the Rest

Curiosity plays a surprisingly large role here. Narrative doesn’t ask for blind belief; it asks for intrigue. It introduces uncertainty. Something is happening. You are involved. Pay attention. And that alone lifts story-driven learning above the flat monotony of conventional training.

That small shift moves the learner from passive observer to active participant. Instead of absorbing information, they begin asking questions, forming hypotheses and testing ideas against the unfolding events. The brain responds very differently when curiosity is involved. Attention increases, motivation rises and the learner begins investing cognitive effort voluntarily rather than out of obligation.

Story as an Emotional Simulator

Ever noticed your heart start racing as you skim the final pages of a novel? You know it’s fiction. And yet your body behaves as if something real is happening. Your attention sharpens, your breathing slows, and suddenly you’re completely inside the moment.

That reaction reveals something important about how the brain processes narratives.

One of storytelling’s superpowers is its ability to simulate emotional pressure without the real-world consequences that normally accompany it. Stories, in that respect, become rehearsal spaces for instinct.

Research into narrative shows that it activates multiple regions of the brain at once. Emotion, imagination and reasoning begin working together as the brain mentally simulates the situation unfolding. Instead of analysing a problem from a distance, the learner starts experiencing it.

You can see this clearly in our escape room scenario, The Breach. Excuse the thinly veiled sales pitch. But just roll with it.

The exercise begins with a simple but unsettling premise: overnight, your organisation has been hit with ransomware. A group calling themselves The Breach Collective claims they gained access using a single compromised set of credentials, and they’ve delivered a backpack containing the clues needed to uncover how the attack happened. The team has thirty minutes to investigate before the attackers permanently encrypt the company’s data.

From that moment on, the learning unfolds as a sequence of small discoveries. Players sift through suspect cards, examine access logs, decode messages and piece together fragments of digital evidence. Each step answers one



question while raising another. Which account was compromised? Where did the breach occur? How did the attacker get the credentials in the first place?

The tension isn't theatrical decoration. It mirrors the emotional conditions of real incidents: incomplete information, conflicting evidence, and the steady pressure of a clock that keeps moving regardless of how confident you feel.

Eventually, the trail leads to a vishing call, revealing how an attacker impersonated a trusted contact to obtain login credentials. By the time that moment arrives, participants aren't simply learning about social engineering as a concept. They've followed the breadcrumbs that led to it. The discovery feels earned.

Story, in other words, creates the sensation of risk without the cost of risk. And it is inside that sensation, not in the bullet points that follow it, that memory tends to form.

When Identity Shifts

One of the most profound impacts of story comes from its ability to shift identity, even if only for an

hour. When someone steps into a narrative, they stop thinking of themselves as someone attending a training session and begin inhabiting a role within the scenario. They become the analyst, the insider, the investigator.

When individuals are deeply engaged in a story, their attitudes, behaviours and beliefs become more malleable. For a moment, they see through a different lens and act accordingly.



Behaviour follows identity far more reliably than it follows instruction.

Identity is behavioural fuel. If someone sees themselves as an investigator, they behave like one. They pay attention differently. They spot anomalies that would slide past them in a lecture. They make decisions with a seriousness that a worksheet could never conjure. Story gives them a temporary but powerful costume change. And behaviour follows identity far more reliably than it follows instruction.

Identity is a fast route to instinct. And instinct is the only defence fast enough to keep pace with real attacks.

When Story and Behaviour Meet

The most interesting effect of narrative learning often appears later, outside the learning environment entirely. A learner receives a suspicious phone call and experiences a flicker of the same doubt they

encountered during training. Another hears an unusual request from a colleague and feels the same uneasy alertness that a carefully engineered scenario produced, scene by scene.

In those moments, the learner is not recalling a rule. They're recalling a feeling. And feelings are much faster than rules.

Emotional memories also persist longer than purely factual ones, which means the influence of a well-designed story can continue long after the learning experience has ended. Storytelling in educational settings consistently shows improvements not only in recall but also in learners' confidence when applying knowledge in unfamiliar situations.

Story doesn't change behaviour by telling people what to do. It changes behaviour by allowing them to experience, even briefly, what a risky situation feels like. And in a world where most cyber incidents begin with ordinary human moments, a rushed click, an unquestioned request, a flattering voice on the phone, emotion is the mechanism, not the distraction.

FUN IS *NOT* FRIVOLOUS

Fun is treated like contraband in the boardroom, smuggled past executives terrified it will contaminate their sense of seriousness. Yet neuroscience offers a more scandalous truth.

Fun is not the opposite of work. Fun is the ignition system of human cognition. Strip it out and you don't get professionalism. You get teams learning at half-power, thinking in low voltage and behaviour change that never quite sticks.



Fun is a word that rarely survives the long march from the design studio to the boardroom. Too easily mistaken for silliness, too easily swatted aside by people in lanyards who believe gravitas is something you can order through procurement. Fun sounds unserious. It sounds like the sort of thing that happens on Friday afternoons when HR wheels out the pizzas and calls it culture.

Yet in psychological terms, fun is one of the most powerful behavioural instruments we have ever evolved. The trouble is not that fun is childish. The trouble is that most leaders have absolutely no idea what fun actually is.

In cognitive science, fun is the moment where challenge and competence collide at speed. It is not noise. It is not distraction. It is the quiet, electric lift you feel when your mind realises it is firing on all cylinders. Anticipating. Testing. Adjusting. Chasing down small victories against uncertainty as if your brain has just remembered it was built for this. That brief internal "oh shit!" moment is what we experience as fun.

Psychologist Mihaly Csikszentmihalyi (that's Me-hi chick-sent-me-hi for those of you wondering how to pronounce his name) described a version of this state as "flow": the moment when challenge and skill meet in a balance that pulls attention completely into the task. When that balance appears, attention sharpens, time distorts, and the mind becomes unnaturally persistent in its search for resolution.

Humans have been wired this way since the first ancestor squinted at footprints in the dirt and realised it meant survival. Pattern recognition felt good. Discovery felt good. Progress felt transcendent. Dopamine didn't arrive on the neurological scene to make your day pleasant; it arrived as a flickering lantern for the mind, signalling the way toward anything that might keep you alive a little longer.

Fun is not indulgence. Fun is information. Organisations tend to treat it as optional. The brain treats it as guidance. And if that doesn't rattle the boardroom windows a little, it probably should.

The Chemistry of Curiosity

Over the years, dopamine has been mischaracterised more than any chemical deserves. Poor thing never asked to be the poster child for pleasure. In reality, neuroscientists describe it more accurately as a motivational signal. It does not reward us for enjoying something. It pushes us to keep pursuing something that appears promising. It sharpens attention. It fuels curiosity. It compels the mind to return again and again until the puzzle finally yields.

Dopamine never asked to be the poster child for pleasure.

This is why fun matters enormously in learning environments. It keeps people inside the task long enough for understanding to take shape. No white-knuckled willpower. No grim determination. Just a mind following its own chemical momentum.

When people experience curiosity, their brains enter what behavioural scientists call an information gap state. A question has opened. The mind senses that an answer exists, just out of reach. That tension becomes magnetic.

Attention locks in place until resolution appears.

Learning becomes a hunt. And hunting, for the human brain, is naturally engaging.

When Learners Become Investigators

You can see this mechanism working in immersive environments. Inside our escape room scenario, The Break In, participants are dropped into a simulated failure at an energy facility. Overnight, an equipment room has locked itself down, CCTV feeds have vanished and a critical piece of kit has gone

offline. Maintenance cannot get in. Systems are behaving strangely. The clock is already ticking.

At first, people behave like they do in any other training environment. You can feel a bit of scepticism. See the cautious glances. Then they get given the escape room and the shift happens. Posture changes. Conversations sharpen. People lean in, huddled around the evidence. Within minutes, the room transforms. Participants are no longer attending training. They are investigating an incident.

The learner stops consuming information and starts pursuing it.

Hypotheses appear. Clues are cross-referenced. Someone spots a pattern while another checks a physical lock mechanism. The team starts running little mental simulations, replaying possible sequences of events to see which explanation survives scrutiny. Every small breakthrough creates a flicker of satisfaction. Every “aha!” moment pulls them further into the problem.

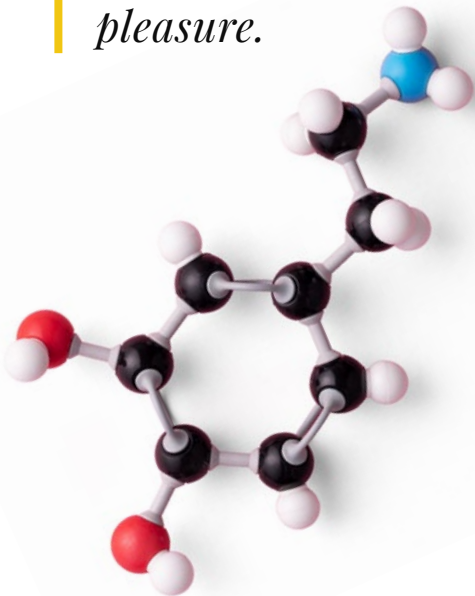
This is the curiosity loop in action. A clue creates tension. Tension demands explanation. Explanation reveals another gap. And the mind, now hooked, refuses to disengage until the story is completed. Until it makes sense. The learner stops consuming information and starts pursuing it.

Fun, in this context, is not decoration. It's propulsion.

The Productive Edge of Uncertainty

Fun tends to live in the narrow psychological band between clarity and confusion. Too much clarity and the mind disengages. There's nothing left to solve. Too much chaos and the brain retreats. The problem feels impossible. But somewhere between those extremes exists a sweet spot where the learner feels the thrill of being just slightly out of their depth in a way that promises resolution.

That edge of uncertainty creates the perfect conditions for curiosity. Games designers, behavioural scientists and puzzle makers have understood this for decades. It is the principle that keeps people absorbed in chess matches,



escape rooms, detective novels and scientific research. We've already seen in Chapter II (yes, the page with Margot Robbie) that minds enjoy being stretched. Immersive learning environments deliberately cultivate that stretch.

Challenges need to be intense enough to feel urgent, but contained enough to feel psychologically safe. This allows participants to try things. Fail. Adjust. And try again. When the environment remains playful rather than punitive, experimentation becomes part of the learning process rather than something to avoid. The balance between pressure and safety is where meaningful behavioural capability begins to develop.

Why Enjoyment Lowers Defences

One of the reasons fun is such a valuable tool in security learning is its ability to soften psychological resistance. Adults approach training with their guard up. They brace for boredom. They brace for jargon. They brace for irrelevance. Fun lowers those defences.

When people are enjoying themselves, several subtle behavioural shifts occur. They become more willing to experiment. They are less defensive about making mistakes. They are more comfortable with the discomfort of not knowing the answer. In psychological terms, enjoyment creates the permission to explore. People learn fastest when they are unafraid of looking foolish.

Psychological safety is essential for building behavioural capability.

This matters enormously for security training, where many of the behaviours organisations want to develop require people to challenge assumptions, question unusual signals and sometimes admit uncertainty.

A learner who feels scrutinised tends to retreat into safe answers. A learner who feels engaged tends to test ideas. Immersive scenarios create that safety by reframing the experience as shared problem-solving rather than evaluation.

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The Social Intelligence of Teams

Fun rarely stays confined inside an individual mind. It spreads. If you've ever sat in a quiet room when one person begins laughing, you know how quickly it travels. At first, it's just a small crack of amusement. But within seconds, everyone's laughing without fully understanding why. The sound moves through the group like a ripple through water.

Humans are wired for this kind of emotional synchronisation. Our brains constantly mirror the expressions, tone and behaviour of the people around us. Psychologists describe this as "emotional contagion", the process through which moods, reactions and attention patterns pass from person to person without anyone consciously deciding to share them. Fun, perhaps more than any other emotion, thrives in this social current.

Very few people laugh out loud when they're alone (despite the number of times we write LOL on texts). The same joke that barely raises a smile on a phone screen can collapse a group into hysterics when it lands in the middle of

a shared moment. Enjoyment expands in the presence of others because human beings are deeply responsive to each other's signals. And learning environments are no different.

When a group encounters a shared challenge, attention begins to synchronise. Someone notices a strange detail. Another reacts to the discovery. The group leans in together. Each reaction feeds the next. Inside immersive problem-solving experiences, this effect becomes particularly visible. Ideas bounce. Hypotheses evolve. The room becomes louder. Sharper. More animated.

Laughter mixes with frustration. Frustration turns into sudden bursts of insight. And within minutes, groups who perhaps didn't even know each other's names at the beginning of the challenge start behaving less like individuals and more like a distributed intelligence system. Each person contributes fragments of attention and reasoning that combine into something larger.

When people enjoy the process of solving something together, they begin to build shared instinct, the

closest thing an organisation has to collective intelligence.

Why The Brain Remembers What It Enjoys

People remember what they enjoy. It feels almost indecent in its honesty as a statement, but there it is. Enjoyment is the brain's way of sticking a bright yellow post-it note on an experience and whispering "pay attention to this!"



A positive emotional jolt strengthens the neural connections involved in that moment. Signals travel faster. Pathways become easier to access. The memory gains weight. It's why adults can vividly recall the rules, feuds and playground politics of childhood games

from thirty years ago, and can't remember what last Monday's finance meeting was actually about.

Fun makes memories sticky.

Fun makes memories sticky. Give someone a simulated environment filled with energy, tension or the deeply satisfying click of solving something tricky and the behaviours begin to anchor themselves in long-term recall.

Strip the enjoyment out and the lessons evaporate. Keep it in and the brain does something remarkable: it pays attention. If organisations want behaviour change rather than passive knowledge transfer, they cannot rely on information alone. They must design experiences the brain considers worth remembering.

