This Strange Dominant Logic – Decoding Behaviour Under Stress

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Abstract. Simulation enables rehearsal of human actions before actors move into 'real time'. It allows for long term planning and/or immediate events - to devise appropriate responses ahead of time. Since those earliest known simulations the behaviour of the individuals within it has been keenly observed. What factors enable participants to achieve intended outcomes? Which elements - in context, events or person/s - might lead to (or prevent) incidents, accidents or disasters? This paper addresses the conference themes of concepts and capability through a report on research that includes uses of simulation to prepare individuals to behave appropriately under stress. Predicting behaviour has particular relevance to the capability of simulation for supporting current and future human development goals. We report on research concerning a tool used for decades by organizations that are in special need of answers to such questions as those posed above.

1.   INTRODUCTION

Rehearsal is essential for actors preparing to take part in any theatrical activity. Simulation has a theatrical base, in that it similarly is a time for rehearsing – not of fiction – but of future reality. Individuals preparing to enter complex, difficult or dangerous environments often learn first via simulations – face-to-face enactments or computer/mechanically aided means – developed specifically to provide them with contexts within which to prepare people for entry into such environments.

Much workplace-oriented rehearsal/preparation is focused on individual skill development. Since it is *capability* focused, issues to be simulated will address such things as whether an individual/team can complete an assigned task to required levels within a set time to pre-determined quality standards. Assessment of learning acquired will similarly focus on visual/ technical/ knowledge-based analysis of performance, with success/failure attributed to degrees of acquired competence.

A parallel but less technology focused trend in simulation concerns the complexities of personal interactions. Also known as Crew Resource Management (CRM) in aviation contexts, and 'non-technical skills' in medical environments, this trend concerns aiding learning about the intangibles of human behaviour. This trend includes work on simulation in management, leadership and team building. All these are learning contexts where – to be effective **and** efficient - a capacity to 'do' something must be accompanied by a perceptiveness enabling appropriate choices about the right thing to 'do' at any moment with any given individual.

While research shows it is possible - even essential - to assist people acquire emotional awareness that is 'other than' capability based, it is much harder to devise learning and assessment frameworks. This paper concerns those particular factors involved when the focus shifts from skills/capability to emotional awareness and responsiveness.

2.   ASSESSING HUMAN BEHAVIOUR

Human behaviour is a composite of physical, emotional and intellectual attributes. While visually observable capabilities are important (and easier to observe and assess) they are not the beginning or the end of the process of learning to 'do' things successfully. There is much more that influences behaviour in the moment of action, than visible capability.

In addition to skilled ability, human behaviour is also driven by such elusive factors as 'readiness' (relating to an individual's mental state of preparedness), 'state of mind' (e.g. emotional willingness, intellectual alertness) and 'personality' – a broad brush phrase that is perhaps the most difficult of all human factors to assess objectively. The difficulty with all these components of being human is that they cannot readily be 'assessed' objectively. While we can assess a physical 'skill' with a reasonable degree of 'objectivity' it is another matter when training courses and assessment concern such features as 'kindness' 'ability to get along with others', 'stability under pressure' 'situational sensitivity' etc.

Education theory regularly discusses the need to address 'knowledge, skills and attitudes'. Yet it attends to the 'knowing and doing' components rather more than to the attitudinal/emotional components underlying observed behaviour. And while assessing physical capability is essential to assure acquisition of training, being confident about the mental preparedness of those being trained must be equally important.

Reasons for the comparative absence of attention to educating for, and assessment of, the 'attitudes