The False Divide Between Serious and Fun

Corporate culture often treats seriousness and fun as opposing forces. They are not. Fun supplies the energy. Seriousness provides the direction. Together, they

create engagement strong enough to reshape behaviour. Strip away the fun and learning becomes inert. Strip away the seriousness and the experience becomes noise. The real power lies in weaving the two together so tightly that the learner never notices the seam.

A meaningful challenge delivered through an engaging experience. A narrative that sharpens attention. A task that feels just difficult enough to matter.

That's where the spark appears.

Seriousness has become a kind of aesthetic.

The problem is that corporate environments have spent decades mistaking tone for substance. Seriousness has become a kind of aesthetic: quiet rooms, dense slides, long explanations delivered in careful language. The performance of importance. The theatre of professionalism. And yet none of those signals guarantee attention, and without attention learning never really begins.

Our brains don't engage simply

because someone calls a topic important. They engage when something captures curiosity, creates tension and invites participation. When the mind senses there is something worth figuring out, we stop politely listening and start actively thinking. That shift is where genuine understanding begins to form.

This is why the most effective learning experiences feel strangely alive. They carry energy. They generate questions. They make people lean forward rather than sink back in their chairs. The seriousness remains in the challenge itself, in the consequences being explored, in the decisions being made under pressure. But the experience delivering that challenge should refuse to be dull.

That combination is not childish. It's the whole damn point of learning.



The Mechanism of Behaviour Change

For organisations trying to influence security behaviour, the implications are surprisingly simple.

Most organisations set awareness as their goal. And in doing so, they stop one step short. Awareness is knowing what a phishing email looks like. Instinct is the thing that makes your hand pause before you click it at 4pm on a Friday when you're tired and it looks almost right. Both are required. Information alone can build the first. It does almost nothing for the second.

Behaviour change requires something different. Attention must be sustained for long enough to allow understanding to take hold, for patterns to be recognised, and for new instincts to keep forming. The learner must remain inside the problem long enough to explore it and test possible responses.

When people are enjoying a challenge, they stay with it. They probe further. They try another approach. They notice details they might otherwise have missed.

Curiosity pulls them forward while small discoveries provide just enough reward to keep the mind engaged. Instead of forcing concentration through discipline, the experience generates its own momentum.

Immersive learning environments harness this by combining curiosity, challenge, narrative tension and social collaboration into a single experience. Participants remain engaged not because they are told to, but because the task itself has earned their attention. Fun becomes the engine that keeps the learner inside the problem space. And that time spent thinking, testing, questioning and adjusting is where behavioural capability begins to develop.

It is where participants begin recognising suspicious signals more quickly, questioning assumptions more confidently and discussing potential risks more openly with peers. Cognitive tools available to them. Curiosity, discovery, shared challenge and the quiet satisfaction of solving something difficult are not childish impulses. They are the mechanisms through which human beings explore uncertainty and build understanding.

Fun becomes the engine that keeps the learner inside the problem space.

When organisations dismiss fun as frivolous, what they are often discarding is one of the most powerful cognitive tools available to them. Curiosity, discovery, shared challenge and the quiet satisfaction of solving something difficult are not childish impulses. They are the mechanisms through which human beings explore uncertainty and build understanding.

Effective learning isn't about forcing people to concentrate. It's about building environments that make concentration inevitable. When challenge and curiosity work together, attention sharpens. When attention sharpens, understanding begins to form. And when understanding is reinforced through experience rather than instruction alone, behaviour starts to shift.

INDUSTRY



INDUSTRY PERSPECTIVE

Security awareness has had a board budget line for decades. The completion rates look fine. The reports look fine. And yet the incident data keeps telling the same story.

As a security leader, I've sat in enough post-incident reviews to know that the gap between what people were trained to do and what they actually did under pressure is where most of our risk lives.

The industry has spent years optimising for auditability. We measure what's easy to measure. Modules completed. Policies acknowledged. Phishing simulations passed. None of that tells you how someone will behave when they're tired, rushed, and a convincing email lands at the wrong moment.

Behavioural science gives us a better set of questions to ask. How do people actually make decisions under pressure? What conditions change behaviour, not just awareness? The answers don't point to more content. They point to better design.

The conversation about who owns human risk is shifting. Security, HR, compliance, audit: everyone's circling it. Getting ahead of that means understanding the problem properly first.

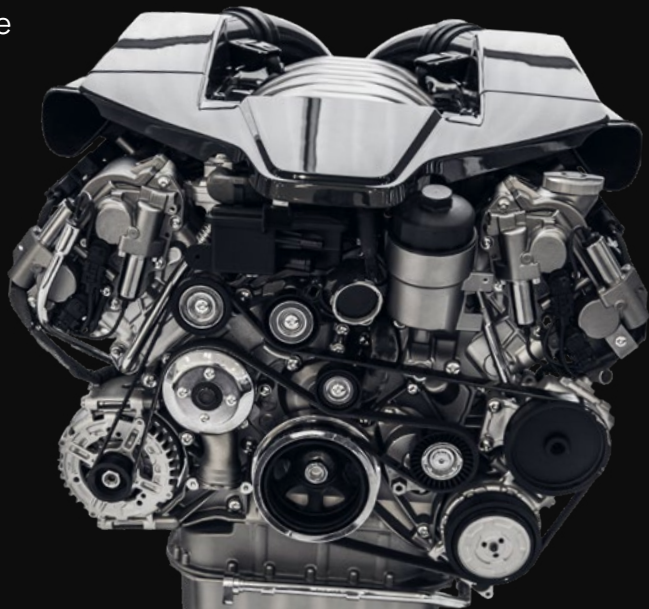
PHIL CRACKNELL

CISO & Former Advisor to the Cabinet Office

THE *SEVEN* ENGINES OF ENGAGEMENT

Engagement is not the glitter on top of learning. It is the machinery underneath. Strip away the mystique and you find a set of hard, human mechanics that determine whether people switch on, switch off, or switch into a sharper version of themselves.

This chapter pulls the architecture into the light and shows how real engagement is built: deliberately, precisely, and with far more courage than most organisations dare to use.



Engagement does not happen by accident. It is not a personality trait, nor is it something you can sprinkle over a learning experience like seasoning and hope for the best.

Engagement does not happen by accident. It is engineered.

No, engagement is engineered. Beneath every experience that holds our attention, whether that's a gripping story, a competitive game, or a tense investigation unfolding in real time, sits a set of psychological forces that pull the mind forwards. When those forces align, curiosity sharpens, attention locks in, and the learner stops feeling pushed through an activity. They begin pursuing it.

Corporate training has historically attempted to manufacture engagement through obligation. Mandatory modules. Completion deadlines. Progress bars creeping forwards like reluctant snails. These systems rely on compliance rather than curiosity, and the brain has a remarkable talent for

recognising the difference.

Immersive learning environments operate on an entirely different principle. Instead of pushing learners through content, they construct a world that invites exploration. Each moment presents a small decision. Each decision carries consequence. Gradually the learner finds themselves leaning forward, following clues, testing ideas and asking questions rather than waiting for the next slide to appear.

Behind that shift sits a set of design mechanics that appear again and again in the most compelling experiences humans create. Seven, in particular, matter. Autonomy. Competence. Feedback. Stakes. Mystery. Collaboration. Agency. Together, they form the engines that transform attention into engagement, and engagement into learning.

Handing Over The Keys

Most corporate learning environments begin with a loss of control. For the learner. They are told where to start, how fast to proceed, what to look at next, when they are allowed to finish.

Progress is measured in slides completed or modules ticked off, not decisions made. The experience is carefully structured to prevent deviation, exploration, or surprise.

In theory, this creates efficiency. In practice, it creates disengagement.

Adults recognise the loss of autonomy almost immediately. Give us even a whiff of control being taken away and something ancient sparks in the ribcage. The moment someone else takes the wheel, our attention begins to drift. The learner may comply with the instructions, but their mind steps back from the process. They are no longer participating. They are simply proceeding.

Humans have always reacted poorly to being controlled. Autonomy is not a luxury in learning environments; it is one of the central drivers of intrinsic motivation. When people feel responsible for navigating a situation, their attention sharpens. When they are merely following instructions, the experience



quickly becomes forgettable.

Immersive learning reverses this dynamic. Instead of pushing the learner through a sequence of prescribed steps, it places them inside a situation and allows decisions to unfold naturally. A suspicious log entry demands investigation. A locked cabinet invites experimentation. A character's story does not quite line up with the evidence. The environment presents possibilities but rarely dictates the path.

This subtle shift transforms the learner's role entirely. They are no longer completing training, but navigating a problem. The moment they realise their decisions influence what happens next, engagement deepens. Curiosity replaces obligation. Responsibility replaces passivity. Each small choice becomes a signal that the experience belongs, at least partly, to them. And when people feel ownership over a situation, they

begin to genuinely care about the outcome.

This is why autonomy sits at the foundation of engaging experiences. It is one of the mechanics that turns passive observers into active participants. Without it, learning feels imposed. With it, the learner begins to move through the experience with purpose.

If you want adults to remember something, you cannot strap them to the passenger seat. You have to hand them the keys.



The Sweet Spot Where Minds Wake Up

Autonomy might draw people into an experience, but competence is what keeps them there. Give someone a challenge that feels impossible and their motivation collapses almost immediately. The shoulders tighten, attention scatters, and the brain begins looking for the nearest exit. Give them something trivial and the opposite problem appears. The task becomes dull. Engagement dissolves in boredom long before the second minute has passed.

Humans are exquisitely sensitive to this balance between difficulty and ability. Somewhere between those two extremes lies a narrow strip where the brain becomes intensely focused. This is the flow state we spoke about in Chapter IV, that moment when a



challenge sits just ahead of the learner's current skill. Not miles away. Just ahead. Close enough to feel possible, difficult enough to demand attention.

When that alignment appears, something remarkable happens. Time loosens its grip. Distractions fade. The mind becomes absorbed in solving the problem. Instead of asking how long the activity will take, the learner begins asking what happens next.

Good immersive design carefully guides people toward this state. Our escape room experiences rarely begin with the hardest challenge, and never with anything technically complex. Instead, we start with something deceptively simple, a puzzle that looks manageable but still requires a small spark of insight. When learners solve that problem first, the effect is immediate. Confidence rises. Momentum builds. The brain receives a quiet but powerful signal: you can do this!

That first success acts like an ignition switch. And from that moment onwards, participants become far more willing to tackle something harder. Each solved challenge stretches their competence a little further. Each discovery reinforces the belief that progress is possible. Gradually, the learner moves beyond the comfort zone and into a mindset where curiosity replaces hesitation.

Well-designed escape room experiences thrive in this space. Carefully layered clues nudge the learner onwards, with narrative tension growing

alongside their capability, creating the sense that the challenge is evolving in step with them. It feels demanding but never unfair, complex but never impossible. That balance is not accidental. It is the architecture of competence.

When people discover they are capable of solving something difficult, the experience becomes deeply satisfying. Competence fuels confidence, confidence fuels curiosity, and curiosity pulls them deeper into the puzzle. And once the brain believes the puzzle can be solved, it refuses to let go until it is.

When the World Pushes Back

Feedback is one of the most underused (or should we say misused) mechanics in corporate learning. In the majority of training environments, feedback arrives in the form of a quiz score, a polite green tick, or worse, a patronising "well done!" that flashes briefly on screen before the learner is released back into their inbox. The system records completion. The module closes. The moment evaporates almost immediately. And absolutely none of it tells the

learner anything useful.

Meaningful feedback has three essential qualities: it is immediate, it is relevant, and it carries consequences. We must see the result of our actions immediately. The result must connect to the choice we made. And the outcome must influence what happens next. Without those three elements, feedback is little more than decoration.

Immersive environments create feedback naturally because the world itself responds to the learner's behaviour. Enter the wrong code and the lock refuses to open. Miss a critical clue and the investigation becomes harder. Trust the wrong character and the narrative goes in an unexpected direction. These responses create a powerful learning loop. Each decision produces a visible outcome. The learner absorbs the signal, adjusts their thinking, and tries again. Over time the loop tightens, sharpening judgement and reinforcing useful instincts.

In real incidents this rhythm is constant. Every action reveals new information and every piece of information changes the next decision. Immersive learning

mirrors that dynamic, allowing participants to experience the investigative process rather than simply hearing about it.

When the world responds to someone's actions, the lesson stops feeling theoretical.

Inside scenarios like The Break In, for example, teams quickly discover that the system will not bend to guesswork. Padlocks refuse to open when combinations are wrong. Clues overlooked earlier suddenly become essential later. Communication with the SOC determines whether the investigation progresses smoothly or stalls under uncertainty. The environment rewards careful thinking and punishes careless habits. That is feedback doing its real work.

When the world responds to someone's actions, even in small ways, the lesson stops feeling theoretical. It becomes experiential. And experiences are far harder to forget.

When Choices Carry Weight

Let's set the scene. You're standing in front of a locked box, a combination dial staring back at you. The clue is somewhere in the room. The clock is counting down. And for a brief moment, nothing else exists except the puzzle and the faint pressure buzzing in your ears.

That is what stakes feel like. Not panic, not fear. Just the subtle but unmistakable sense that the outcome actually matters. Remove that pressure and the moment dissolves into trivia. Background noise. Add it, even in small doses, and the brain sharpens its focus almost immediately. Attention narrows. Possibilities begin racing ahead of the evidence. The mind starts searching for a path forwards.

And that's where most training



misses the mark. Learners may be invited to make decisions, in a multiple-choice quiz for example, but nothing meaningful hangs on the outcome. Click the wrong option and the system politely nudges you back towards the correct answer. Choose the right one and you get a cheerful success message before the next slide appears. There is no emotional weight attached.

Without consequence, the moment is treated as disposable by the brain. The learner may recognise the correct answer, but the experience leaves no imprint strong enough to influence

future behaviour. Real-world decisions rarely feel this hollow. In real situations, choices ripple outwards. They shape what happens next. They introduce complications. They close off possibilities. They create tension.

Stakes are the emotional weight behind a decision. They are the pressure sitting behind the learner's ribs when the clock is running down and the solution is not yet clear. They are the difference between a task that

feels like an item on a checklist and one that feels like it all genuinely hangs in the balance.

Traditional training tries to manufacture stakes through warnings. "Click a phishing link and something bad might happen." The problem is that these warnings exist in the abstract. They float somewhere in the future, detached from the learner's immediate experience. Someday, something might go wrong, for someone else, somewhere down the line.

The brain doesn't care about someday.

Immersive environments work differently. Instead of describing consequences, they allow the learner to experience them. The system is down and the outage is escalating. A clue has been missed and the investigation stalls. The clock continues ticking whether the learners are ready or not. Stakes are not presented as theory, but as a core part of the experience itself.

And the best bit? Stakes don't need to be real to feel real. The brain responds to cues, not

disclaimers. Introduce time pressure, consequence and uncertainty, and you've got attention almost immediately. Learners begin to care about the outcomes because the world behaves as if the outcome really matters.

When we feel the stakes, the lesson travels deeper. It becomes attached not just to information, but to experience. And that's what instinct is built from.

The Power of Not Knowing

As a species, we are compulsive pattern seekers. Give us a loose thread and we feel an almost physical urge to tug on it. Leave a gap in the story and we begin to assemble unending possibilities. We are chronic overthinkers, uncomfortable with unanswered questions in the same way we are uncomfortable with unfinished tunes or puzzles missing their final piece. Our brains dislike unresolved tension.

Mystery exploits that instinct beautifully. It doesn't force attention, it invites it. Introduce a strange detail and the mind begins to circle it. A log entry that appears out of sequence. A character that

gives an answer that doesn't quite add up. A clue that contradicts the explanation everyone has been working from. All those things awaken a learner's curiosity. And curiosity is a remarkably persistent force.

Traditional learning rarely uses mystery because it prefers certainty. The learner is presented with a concept, followed by an explanation, followed by a confirmation that the explanation was indeed correct. The information arrives fully assembled, leaving the brain with very little reason to explore further. And the learner with very little reason to engage on a deeper level.

Mystery reverses that entirely. Instead of beginning with an answer, we begin with a question. Why is this system behaving strangely? Who left this trail behind? What connects these clues that refuse to sit neatly together? Why does this explanation feel incomplete? Each unanswered question acts like a hook in the mind. Once lodged, it demands resolution. Our brains begin actively searching for meaning, scanning the environment for patterns, testing

hypotheses against new evidence. The pursuit of information itself becomes engaging.

Immersive scenarios rely heavily on this mechanic. Rather than presenting information neatly packaged, they scatter fragments of the story throughout the environment. A social media post revealing an unexpected detail. A piece of correspondence hinting at a relationship. A pattern in the data pointing somewhere the learner hadn't previously considered. Gradually, the fragments begin to connect. The learner experiences a series of small discoveries, each one bringing the underlying narrative into sharper focus. Every new insight generates a sense of progress, of moving forward, which in turn reinforces the instinct to keep digging.

We are chronic overthinkers, uncomfortable with unanswered questions.

Mystery, when designed carefully, transforms learning from something delivered into

something uncovered. They stop being told the story and start piecing it together. And once they make that shift, their attention becomes remarkably difficult to break.

When Minds Start Synchronising

When people begin solving a problem together, we start to see a little bit of magic. At first, the room behaves normally. They scan the clues, they form hypotheses in their own heads. Someone reads a note. Someone else examines a lock. Someone likely disengages, seeing how it will play out.

Then one person notices something. "Wait... that number appears here as well." And then you start to see people lean in. Curiosity is piqued. They start speaking more loudly, more quickly. Ideas bounce across the table. One person spots a pattern, while another tests it against a different clue. They start making suggestions, trying things out, moving together. The group stops behaving like a collection of individuals. And starts behaving like a system.

Humans are wired for this kind of

social synchronisation. Our brains constantly mirror the attention and behaviour of those around us. When one person becomes excited about a discovery, the excitement spreads. When someone laughs, the room often follows. Attention is contagious.

Inside collaborative problem-solving environments, this contagion becomes extraordinarily powerful. One participant's curiosity amplifies another's. Ideas multiply. Hypotheses are tested more quickly. Blind spots are corrected before they have time to become dead ends.

The result is something that looks similar to real incident response.

In genuine investigations, no single person holds the entire picture. Information arrives from different sources. Logs, conversations, technical artefacts and small anomalies must all be interpreted together. Progress depends on teams sharing fragments of understanding and assembling them into a coherent explanation. Collaborative immersive experiences mirror that dynamic perfectly. Each participant holds a different piece of the puzzle, which when brought together, begin to

form the entire picture.

And when a group begins assembling that picture under pressure? We see titles fade, hierarchies soften, and people who normally remain quiet start contributing. The problem becomes the centre of gravity in the room, the focus point for everyone.



When teams reach this state, the experience stops feeling like training. Participants are no longer trying to complete a task, they're trying to solve something together. And that's where we get something that organisations desperately need. Shared instinct.

When It Becomes Your Story

Autonomy gives people choices. Competence gives them confidence. Feedback sharpens their judgement. Stakes make decisions matter. Mystery keeps curiosity alive. And collaboration multiplies the thinking in the room. But agency is what happens when those forces combine. It is the moment the learner realises that what happens next depends on them.

That switch is powerful. In many learning environments, participants move through the content as observers. They absorb the information, answer questions, and complete tasks, but the experience itself continues whether they care or not. Their presence changes very little.

Agency changes that relationship entirely. When learners feel genuine responsibility for the outcome of a situation, their behaviour transforms. Decisions are made more carefully. Clues are examined more closely. Conversations become sharper, more deliberate. The experience stops feeling like an exercise, and begins to feel like something that matters.

That's why immersive scenarios can feel so absorbing. The environment reacts to the learner's decisions. Choose the wrong path and the investigation slows. Miss a critical detail and the puzzle refuses to resolve. Trust the wrong explanation and the narrative bends in the wrong direction. The story isn't simply being presented, it's unfolding around the actions of the learner.

Agency turns knowledge into ownership. And ownership transforms learning behaviour.

That responsibility changes the emotional texture of the experience. When people feel accountable for the decisions they make, those decisions carry emotional weight. Success produces genuine satisfaction. Mistakes become memorable lessons. The experience attaches itself to the learner's identity, rather than remaining an abstract exercise.

This is where immersive learning begins to move beyond engagement and into behaviour change. Because the brain does not build instinct from information alone. Instincts are built from experiences where decisions carry consequences and the learner feels responsible for the outcome. Agency turns knowledge into ownership. And ownership transforms learning into behaviour.

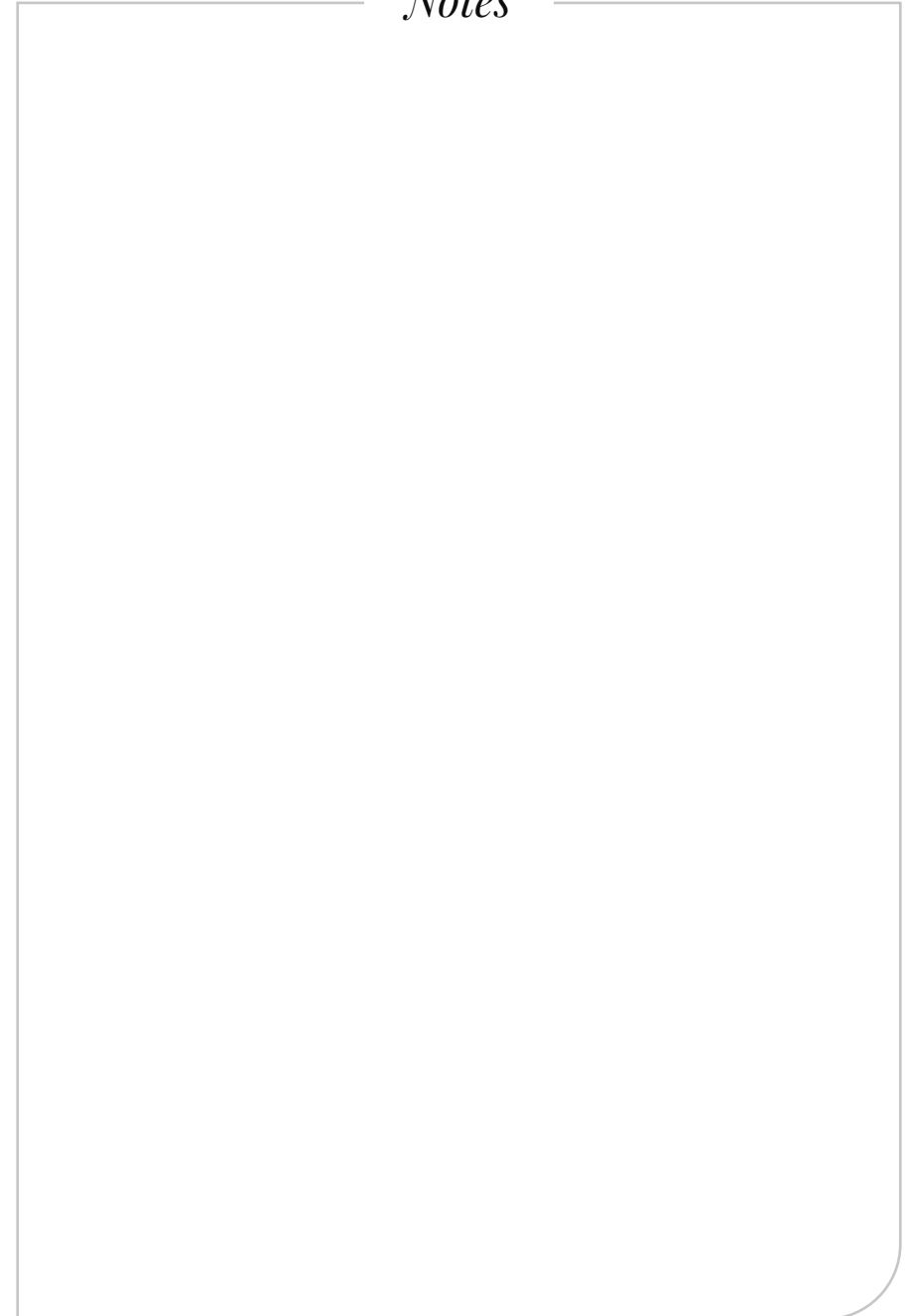
When The Engines Turn Together

Individually, these mechanics nudge the learner further into the experience but the real power emerges when the forces begin working together. At that point, engagement no longer needs to be manufactured. It emerges naturally from the structure of the experience itself.

The learner isn't ticking boxes, they're navigating a situation. They're investigating clues, testing ideas, adjusting decisions, and watching the consequences unfold in real time. The experience responds to them, challenges them, and occasionally surprises them.

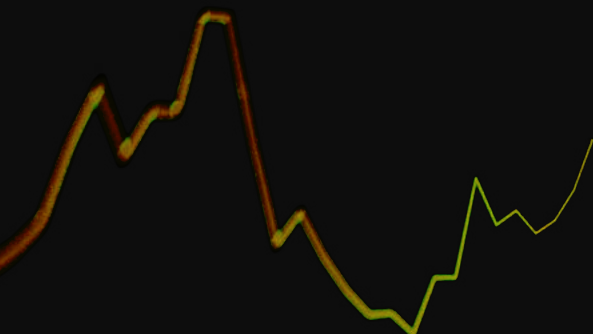
And when that happens, something important changes inside the brain. Attention deepens. Memory strengthens. Behaviour begins to shift. Because learning stops feeling like instruction and starts to feel like experience. And experience is where instinct is built.

Notes



THE *INVESTMENT* GAP

Engagement gets people through the door. But if nothing stays with them, it changes nothing. Because behaviour doesn't happen during training. It happens later, in moments where the brain reaches not for information, but for *whatever it remembers*.



60%
of all breaches involve a human element

Verizon DBIR, 2025

8.6%
of ISO 27001 controls are explicitly about people

Industry benchmark range, 2024-25

~3-5%
typical share of security budget spent on human risk training

Industry benchmark range, 2024-25

Human element - share of breaches **60%**



Verizon DBIR 2025 - the same figure has held above 60% for the past five years

People controls - share of ISO 27001 Annex A **8.6%**



8 dedicated "people" controls out of 93 in total in the 2022 revision

Awareness Training - share of security budget **~3-5%**



Technical controls - endpoint, SIEM, network, identity - consume the remainder

The technical stack gets millions. Human behaviour gets a line item. That gap exists because behaviour is hard to measure, so it gets managed cautiously and funded accordingly.

SAVE TO MEMORY

Engagement gets people through the door. But if nothing stays with them, it changes nothing. Because behaviour doesn't happen during training. It happens later, in moments where the brain reaches not for information, but for *whatever it remembers*.



Engagement Opens the Door

Engagement is not the end of the learning journey. It is the beginning of it. Capturing attention matters, of course. Without it, the brain just doesn't open the door to learning in the first place. But attention alone doesn't create behaviour change. For that to happen, something else must occur inside the brain too.

The experience must leave a trace strong enough to return to later, at the exact moment a decision actually matters. In other words, it has to become memory.

This is the step the industry skips right past. Information is delivered, yes. Slides are absorbed. Quizzes are passed. And the details are all stored away nicely to be used at a later date. Well, not quite, actually.

Our brains don't neatly archive facts just because they appeared on a screen. They operate more like an extremely ruthless editor with a red pen and a very small publication budget. Everything that arrives gets a quick read. Most of it gets cut. Only the material that feels urgent, emotionally significant, or likely to be needed

again makes it to print. Everything else gets spiked.

Let's take a very real example you'll be able to sympathise with if you, like me, own a child of spelling test age. Each week, my eight year old daughter does a spelling test at school. Every Tuesday, a new list arrives. She practices every evening. By the time the test comes round, she walks into class and aces it. Nine or ten out of ten. Job done. Gold star. She's happy. I'm happy. We move on.

Until the end of term rolls around. That's when the teacher runs a consolidation test using all the spellings from the past few weeks. Suddenly, those perfect scores begin to wobble. And the nine out of ten becomes a four out of ten.

How is this possible? She knows the spellings. She's passed the test. She's got the Lego to prove it. It's not that she's not bright. She's my daughter, so of course she's bright. It's not because she didn't learn them. She did. We all did.

*She's passed the test.
She's got the Lego to
prove it.*

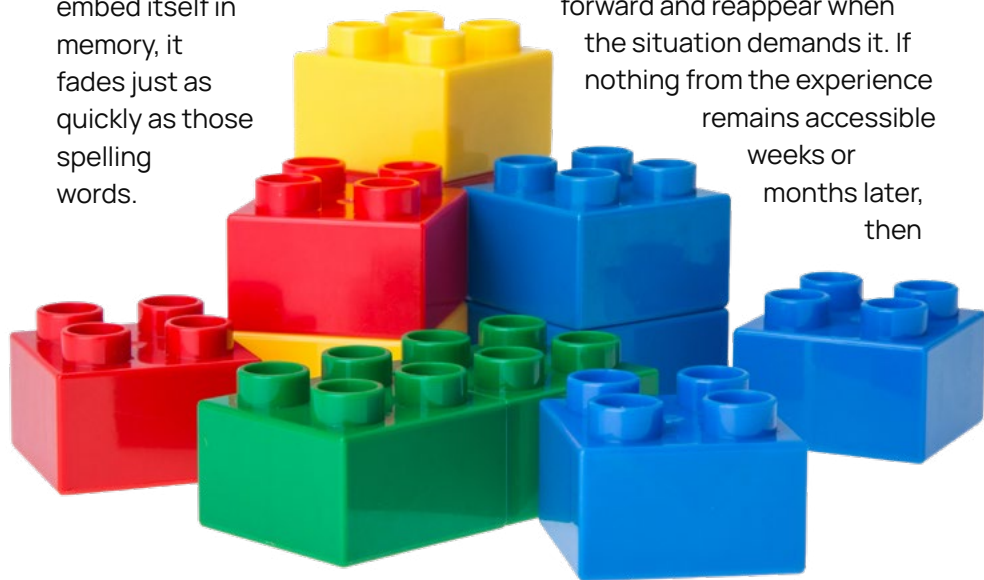
But the problem is, she didn't learn them for very long. She learned them for a very specific purpose. With a very specific window of time. Long enough to pass the spelling test. Long enough to tick the box. Long enough to con us out of a prize for getting top marks. But as soon as that moment passed, the information stopped being useful to her brain. And the brain is ruthless with information. It clears space. It turfs out the unnecessary.

And the same thing happens with corporate training every day. Someone completes the module, passes the quiz, closes the tab and gets a biscuit to reward themselves for being the best at spotting phishing emails. But if that knowledge doesn't embed itself in memory, it fades just as quickly as those spelling words.

The Real Job of Learning

Earlier chapters explored three ingredients that influence whether learning becomes memorable: emotion, effort, and context. Each of them helps the brain decide that something important is happening and that the experience deserves to be stored, not discarded. Emotion signals that a moment carries significance. Effort forces the brain to invest energy in building understanding. Context ties knowledge to situations that resemble environments where it will eventually be used.

Because the true job of any learning experience is not to deliver information in the present moment. The real job is to create a memory that can travel forward and reappear when the situation demands it. If nothing from the experience remains accessible weeks or months later, then



what was the bloody point?! The training might have been enjoyable, interesting, or have conveyed some really important messages. But it cannot influence behaviour when the stakes are real.

Memory is the bridge between learning and action.

Recognition Beats Recall

There's another reason that memory matters so much. In real situations, people rarely stop to recall instructions in a deliberate and methodical way. Nobody pauses halfway through a suspicious email to mentally reconstruct the slide deck from Gavin's last training presentation. Nobody grabs the policy document mid scam phone call to check the corporate process for escalation.

Instead, what do they rely on? Recognition. A pattern appears that looks familiar. Something about the situation triggers the sense that it resembles an earlier experience. The brain retrieves that memory and uses it to guide

behaviour. This process happens extremely quickly precisely because it doesn't involve consciously searching the brain for information. You simply notice that the present moment resembles something you've encountered before and think "I've encountered this before."

That moment of recognition is far more powerful than trying to recall a rule. Recognition works under pressure because it operates automatically. You don't think your way to it. You arrive there.

This is why experiential learning environments can have such a lasting impact. Rather than describing risk in abstract language, they allow participants to encounter situations that feel like the real thing. The brain doesn't store the experience as instructions. It stores it as a pattern. Later, when a similar pattern appears in the real world, the earlier memory surfaces almost instantly. Recognition takes over and behaviour adjusts in response.

Behaviour Happens Later

All of this leads to a conclusion you might not like if you're responsible

for designing training programmes. Behaviour change doesn't happen during training. The real moment comes later, when nobody is thinking about training at all.

It might be a busy Monday morning when an employee notices an email seems a bit... off. It might be in the middle of a meeting when a request from your boss seems unusually urgent. It might be during a stressful incident when decisions need to be made quickly.

Those moments rarely provide the luxury of reflection. People act based on patterns they recognise and experiences they remember. Which means the central question for any learning programme isn't whether participants completed the training or whether they answered the quiz questions correctly.

The most important question is whether the experience created a memory strong enough to resurface when it actually matters. If the memory returns, then behaviour has a chance to change. If it doesn't, it disappears into the same mental archive as my daughter's forgotten spellings list. Knowledge that existed briefly, served its purpose, and then made

way for something else.

And that brings us to the next challenge. Even when people do remember the right thing to do, the conditions in which decisions are made are rarely calm and reflective. Real incidents unfold under pressure, distraction, and uncertainty. Which means the next problem isn't memory alone. It's how memory performs when the brain is under stress.

RESEARCH SERIES • 02

MOST OF WHAT YOU TEACH WILL BE *FORGOTTEN*

Hermann Ebbinghaus mapped the forgetting curve in 1885. A 2015 replication confirmed it still holds. In 140 years, passive training has not found a way around it. That is not a coincidence.

Without reinforcement, up to 90% is gone within a week.



56%

Of passively learned information gone within one hour. Not by Friday. Within the hour.

4x

Less forgotten with retrieval practice vs restudying. Remembering beats being shown.

61%

Of employees fail a basic security test after completing mandatory training. Not before - after.

THE FINDING

Memory loss after passive learning is rapid, predictable, and well documented. It has been replicated continuously for 140 years.

EBBINGHAUS · 1885 · REPLICATED BY MURRE & DROS · PLOS ONE · 2015

56% of passively learned information is gone within one hour

Hermann Ebbinghaus spent years memorising and testing the retention of nonsense syllables on himself, producing the first empirical map of memory decay. His forgetting curve showed that without reinforcement, roughly half of new information is gone within an hour, 70% by end of day, and up to 90% within a week. In 2015, Murre and Dros ran a full replication using modern methods and larger samples. The curve held.

CEPEDA ET AL. · PSYCHOLOGICAL BULLETIN · 2006 · 317 EXPERIMENTS · 839 ASSESSMENTS

Distributed practice outperforms a single session by 10-30%

One of the largest analyses of spacing effects ever conducted. Cepeda and colleagues reviewed 317 independent experiments and found that distributing learning across time consistently outperforms massed practice, a single session, by 10 to 30%. The gap grows with time. Annual training schedules its one encounter twelve months before the knowledge needs to surface. That is the opposite of the design the evidence recommends.

EPIGNOSIS · 2023 · N=1,200 US EMPLOYEES

61% failed a basic security test immediately after completing their mandatory training

A survey of 1,200 US employees tested basic security knowledge directly after completing mandatory training. 61% failed. Not weeks later, immediately after. The forgetting curve applies even when the interval between learning and testing is measured in minutes, not months, if the format produces no real encoding in the first place.

ROEDIGER & KARPICKE · PSYCHOLOGICAL SCIENCE · 2006 · WASHINGTON UNIVERSITY

Retrieval practice produces 4x better retention than restudying

Students who restudied material forgot 56% within two days. Students who practised active retrieval (recalling the information without looking at it) forgot only 13%. The act of remembering is itself the learning event. Being shown information again, or clicking through it a second time, does not replicate this effect. This isn't a one-off finding. Reviews pooling hundreds of studies (Rowland, 2014; Adesope et al., 2017) have confirmed the same pattern again and again: retrieval wins.

THE PATTERN

From 19th-century self-experimentation to 21st-century corporate surveys, the findings are consistent. Passive learning decays rapidly. Retrieval practice and spaced repetition reliably counter it. Annual training uses neither. The research did not miss this. The training industry chose to ignore it.

PRESSURE BEATS KNOWLEDGE

Corporate learning has a fondness for pretending the real world is tidy. It trains people in environments so frictionless they might as well be lined with bubble wrap.

Yet every meaningful security decision happens under heat, distraction, ambiguity, and emotional noise. If you want instinct, you need rehearsal. If you want rehearsal, *you need pressure.*



Corporate learning has always had a fondness for sterilising the world. It becomes a museum exhibit. Nothing is urgent. Nothing is slippery. Nothing hits the nerves. And absolutely nothing can go wrong.

It's a glorious illusion, polished for compliance dashboards and executive slide decks, but fucking hopeless when measured against reality. Behaviour change doesn't happen in clean rooms. It happens in the middle of mess, dust, tension and doubt. Decisions are born in the wild, and the wild has no respect for bullet points.

Decisions are born in the wild, and the wild has no respect for bullet points.

Out there, judgement gets squeezed by competing meetings, twitchy inboxes, social discomfort, a half-remembered policy, a gut twinge you're not sure you trust, and the constant, ambient ache of incomplete information.

The gulf between how most training is designed and how real incidents unfold is so wide it

veers into satire. Organisations ask people to rehearse swimming strokes on a carpeted conference room floor, then look baffled when someone sinks in open water. Make that make sense... no really... please, make it make sense.

The problem isn't intelligence. It never has been. The problem is rehearsal. Humans behave not according to what they know but according to what they have practiced, usually without noticing that they are practicing at all. Theory is elegant. Behaviour is feral. And when a risky moment arrives, the brain does not reach for a neatly laminated slide. It reaches for instinct, and instinct is forged only in the furnace of experience.

Pressure is the missing ingredient in that furnace.

Why Pressure Matters

Pressure is often cast as a villain, a cognitive saboteur that turns cool heads into chaos. In extremes, of course, it can. That reputation is sometimes deserved. But mild, controlled pressure is one of the most potent learning catalysts available. When the brain senses something slightly at stake, the

sympathetic nervous system clicks into gear. Heart rate lifts. Attention narrows. Peripheral noise fades. The body prepares for action.

That's not panic. That's relevance taking hold. And relevance sharpens judgement like nothing else.

This is why tension helps people remember. It is why mild stress makes lessons stick. It is why every pilot trains in a simulator and not in a bloody lecture theatre.

Learning becomes durable when the brain believes the moment matters.

Learning becomes durable when the brain believes the moment matters.

The Emotional Reality of Cyber Incidents

In cyber security, the stakes are emotional long before they are technical. A dodgy email, a charming stranger on the phone, a log file that won't quite fit the mould; each one tugs at instinct more than intellect. Yet too many

organisations shield their people from any feeling of real risk until the day a real attacker supplies it for free.

At that point, rehearsal begins for the first time. And unfortunately in that theatre, the audience is criminal.

Simulated pressure solves this problem. It lets people make bad calls with no real-world fallout. They can misjudge a persuasive voice, fall for a baited breadcrumb trail, or chase the wrong suspect through a forest of misdirection and suffer nothing worse than fictional consequences. What they gain, however, is significant: emotional calibration. The lived understanding of what pressure feels like before it matters.

What Pressure Reveals

You see this vividly in our escape rooms. In The Break-In, an OT incident scenario, teams are given a physical urgency to remediate the situation. A Local Equipment Room locks itself down overnight. CCTV dies. A piece of equipment goes dark. Access controls refuse to play nice. Teams are pushed into a claustrophobic race where every incorrect assumption becomes a

time sink they cannot afford. They must interrogate clues, restore systems and report to the SOC before a small outage becomes a headline nobody wants to write.

The pressure feels real because the stakes feel real. And once the clock starts running, instinct takes over long before theory has even cleared its throat.

The ambiguity in these scenarios is deliberate. It mirrors the realism of actual incidents. We don't always have all the answers in real life. And it is that realism that builds instinct. Instinct is the currency of human risk.

On Paper

Anyone can appear diligent when the environment is leisurely. Give people time, space, and a neat set of instructions and most will look careful, methodical, even disciplined. Compress the clock and the mask slips. Some people rush. They skip steps. Convincing themselves they understand the task before they actually do. Others slow down. They focus. They read more carefully. They resist the urge to jump ahead.

And most organisations have

no idea which version of their workforce shows up under pressure because they have never bothered to look. They measure knowledge instead of reflex.

Behaviour stops pretending.

We see this play out beautifully when we run our Elementary escape room experience. Early on in the game, teams are handed an origami puzzle. On the surface, it looks harmless. A piece of paper. A set of instructions. Follow the steps and you will reveal the code needed to progress. It is not a difficult task. It is, however, an unforgiving one.

Origami demands precision. It requires people to slow down, read carefully, and follow each step in sequence. Miss one fold or rush a stage and the entire structure collapses into something useless. And yet, under time pressure, almost nobody treats it that way. Teams skim the instructions. They jump ahead. They assume they understand the pattern after the first few folds. Hands move faster than attention. Small errors creep in, which then compound and

eventually derail the entire effort.

You can watch the moment it happens. The paper stops behaving as expected. Confusion sets in. There's always someone who insists they're "basically there". And someone else who suggests starting again... but no one wants to lose time. So they push on, folding one small mistake into a slightly bigger one each time.

Very few teams complete it cleanly on their first attempt. Not because they lack the ability. But because they are rushing.

And that brings us back to the point. The puzzle isn't really about origami. It's a physical representation of something far more familiar. A set of instructions, an algorithm if you will, that must be followed carefully to transform something meaningless into something useful. Under no pressure at all, most people would complete it without issue. But under pressure? That's when behaviour changes. Attention fragments. Assumptions creep in. Patience disappears.

What surfaces in that moment isn't what people know. They know the answers for the origami

puzzle, they're written in front of them. What it shows is how people behave. Immersive scenarios make this visible. A countdown timer, a tightening narrative, a task that punishes shortcuts. In these conditions, behaviour stops pretending.

We're Measuring the Wrong Thing

Once you've seen behaviour under pressure, it becomes very difficult to take traditional learning metrics seriously. Completion rates. Quiz scores. Satisfaction surveys. They create the impression of progress without ever getting close to the thing that actually matters. None of them tell you how someone behaves when the clock is running.

We all give ourselves a pat on the back when those dashboards flash green.

A learner can score 100% on a phishing module and still click the wrong link on a busy Tuesday afternoon. They can recite policy



back to you word for word and still hesitate when something feels socially awkward to challenge. Because knowledge isn't the same as behaviour. And businesses measure knowledge.

It's a comforting illusion and I'm sure we all give ourselves a pat on the back when those dashboards flash green and we see everyone's done their homework. But that still leaves the real question unanswered. What do people do when it actually matters?!

Take the origami puzzle as an example again. In a low-pressure environment, most people would figure that out.

You'd have a very healthy looking dashboard. But add the pressure

in, and people go off piste. If we gave people scores for how well they did on that puzzle when the clock is ticking, well... it wouldn't be pretty.

And that gap is where the risk lives. It's our blind spot. We know people know the information. But what we don't measure is whether they use it at the right time.

Immersive experiences make that gap visible. They show you who collaborates and who goes silent. Who checks assumptions and who runs with the first answer. Who notices something feels wrong and who pushes past it. These aren't abstract qualities. They're behavioural patterns. And that's what shapes security outcomes.

What This Means in Practice

If behaviour under pressure is what matters, then training needs to reflect that reality. Not perfectly. Not with artificial drama or unnecessary stress. But with enough tension to make decisions feel real.

People need the chance to make decisions with incomplete information. To feel the time pressure bearing down on them. To experience the consequences of making the wrong call. To notice how their own behaviour shifts in the moment. Because that's what the real world looks like.

Perhaps most importantly, they need to experience all this before it counts.

You Don't Rise to the Occasion

We all like to think that when the moment comes, people will step up. When the pressure hits, they'll remember their training, slow down, and make the right decision. It's a reassuring idea. And it survives because it feels plausible. And we kinda really hope it'll happen.

People don't rise to the level of their training. They fall to the level of their instinct.

But in reality, to paraphrase James Clear, people don't rise to the level of their training. They fall to the level of their instinct. Under pressure, we don't become more thoughtful, more organised, more disciplined. We become faster, more selective, leaning heavily on patterns we've seen before. Whatever has been practiced is what shows up. Not what's been explained. Not what's written in a policy document. Not what we clicked through on a module six months ago. What's been practiced.

That's why the gap between training and reality matters so much. If you've only ever encountered risk in clean, controlled, consequence-free environments, then that's the version of risk your brain recognises. When the real thing appears, and it will, it will be faster, messier, and far less forgiving. It will not match the pattern you have stored.

THE CYBER ESCAPE ROOM CO.

SCENARIO SPOTLIGHT

THE BREAK IN

🕒 45 Minutes

👤 4 Players

An OT incident shuts down CCTV, locks the Local Equipment Room, and knocks a vital piece of machinery offline. Your team becomes the on-site SOC, using physical clues and WhatsApp guidance to uncover what went wrong.

LEARNING OUTCOMES



Digital Footprints

Oversharing online? The attacker in this scenario hopes so.



Physical Security

Tailgating, cloned access cards... the stuff attackers love.



Password Security

Weak credentials → Fast compromise. See it happen in real time.



Removable Media

What happens when someone plugs in a random USB... again.



Psst.. find out more [CYBERESCAPEROOM.CO](https://www.cyberescaperoom.co)



So the brain does what it always does in uncertainty: it fills in the gaps. Sometimes that works. Often it does not.

Instinct is memory, shaped by previous experience and replayed at speed. There's no hidden reserve of wisdom waiting to be unlocked in a crisis. What you've rehearsed is what arrives.

Nobody performs the version of themselves that comes straight from a policy document. They perform the version they've rehearsed.

If memory determines what's available, and pressure determines what gets used, then behaviour

is the only thing that actually matters. Not intention. Not knowledge. Not the comforting blinky green light on your dashboard. Behaviour.

Because when it counts, nobody really performs the version of themselves that comes straight from a policy document. They perform the version they've rehearsed. And organisations that haven't rehearsed anything even remotely close to reality have built careful, clean, consequence-free environments and then act surprised when messy, fast, ambiguous reality eats that training alive.

So when the moment comes, people don't pause to recall the module. They rush. They guess. They fill in the gaps. Exactly as they've been trained to.

Notes

AWARENESS WON'T SAVE YOU

We've spent years teaching people what to look for. Phishing emails. Suspicious links. Social engineering cues. And yet, the same mistakes keep happening. Not because people don't know better, but because knowing isn't what drives behaviour when it *actually matters*.



The Illusion of Progress

By this point, the pattern should be hard to ignore. Organisations want behaviour change. They design learning for awareness. Information is delivered clearly, consistently, and at scale. Completion is tracked. Understanding is tested. Reports are generated. On paper, everything looks like progress.

On paper, everything looks like progress.

The problem is that “on paper” is doing a lot of heavy lifting in that sentence.

Awareness training persists not because it works, but because it's measurable. Completion rates are easy to capture. Quiz scores are easy to report. A dashboard full of green ticks is easy to show a board that wants reassurance. The system isn't designed to change behaviour. It's designed to demonstrate that something was done. And in the gap between those two goals, the risk tends to hide.

Nobody sets out to build a training programme that looks good but changes nothing. The intentions

are genuine. The investment is real. But when the metric becomes completion rather than capability, the system optimises for the wrong thing. And it keeps doing so because nobody ever sees the failure. Until they do.

When the Gap Becomes Visible

The moment awareness training fails is rarely dramatic. It doesn't announce itself. It looks like an employee who knows exactly what a phishing email is, and clicks one anyway because it arrived at 5.30pm on a Friday and looked almost right. It looks like someone who could recite the escalation policy word for word, but stayed quiet in the meeting because challenging a senior colleague felt socially impossible in the moment.

These aren't failures of knowledge. They're failures of translation. The information existed. The awareness was there. But when the real moment arrived, messy and pressured and nothing like the training environment, the knowledge didn't show up in the form that was needed.

And organisations rarely see these failures clearly, because they're

not looking for them. They're looking at completion rates. They're looking at quiz scores. They're measuring what was delivered, not what changed.

They're measuring what was delivered. Not what was changed.

The Measurement Problem

What gets measured gets managed. It's one of those phrases that's been repeated so often it's lost its edges.

But in learning design, the consequences of measuring the wrong thing are significant.

When success is defined as completion, then completion is what you get. People learn to finish the module. They learn to pass the quiz. They do not necessarily learn to behave differently when the stakes are real and the clock is running. The training achieves its own metric perfectly, while the actual goal, behaviour change under pressure, goes entirely unmeasured.

This creates a peculiar kind of organisational blindness. The dashboards are green. The reports look healthy. And somewhere in the business, people are making exactly the kinds of decisions the training was designed to prevent, because nothing in their preparation resembled the moment they were actually in.

A Different Ambition

The organisations already doing this differently have stopped asking whether their people are aware of the risks. They've started asking whether their people are ready for them.

That shift sounds subtle. It isn't. It changes what gets designed, what gets measured, and what gets reported. It moves learning out of the compliance column and into the risk management conversation, where it belongs.

Building that case inside an organisation, putting numbers and language around something as fluid as behavioural readiness, is where theory meets the room. And that's what the next chapter is for.

RESEARCH SERIES • 03

YOUR TRAINING ISN'T WORKING. THE **NUMBERS** SAY SO.

Not a hunch. Not an opinion. A randomised controlled study of 19,500 employees found annual training had no measurable impact on phishing susceptibility. The Army reached the same conclusion independently.



Annual training: 1.7% impact. Immersive training: 86% reduction.

THE FINDING

The most rigorous study ever done on annual training found it doesn't work.

HO, SHARMA ET AL. · UC SAN DIEGO / UNIVERSITY OF CHICAGO · 2025 · N=19,500 · IEEE S&P / BLACK HAT

Mandatory annual training produced a 1.7% difference in phishing susceptibility. Within statistical noise.

Researchers ran ten phishing simulation campaigns across 19,500 employees at multiple organisations over several years. Participants were split into groups: some had completed mandatory annual cybersecurity training, some had not. The measured difference in phishing click rates between the two groups was 1.7 percentage points... so within statistical noise, and functionally indistinguishable from zero. The study was peer-reviewed and presented at two of the most rigorous venues in security research. Its methodology has not been successfully challenged.

CARNEGIE MELLON CYLAB · ONGOING RESEARCH PROGRAMME

Point-of-error feedback reduced susceptibility by 40%. Quiz-based practice made employees 2.5× more likely to recall policy at six weeks.

CyLab research found that delivering training feedback at the exact moment of a mistake (rather than in advance or in a separate session) produced a 40% reduction in phishing susceptibility. Periodic simulation-based quiz activities made employees 2.5 times more likely to correctly recall security policies at six-week follow-up compared to lecture-only delivery. The mechanism is retrieval practice embedded in realistic conditions – the same mechanism annual compliance modules are structurally unable to replicate.

US ARMY · POLICY CHANGE · MARCH 2026 · REPORTED: DEFENSESCOOP

The US Army reduced mandatory cyber training from annual to once every five years, citing no measurable improvement from annual frequency.

Following its own internal analysis, the US Army changed its mandatory cybersecurity training policy, reducing the required frequency from annual to once every five years. The stated reason was that its analysis found no relational improvement in security outcomes between annual and less frequent training. This is an institutional actor with significant resources, significant security obligations, and no incentive to lower its own standards, reaching the same conclusion as the academic research independently.

KNOWBE4 · PHISHING BENCHMARKING REPORT · 2025 · 14.5M USERS · 67.7M SIMULATED TESTS

Continuous simulation training cut phishing susceptibility from 33.1% to 4.1% in 12 months

KnowBe4's dataset is the largest of its kind. Across 14.5 million users and 67.7 million simulated phishing tests, organisations using continuous simulation-based training saw phishing susceptibility fall from a 33.1% baseline to 4.1% over 12 months - an 86% reduction. Within the first 90 days alone, susceptibility dropped 40%. The contrast with the Ho et al. finding for annual training is not a contradiction. It is a demonstration of what changes when the format changes.

THE PATTERN

A controlled academic study of 19,500 people, an institutional policy decision by the US military, a commercial dataset of 14.5 million users, and university lab research, all reaching the same conclusion from different directions. Annual compliance training does not change phishing behaviour. Continuous, immersive, simulation-based training does.

THE *BUSINESS* CASE FOR ENGAGEMENT

The technical stack gets millions. Human behaviour gets a line item. That gap exists because behaviour is hard to measure, so it gets managed cautiously and funded accordingly.

This chapter makes the case that engagement belongs in the *risk management* conversation, with the evidence, language, and numbers to back it up.

Training budgets are approved in the shadow of uncertainty. Every year, the same questions circle the table. Will this reduce incidents? Will people take it seriously? Will it make a difference? The answers, historically, have been vague enough to keep the budget alive and weak enough to keep it small.

Meanwhile, across the same organisations, millions are committed with absolute conviction to tooling. SIEMs. SOCs. Endpoint detection. Identity management solutions. Threat detection. Pen testing. Red teaming. Firewalls. Next generation firewalls. Military grade firewalls. A full technical arsenal, sharpened and maintained.

And then, almost as an afterthought, a comparatively modest allocation to the one variable sitting at the centre of many cyber incidents. Human behaviour. According to Verizon's Data Breach Investigations Report, 60% of breaches involve a human element. Not a technical failure. A human one.

And yet it remains the most underfunded variable in the

stack. Not because organisations don't care, but because human behaviour is seen as unpredictable, slippery, difficult to measure, and therefore difficult to justify. So it is managed cautiously. Treated as a compliance requirement rather than a strategic lever.

60% of breaches involve a human element. Not a technical failure. A human one.

Training in its traditional form, has not helped its own case. It has struggled to prove that it changes what people actually do when it matters. So it gets framed as an obligation. Something to complete. Something to report on. Something to tick off.

The business case for engagement exists to dismantle that thinking.

The Cost of Doing Nothing Different

Companies rarely start from zero. They already run training programmes. People complete them. Dashboards fill up with



reassuring percentages. Completion rates look healthy. Audit trails are clean. And yet, incidents continue.

The training didn't fail to deliver information. It delivered plenty. Seriously, so much information. The slides were read. The videos were watched (kind of). The questions were answered correctly. But, as we know by now, information on its own doesn't change behaviour. And so the patterns repeat with (at this point) almost theatrical consistency. Links are clicked. Requests are trusted. Signals are missed. Small decisions, made quickly and without a second thought, stack up into something far more expensive.

Continuing to invest in approaches that don't materially change behaviour is an active waste. It is time and attention and budget spent maintaining the appearance of control while the underlying risk remains largely untouched. Or, put less politely, it is paying for the same outcome and pretending it might change. Insanity.

Engagement Is a Risk Control

Engagement is often misunderstood as decoration, although if you've got this far, dear reader, I'd hope you're not in that camp any longer. By now, we should know that engagement isn't merely a stylistic upgrade or a way to make learning feel more palatable. That framing misses the point entirely.

Engagement is the entry point to everything that follows. If people are not engaged, they do not pay attention. Non-negotiable.

It is function, not aesthetic. When someone is placed inside a scenario where choices carry consequences, where they feel pressure, where their curiosity is triggered and sustained, the attention stops being forced. It starts being volunteered. The experience becomes memorable because it demands participation, not passive consumption.

Framed properly, engagement doesn't improve training. It's what makes training actually work. Which makes it, quite clearly, a risk control.

Just as endpoint protection reduces technical exposure, engaging learning reduces human exposure.

Just as endpoint protection reduces technical exposure, engaging learning reduces human exposure. It increases the likelihood that someone pauses. Questions. Notices. Reports. Acts before a situation escalates into something far more difficult, and far more expensive, to contain.

What Changes

When designed with intent, engagement becomes the catalyst for a small and consistent pattern of behaviour change that reshapes how risk plays out in the real world.

Once people engage with security content, the message has time to land. People begin to hesitate before acting. Not from fear, and not from uncertainty in the negative sense. It is awareness. A fraction of a second

where instinct is interrupted by recognition. That pause, almost invisible in isolation, is often the difference between an incident being triggered and an incident being avoided entirely.

Requests that would have once passed through unquestioned begin to encounter friction. Not resistance for the sake of it, but intelligent challenge. People start to ask "Does this make sense?" rather than just assuming it does. The authority that attackers rely on starts to erode, replaced by a culture where verification is normal rather than exceptional. The human version of zero trust architecture.

Reporting changes too, and this is where the compounding effect becomes clear. Incidents are surfaced earlier. More questions come into the security team. Earlier reporting means faster response. Faster response means a smaller blast radius. What could have escalated into a major incident is contained while it is still manageable, still reversible, still relatively inexpensive.



Under pressure, teams collaborate more effectively. Not because they've been told to, but because they've already experienced a version of that pressure in a controlled, designed environment. The situation feels familiar enough to act within, rather than overwhelming enough to freeze. Decision-making becomes faster, clearer, more coordinated.

Individually, none of these things are revolutionary. They're easy to overlook when you only measure completion rates or test scores. But collectively, they represent a fundamental shift in how a

business absorbs and responds to risk.

Each moment of hesitation reduces the likelihood of a poor decision. Each question interrupts a potential attack path. Each early report shortens the time an attacker has to operate. Each coordinated response limits the damage that can be done.

Over time, these behaviours compound into outcomes that are not only visible, but measurable. Fewer incidents. Faster containment. Reduced operational disruption. Lower financial impact.

THE CYBER ESCAPE ROOM CO.

SCENARIO SPOTLIGHT

ELEMENTARY

🕒 45 Minutes

👥 5 Players

Step into Sherlock's office to uncover who stole the factory blueprints. A no-tech escape room packed with ciphers, contraptions, and a suspiciously clever origami puzzle.

LEARNING OUTCOMES



Insider Threats

Explore how trust can be exploited from within, without being malicious.



IP Protection

Understand why protecting ideas takes more than a password.



Data Encryption

Experience encryption physically... with origami. Just trust us.



Code Breaking

Use book ciphers, More Code and more to uncover intel.

Psst.. find out more **CYBERESCAPEROOM.CO**

EXAMPLE BUSINESS CASE

THE PROBLEM WITH AWARENESS

Problem / Opportunity

We currently deliver awareness through traditional training formats, which effectively communicate security expectations.

However, these formats are information-based rather than experience-based. Employees are told what to do, but rarely practice those behaviours in realistic conditions.

As a result, it is difficult to determine whether employees will recognise and respond appropriately during an incident. In practice, this can lead to delayed detection, inconsistent responses, and uncertainty around escalation.

Potential consequences include operational disruption, financial loss, regulatory scrutiny, and reputational damage.



Additional contributing factors

01

Training Engagement

Low engagement reduces both retention and behavioural impact. When learning feels disconnected from reality, people complete it rather than absorb it. The module gets finished. The behaviour doesn't change.

02

Security Fatigue

Repeated messaging through the same formats leads to disengagement. Employees stop registering the content because it feels familiar, routine, and low-stakes. Familiarity breeds inattention.

03

False Confidence

Knowledge creates perceived readiness without testing actual behaviours. Passing a quiz feels like being prepared. It rarely is. The test measures recognition, not response under pressure.

04

Incident Reporting Culture

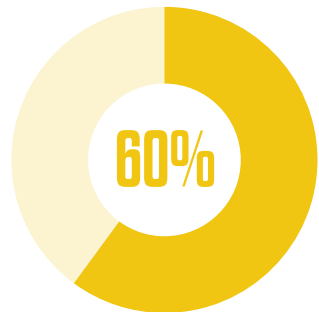
Hesitation delays detection and response. When people are unsure whether something is worth reporting, or fear being blamed for clicking, they stay quiet. Every hour of silence is an hour attackers keep moving.

05

Cross-Team Coordination

Lack of practice creates unclear roles during incidents. Teams who have never worked through a simulated scenario together default to confusion when a real one arrives. Coordination requires rehearsal.

PROPOSED SOLUTION



**OF BREACHES INVOLVE
A *HUMAN ELEMENT***

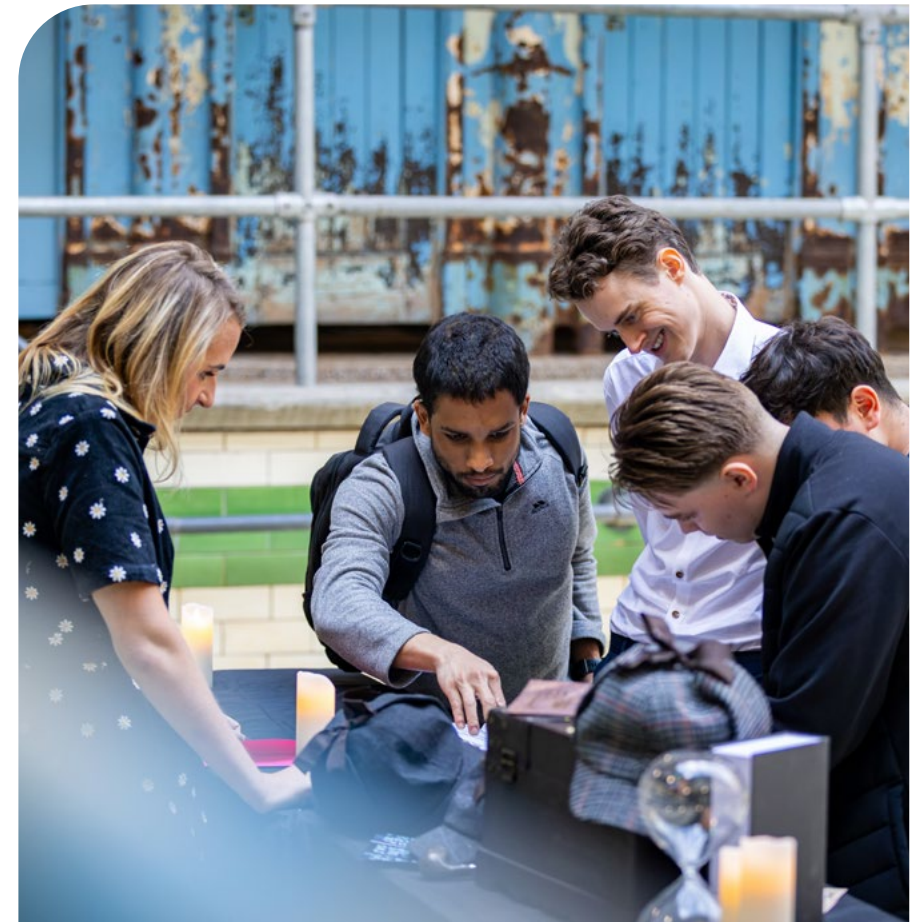
Verizon Data Breach Investigations Report, 2025.

Implement experiential cyber simulations. This approach places participants inside immersive environments where they must analyse information, collaborate, and respond to simulated incidents under realistic conditions.

Rather than replicating specific breaches, scenarios are designed to mirror the pressures of real events - including incomplete information, time constraints, and competing priorities.

In addition to strengthening security behaviours, this approach:

- Encourages open conversations between security and the wider business
- Provides a more engaging alternative to traditional training
- Increases participation and knowledge retention
- Creates shared language around risk across teams
- Surfaces behavioural gaps before they become incidents
- Generates evidence of active risk management for audit purposes



THIS PROGRAMME INCLUDES

- A range of scenarios covering common cyber risks
- Facilitator-led or self-delivered sessions using structured guides
- Small team formats to encourage collaboration and discussion
- Post-exercise debriefs linking behaviour back to policy and procedure.

BENEFITS & VALUE

The value of this approach extends beyond awareness alone.

By strengthening employees' ability to recognise and respond to threats in practice, the organisation reduces exposure to avoidable incidents while improving consistency and speed of response.

Financial

- Reduces likelihood of costly incidents
- Avoids investigation, recovery, and regulatory costs
- Supports customer trust and market confidence

Operational

- Improves decision-making under pressure
- Strengthens incident detection and reporting
- Builds confidence in real-world incidents
- Enhances cross-team collaboration
- Supports a strong security culture

Compliance

- Supports evidence of active risk management
- Aligns with regulatory training requirements
- Demonstrates intent beyond tick-box completion

REGULATORY & FRAMEWORK ALIGNMENT

FRAMEWORK	RELEVANT CLAUSE	EXPECTATION	HOW EXPERIENTIAL LEARNING SUPPORTS
ISO 27001:2022	Clause 6.3 & 7.2-7.3	Personnel must understand risks and be capable of applying security procedures in their role.	Simulated scenarios require participants to interpret signals, identify risks, and take appropriate action, reinforcing practical application of policies
NIST CSF 2.0	PR.AT GV.HR	Organisations should ensure personnel are trained and prepared to perform security-related duties	Exercises place employees in realistic situations where they must recognise threats, assess incomplete information, and escalate appropriately
NCSC CAF	A1. B4. D1	Staff should contribute to risk management and support detection and response activities	Simulations reinforce collaboration, reporting, and response behaviours across teams during incident scenarios
NIS2 Directive	Article 20 & 21	Organisations must implement training and ensure staff can support security measures and incident response	Scenarios simulate real-world conditions, helping employees understand their role in identifying and responding to threats
DORA	Article 13	Staff must be aware of ICT risks and be prepared to respond to incidents impacting operational resilience	Exercises simulate disruption and require teams to assess, communicate, and respond under pressure.

THE MATHS IS SIMPLE. THE INDUSTRY IGNORES IT

Security training is treated like a cost to be minimised. The data on what breaches actually cost, and what better training saves, makes that calculus very hard to defend.



The ROI of immersive training is not ambiguous.

1.7%

Difference between trained and untrained groups. Functionally zero - within statistical noise.

60%

Of breaches involve a human element.

86%

Reduction in phishing susceptibility over 12 months with continuous immersive training.

THE FINDING

Human behaviour is the primary attack surface. Organisations that train it seriously pay dramatically less when things go wrong.

IBM / PONEMON • COST OF A DATA BREACH • 2025 • 600 ORGANISATIONS • 17 INDUSTRIES • 16 COUNTRIES

Strong training reduces average breach cost by \$1.5M. Tested IR plans cut it by 38%.

IBM's annual breach cost study is the largest of its kind. The 2025 report found a global average breach cost of \$4.44M (\$10.22M in the US). Organisations with strong security training programmes paid approximately \$1.5M less per breach than those without. Those with tested incident response plans paid \$3.26M on average versus \$5.29M for those without. The human element contributed to 60% of confirmed breaches, and mean time to identify a socially-engineered breach was 24 days longer than a purely technical one.

VERIZON • DATA BREACH INVESTIGATIONS REPORT • 2025 • 22,052 INCIDENTS

60% of breaches involve human behaviour. 8% of employees cause 80% of incidents.

The DBIR is the most comprehensive annual analysis of real-world breach data. The 2025 edition found the human element (errors, social engineering, credential misuse) in 60% of confirmed breaches. Crucially, it identified a concentration effect: a small proportion of employees account for the majority of incidents. Annual training addresses this by treating everyone identically. It cannot identify or target the highest-risk individuals until after an incident has occurred.

PROOFPOINT · STATE OF THE PHISH · 2024 · 7,500
ADULTS · 15 COUNTRIES

96% of employees who took a risky action knew it was risky when they took it.

Proofpoint surveyed 7,500 working adults across 15 countries on their security behaviours and self-reported decision-making. 71% admitted to taking risky actions at work. Of those, 96% knew at the time that the action was risky. This finding reframes the entire training problem. It is not that employees lack information. It is that information alone is insufficient to change behaviour under the conditions that matter: pressure, urgency, distraction, and social trust.

PWC · VR TRAINING EFFECTIVENESS STUDY · 2020 · 12
US LOCATIONS

Immersive learners trained 4x faster, with 275% more confidence in applying what they learned

PwC compared immersive VR training against classroom and e-learning formats across 12 US locations. Immersive learners completed training four times faster than classroom equivalents, reported 275% more confidence in applying the skills, and felt 3.75 times more emotionally connected to the content. These are not soft metrics - speed of acquisition and confidence in application have direct operational value.

THE PATTERN

The financial case for better training is built from multiple independent datasets: breach cost analysis, incident investigations, behavioural surveys, and training effectiveness comparisons. All of them point in the same direction. The question is not whether organisations can afford immersive training. It is whether they can afford to keep not doing it.

Notes

PRACTICAL WAYS TO *INTRODUCE* *ENGAGEMENT*

Engagement is a set of conditions, not a product. Immersive experiences like our escape rooms deliberately engineer those conditions but many of the same principles can be applied using tools and structures you've likely already got at your disposal.

What follows are practical, low-cost ways to improve engagement by aligning your existing training with how people actually learn and behave.

They're not silver bullets. They are levers. And when used together, you can shift learning *from exposure to experience*.

01

Introduce **Decision Points**. Not Just Information.

Engaging training asks people to decide, not just absorb. A simple shift is to replace explanations with moments where a choice must be made before the answer is revealed.

For example, present various emails, both risky and legitimate, and ask what would you do. Force a response before giving guidance. And discuss why the wrong choice might have been tempting.

The act of choosing is what makes the learning stick. No decision, no engagement... no engagement, no change.

Bonus points if you introduce a time limit on the decision.



OPEN EMAIL
ATTACHMENT



CHALLENGE
CALLER

Why it works:

The act of choosing (especially under time pressure) activates recognition pathways in the brain. We're not passively consuming information, we're actively rehearsing responses.

You don't need new platforms to do this... you just need to stop revealing the answer too early.

02 Train Under Mild Pressure... On Purpose

Real incidents are rarely calm. Pressure doesn't need to be extreme to be effective. Even small constraints can change how the brain engages.



Think time limits on discussions, countdown timers on exercises, interruptions or competing tasks, or giving ambiguous or incomplete information.

The goal isn't stress, per se. It's context. Because training that never includes pressure teaches people to rely on slow, reflective thinking, exactly the thing least available during real incidents.

03 Design For Recognition. Not Recall.

Incidents ask "do you recognise the situation?" far more often than "do you remember the rule?" Shift the design accordingly.

Use messy, realistic examples. Remove obvious "this is a test" signals. Vary formats so patterns can't be predicted.

04 Delay the Answer

Immediate correction feels efficient, but it weakens learning.

Let people sit with uncertainty. Explore why the wrong answer felt right. Let teams commit before revealing guidance. Discuss consequences first. The brain remembers resolved tension better than instant feedback.

05 Measure What Changes

Completion is easy to track. Impact is not. Look for operational signals: early reporting, better quality escalations, fewer repeat errors, faster response times. Engagement shows up in behaviours, not dashboards.

06 Make It Personally Relevant

We tend to talk about risk at an organisational level but people don't experience risk that way. They're thinking: "do I look foolish?" "did I just get caught out?" "should I have spotted that?"

Shift the framing. Surface common mistakes without blame. Let people see how others responded. Show how easy it is to be fooled. Make it about judgement, not company loss.

When something feels abstract, it's easy to ignore. When it feels personal, you get their attention.



Remember...

The goal isn't to impart more information... it's to give people enough reference points that something feels "off" when it matters.

We're trying to create the pause... the hesitation... before acting. That's where better decisions start.

05 Use Story as Structure... Not Decoration

Don't treat story as an "extra". Use it as the structure. Instead of adding a scenario at the start and then returning to the "real" content, build your learning around a single unfolding narrative.

A breach developing over time. A series of decisions with consequences. A situation that escalates.

Introduce recurring characters who appear across sessions, people learners recognise, follow, and form opinions about. Give them roles, pressures, and blind spots. Let people see how their decisions play out over time.

Each concept should appear because the story demands it, not because the slide deck does.

This changes how people engage. Instead of consuming isolated guidance, they follow progression. Cause leads to effect. Decisions carry forward. The learning becomes connected, and that's what makes it stick.

It also allows you to introduce complexity gradually. Early signals can be subtle. Later moments can escalate. People experience how situations unfold, not just what they look like in isolation.

You don't need high production. A sequence of emails. A timeline. A thread of messages. What matters is continuity and momentum.

One story, carried through.

Why it works:

We don't remember isolated bits of information very well. Story helps because it links things together... one thing leads to another and our brain has something to hold onto.

When everything's fragmented, it stays that way in our brains. So we might recognise it in a quiz but won't spot it in real life.

Using recurring characters helps more than you'd think. Once people know who someone is, they start to build a picture of how they behave. So when they show up again, we're already paying attention.

That's why we have a cast of characters, hackers, and companies within our escape room "worlds"... easier for us to build a narrative, easier for learners to engage with it.

And there's a natural curiosity thing going on as well. If something's unfolding, people want to know what happens next. We don't need to force the engagement... it's already there.

And honestly... it's just closer to reality. Incidents don't come neatly packaged. They build over time with bits of information, missed signals, small decisions made along the way.

If our training looks like that, then it's MUCH easier for us to recognise the situation when it actually happens!!



08

Make It Feel Real... Not Like Training

The closer training is to real work, the stronger the impact. Use familiar tools, like email, chat, and your internal systems. Mirror the real workflows of your business. Reference current threats, not something from 2005.

If it feels like training, people switch off. If it feels real, they lean in.

Familiar contexts reduce cognitive friction. So the brain treats the information as relevant, not theoretical, the thing least available during real incidents.

09

Make It Social, Not Silent

Training tends to be completed as a solo activity but the real world isn't like that. Peer review is a powerful tool.

Introduce group decisions, shared answers, team discussions, and debriefs without blame.

Learning deepens when it's seen, questioned, shared.

10

Reflection, Not Reinforcement

Repetition alone doesn't create insight. Reflection does. Don't end sessions with summaries. Ask questions like "what would you do differently next time?"

Reflecting helps people integrate experience into their own mental models, and that's where behaviour change really happens.

11 Send a one-question scenario in Slack or Teams once a week.
Keep it fast, relevant and easy to respond to.

12 Run a 5-minute "spot the risk" at the start of team meetings.
Make it a regular thing, not a special event.

13 Share a real (sanitised) incident within 48 hours of it happening.
Recency makes it feel real and worthy of attention.

14 Ask managers to start training sessions with "why this matters to our team"
Context from someone they know lands better.

15 Introduce harder challenges for people who want to dive deeper.
Give your engaged learners somewhere to go next.

16 Let people submit suspicious emails and turn them into future training scenarios.
Use real signals instead of generic examples.

17 Rotate who leads the discussion instead of always using a trainer.
Ownership increases attention and participation.

18 Drop short scenarios into onboarding instead of saving it all for later.
Set the tone early that security is important.

19 Celebrate good catches publicly, not just mistakes privately.
Reinforce the behaviours you actually want to see.

20 Follow up training with one real-world task, e.g. check your social media settings.
Bridge the gap between learning and action immediately.

ENGAGEMENT AT *SCALE*

It's easy to get people engaged for an hour. It's much harder to keep them engaged across an entire year.

Not because people don't care, but because most programmes lose their shape the moment they scale. This is where engagement stops being an event... and starts becoming *a system*.



Designing engagement for a single session is easy. You can control the room. You can control the timing. You can control the energy. You can create that tight, high-focus moment where people are locked in. They're making decisions, they're feeling the pressure, they're actually caring about the outcome.

Designing engagement across thousands of people is where things can start to wobble. Now we're dealing with different locations, different roles, different levels of risk, and wildly different levels of interest.

Some people will love it. Some will hover on the edges. Some will try

and disappear into the furniture. (And all of that's ok, not everyone has to like everything.)

It's at this point, programmes say "Fuck it, just send the module." Not because the principles have stopped working but because the delivery loses its shape.

And when the shape goes, the experience goes with it.

What's left is something that's easy to distribute but really hard to care about. Because engagement doesn't scale through consistency of content. It scales through consistency of condition.

Let's take a look at an example of how it could work in practice...

SO, WE'RE GOING TO *ROB A BANK...*

Not a training session. A coordinated operation.

A fictional financial institution. A high-value asset locked inside a central vault. Access is segmented. Information is fragmented. No single team has everything required to succeed.

To get access to the prize, participants must extract intelligence, share information, and coordinate decisions across multiple teams and locations.

ONE ORGANISATION. *ONE MISSION.*

Everyone is part of the same narrative. But no one team sees the full picture. Progress only happens when information is combined.

the pressure peaks. Where the final pieces come together. Where they either break into the bank... or they don't.

Around that, the experience unfolds in layers.

THE CONCEPT

This isn't one event. It's one story, playing out across the organisation.

Everything builds towards a live experience at HQ. This is where

Satellite challenges.

Short, high-impact moments. And in the background, the story has spread in the event build up to give you maximum curiosity, engagement, and excitement.

People don't follow a single

path. Not everyone sees everything. But everyone has a way in.

A full scale heist. Designed to work inside a real organisation. Accessible. Inclusive.

Unpredictable enough to keep everyone paying attention.

EVENT BUILD UP

The experience doesn't start on the day of the big event. It starts weeks, maybe even months before.

A message here. A clue there. Something slightly out of place that only some people notice. It feels like recruitment. Like not everyone's been invited... just the ones paying attention. And that's the trick...

It's open to everyone. The difference is: who leans in? Behind the scenes, your security champions act as the catalyst.

Not broadcasting, not instructing.. just nudging. Dropping hints. Letting things slip.

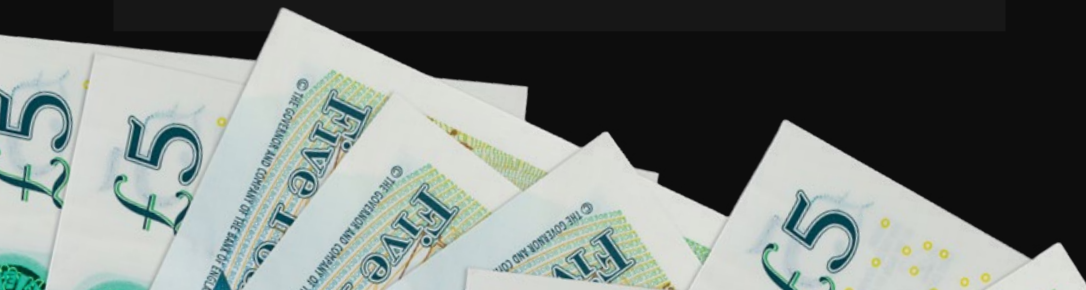
"Have you seen this?" "I think something's going on.."

The story spreads the way it should... through conversation.

By the time the experience begins, people aren't being told to take part. They're already curious. Already talking. Already involved.

Very Bletchley Park. Just with slightly less war... and slightly more bank robbery.

This isn't a single experience. This is a distributed system.



EVERY OPERATION STARTS THE SAME WAY: BY WORKING OUT **WHO YOU CAN TRUST**

In the lead-up to the event, participants are challenged to demonstrate they've got the know-how to be part of the operation...

SELECTION

In the weeks leading up to the event, participants are "chosen" for the operation through a series of mini challenges.

Using a combination of scalable physical and digital challenges, people are asked to decode hidden messages, follow investigative trails, and prove they're paying attention.

EXAMPLES INCLUDE

- › OSINT challenges
- › Broadcast messages with hidden information
- › AI-generated phone calls or video messages
- › Puzzles seeded into everyday communication channels

This establishes early engagement and internal visibility for the main event, whilst creating a sense of progression and selection for participants. Completing challenges can unlock points or additional intelligence for either the satellite or main events, depending on location.

Think GCHQ recruiting people for Bletchley Park... except we're a hacking gang recruiting your staff to stage a coordinated heist on a bank.

WHY IT WORKS AT SCALE

The selection mechanic solves one of the hardest problems in large-scale engagement: how do you create anticipation across hundreds of people, in different locations, with different levels of interest?

You don't announce it. You let it spread.

People who find the clues feel like they've discovered something. They tell colleagues. Colleagues get curious. Suddenly you've created organic engagement without a single mandatory module or a single completion deadline.

The challenge isn't access. It's attention. And attention, it turns out, is far easier to earn when people think they're being recruited rather than trained.

THE PRINCIPLES IN ACTION

- › **Mystery**
Not everyone gets the same information at the same time
- › **Autonomy**
Participation feels chosen, not mandated
- › **Stakes**
Completing challenges unlocks real advantages
- › **Collaboration**
The story spreads through conversation, not broadcast
- › **Identity**
You're not attending training. You're being recruited



FROM STORY TO INSTALLATION

This isn't one experience. It's a collection of environments, roles, and challenges designed to feel like a real operation. You're not watching the scenario... you're living it.

THE VAULT

This is the heart of the operation.

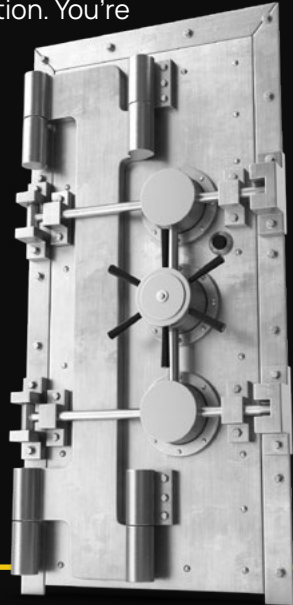
A full bank environment, built around a locked vault, layered defences, and just enough tension to make your brain go a bit fuzzy.

Inside, everything feels real. The pressure. The noise. You're working against the clock, piecing together fragmented information, decrypting clues, and chasing down the one thing that matters: the password to the vault.

It's fast. It's messy. It's a little bit chaotic. But that's the point. This is where people stop relying on what they've been told... and start relying on what they actually notice, remember, and decide.

So the question is... will they get the gold?

HQ Installation • Full immersive build • Where the story culminates



LOCKPICKING LAB

Security doesn't stop at the screen. Lockpicking Lab provides a tactile introduction to physical security – reinforcing that the threats aren't always digital.

With sessions lasting 15–20 minutes, this is a high footfall, interactive activity that gets people away from a screen and thinking about security in a completely different way.

Physical security layer • 15-20 minute sessions • No screens

THE BRANCHES

While the vault team is under pressure, the operation is already in motion elsewhere.

Each location becomes a compromised branch, built as a portable tabletop escape room packed with documents, devices, and fragments of the bigger picture.

Nothing makes full sense on its own. But when the right pieces come together... everything clicks.

No one team has the answer...

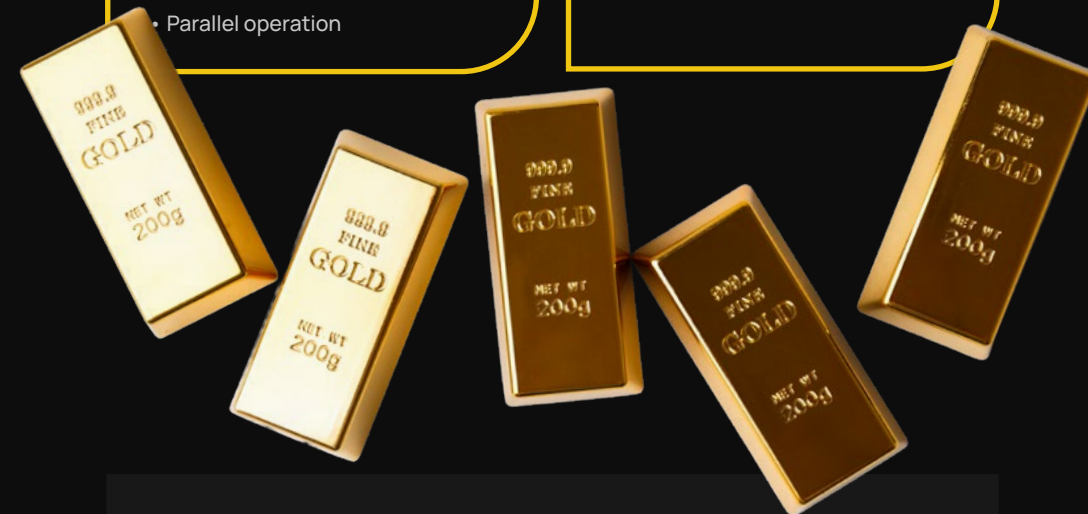
Satellite offices • Portable format
• Parallel operation

HOLD THE PHONE

Not all breaches start with phishing. Hold the Phone introduces the human side of security through short, interactive voice-based social engineering scenarios.

Sessions last 5–7 minutes. High footfall. Shows participants exactly how easy it is to get caught out, and why the human voice is still one of the most effective attack vectors in the game.

Social engineering layer • 5-7 minute run time • High footfall



SCALE IT

This can be a full-scale operation across multiple locations... or something much smaller, run in a single room. Same mechanics. Same narrative. Different footprint.

WHAT THIS ACTUALLY DEMONSTRATES

Strip away the heist narrative and what you're left with is a working model of everything the previous chapters have described. The mechanics aren't theatrical. They're the point.

01

Consistency of Condition

Every team, regardless of location, experiences pressure, fragmented information, and real consequence. The content changes. The conditions don't.

02

Parallel, Not Sequential

No single team sees the whole picture. Progress depends on communication across groups. This mirrors how real incidents unfold - and how real responses must work.

03

Events to Systems

The experience doesn't start on the day. Pre-event challenges, the live operation, and post-event debrief form a continuous system. The spike is anchored to something before and after it.

You don't need more content.

You need better design.

And better design means building a system that repeatedly creates the conditions where good decisions happen.

04

Relevant not reinvention

One narrative framework serves every role, every location, every team size. The story adapts. The learning objectives don't change.

05

Pattern Disruption

Because no two teams experience exactly the same version, the brain can't autopilot. Familiar faces, unfamiliar problem. The variation is deliberate.

06

Identity Shift

Participants aren't completing training. They're being recruited for an operation. That reframe changes how seriously people engage - before the event even begins.

Your people already know the information. Let's build the instinct.

CYBERESCAPEROOM.CO



What Actually Scales

The mistake many learning teams make is trying to replicate the same experience for everyone. Same content. Same format. Same journey.

It looks neat. It looks controlled. It looks like it should work. But engagement doesn't behave like that, because people don't engage in the same way.

Some need to see it. Some need to do it. Some need to talk through it. Trying to force everyone through the same experience doesn't create consistency. It creates drop-off.

The programmes that scale well don't standardise the experience. They standardise the mechanics underneath it. Pressure. Decision-making. Consequence. Context. Reflection. Those are the things that actually drive behaviour.

You can deliver them in a room in a 15-minute interaction. You can deliver them through a full-scale immersive environment. The format changes but the experience doesn't.

From Events to Systems

Another place things wobble is when engagement is treated as an event. Something you run once. Maybe twice. If you're feeling ambitious, quarterly.

All you're doing there is creating a spike. People show up, engage, maybe even enjoy it. And then? They go back to normal. Because behaviour doesn't change in spikes. It changes through repetition. Exposure. Small moments where someone has to make a decision, not just remember a rule.

Organisations that get this right don't think in terms of "sessions". They think in terms of systems. Engagement shows up repeatedly, in different formats, at different times. Not always big. Not always loud. But always there.

Parallel, Not Sequential

Large-scale programmes are often built like a queue. Everyone lines up, goes through the same thing, and waits their turn. It's simple to deliver but it creates passengers.

Engagement scales far better when it runs in parallel. That

means different teams working on different parts of the same problem. Different people seeing different signals. Information distributed instead of centralised. That's how real situations unfold: messy and fragmented. They depend on communication. No single person sees the whole picture.

And it does something else. It keeps people paying attention. Because they're not all doing the same thing at the same time, they're not watching a familiar pattern play out, thinking "oh right, this is the bit where..."

The moment recognition kicks in, engagement drops. The brain relaxes and stops working so hard. Parallel design disrupts that. It keeps things moving, slightly unpredictable, just different enough to keep people mentally switched on.

And that is how we keep the energy. The attention. The engagement.

Relevance Without Reinventing Everything

One of the biggest objections to scaling engagement is "we can't

personalise this for everyone". And do you know what? You don't need to.

Relevance doesn't come from rewriting everything. It comes from shifting perspective. You use the same structure but shift the experience.

You don't always need new content.

Take a single scenario. A suspicious request coming into the organisation. You don't need to rebuild it for every team. You can just change how it shows up. One group sees it as an email asking for access, another sees the same request as a Teams message, someone else receives it as a phone call. Same situation. Different channel.

Or take a decision point. One group gets all the information, another is missing a key detail, another is dealing with conflicting information. Same task, different conditions.

You don't always need new content. You just need to stop showing the same thing in the same way.

Stopping the Brain From Switching Off

There's another problem that shows up at scale: pattern recognition. People learn how the training works. They spot the format. They anticipate the outcome. They know where the "trick" is. They know what a bad example looks like. They know what the right answer is supposed to be. And once that happens, they stop thinking.

They're still completing the training. They're just not really in it. Because the brain is efficient. The moment it recognises a pattern, it starts conserving energy. It shortcuts, predicts, disengages from the effort. Which is the exact opposite of what you need when behaviour depends on attention.

The fix isn't to make things more complicated. It's to introduce enough variation to keep the brain paying attention. It's why we'll never tell you to replace your entire awareness programme with one format, even ours. That would just create a new pattern.

You need to change the format. Not for novelty. Just to stop autopilot kicking in. If people have

to think again, then learning can start landing.

Where the Bigger Experiences Fit

Larger, more immersive experiences come into their own when we're talking engagement at scale. They create focus. Intensity. A shared experience that people actually remember. Not because they're bigger, but because they feel different.

They pull people out of their normal environment. Remove the usual distractions. Replace passive consumption with active involvement. And for a short period of time, their attention is fully focused. Decisions feel real. Consequences feel immediate. Those moments stick.

Spikes fade if nothing follows them. The real impact comes from what happens around them.

They give you something to anchor everything else to. A reference point people can come back to later. "Remember when that happened..."

But they're not the whole system. They're the spike. And spikes fade if nothing follows them. The real impact comes from what happens around them. Smaller interactions, repeat exposure, ongoing touchpoints that reconnect people back to that experience and reinforce what it felt like to be in it. That's what turns a memorable moment into something that actually changes behaviour.

The Shift

At scale, engagement stops being about designing a perfect moment and becomes about designing a system that can repeatedly create the conditions where good decisions happen. Across different people. In different contexts. Over time.

It doesn't always have to be high intensity. It doesn't always have to be immersive. But it does always have to be consistent in what it asks people to do. They need to notice, to interpret, and most importantly, to decide.

That's the difference. You don't need more content. You need better design.

TRAINING DOESN'T WORK. *THIS WILL.*

You already know the information. So does your team. The question the next decade will answer is whether organisations are brave enough to design for the moments when information runs out, and *instinct has to take over.*

In the end, every organisation runs into the same reality, whether they choose to acknowledge it or not. Security isn't a technology problem. It's not a policy problem, and it is not a tooling gap waiting to be filled. It is a human problem. More specifically, it's a pattern problem. An instinct problem. Human instinct does not yield to more information. It yields to better experience.

People do not rise to the level of policy. They fall to the level of habit. And habit isn't formed in training modules or annual refreshers. It's formed in the small, unremarkable, often unconscious decisions people make when something feels slightly off and they have to choose what to do next.

This is where traditional learning approaches break down. Posters, e-learning, and mandatory training all operate on the same flawed assumption: that if people are told the right thing often enough, they will do the right thing when it matters. But humans don't behave like storage devices waiting for an update. They hesitate. They trust. They rush. They second-guess themselves. They prioritise convenience. They avoid friction. And in those moments, ease will

almost always win over intention. These are not failures of character. They're predictable, repeatable patterns of human behaviour. If anything, they are exactly what you would expect from someone operating under time pressure, uncertainty, and competing priorities. The issue is not that people do not know what to do. The issue is that in the moment, something else feels easier, faster, or safer.

The issue is not that people don't know what to do. The issue is that in the moment, something else feels easier, faster, or safer.

That's where the real impact lives. Not in completion rates or knowledge checks, but in those small, almost invisible moments where someone pauses, recognises a pattern, and chooses differently. The suspicious email that gets reported instead of ignored. The unexpected request that gets questioned rather than actioned.



If organisations want to change outcomes, they have to change what happens in those moments. And that doesn't happen through explanation alone. It happens by sharpening instinct. By creating experiences that simulate the pressure, ambiguity, and emotional cues of real-world situations, and allowing people to practice moving through them before it counts.

Immersive learning does exactly that. It gives people rehearsal space for the moments that matter. A controlled environment where decisions carry consequence, where attention is held, where mistakes become part of the learning rather than something to be avoided. It creates memory with weight behind it, the kind that actually surfaces later when it needs to.

The subtle shift from automatic behaviour to deliberate response.

These moments rarely show up on dashboards. But they are where risk is reduced in practice.

They are the difference between exposure and resilience, between assumption and action.

The organisations that understand this are the ones that will move ahead in the next decade. Not because they spend more, but because they invest differently. They stop treating learning as a compliance exercise and start treating it as a strategic control. They stop focusing on what people know and start focusing on what people do with that knowledge when it matters.

The future of security won't be shaped by more content, more reminders, or more sophisticated platforms. It will be shaped by organisations that respect how people actually learn and design accordingly. Through engagement, through experience, and through meaningful interaction with risk.

Training alone will not change behaviour. Instinct will. And instinct is something that can be built.

Notes

A note from the author

The ideas in this paper... book... whatever it morphed into... come not from theory, but from observation. From watching how people actually behave when time is ticking, when information is incomplete, and when consequences feel tangible.

We're not, as you have guessed, an academic research group. And we're not a compliance vendor. We don't build training to satisfy audits or impress dashboards. We're interested in what holds up when pressure enters the room, and what collapses despite good intentions.

What we design are experiences that recreate the conditions under which decisions are made. Sometimes that takes the form of a tabletop puzzle. Sometimes it means we bring a whole train carriage to your office. Sometimes we run a fully digital experience. The format changes, but the psychology does not.

We have seen intelligent, capable people make poor decisions for very human reasons. And we have seen those same people

make much better decisions after they've trained with us. That gap is exactly where our work lives.

We're not claiming immersive experiences are the only answer. They are one tool within a broader engagement strategy. What we are claiming is simple: if learning doesn't reliably reflect the conditions under which decisions are made, it will not reliably change behaviour.

So. This book exists to put language around that belief. To bring it to life. And if it helps you rethink how learning works in your organisation, it has done its job.

If you want to have a serious conversation about what better engagement looks like for your team, we're open to it.

*The conversation is
entirely optional.
The behaviour is
not.*



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Notes

About the author



Amy Stokes-Waters is the CEO of The Cyber Escape Room Co., and the driving force behind its experiential approach to cyber security training.

Since 2023, she has led the development of immersive learning programmes designed to move beyond awareness into measurable behaviour change.

With a background in sales and marketing, Amy brings a sharp focus on engagement, decision-making, and real-world impact. She holds a degree in English and French and a diploma in law, combining analytical thinking with

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Amy has personally designed many of the company's escape rooms, simulations and interactive scenarios, all built to replicate the pressure and ambiguity of real cyber incidents. She has spoken at corporate and industry events on human risk, training design, and the role of experience in shaping instinct, advocating for a shift away from compliance-led learning towards behaviour-driven security that, in her own words, "actually bloody works."

*Thank fuck
that's finished.*

MAY I HAVE YOUR **ATTENTION** PLEASE?



Most security training doesn't change behaviour.
It changes dashboards.

Human error sits behind **60% of all cyber incidents**. Organisations respond by adding more content, more modules, more reminders. The machine gets more efficient. The outcomes don't move.

This book argues that the problem was never content. It was always behaviour. And behaviour doesn't change through information alone. It changes through experience, pressure, and the kind of **learning that leaves a mark**.

May I Have Your Attention, Please? is a practical, evidence-based, occasionally swearsy argument for designing learning that people actually remember. Not because it's fun. Because it works.

*Stop training people.
Start rehearsing them.*

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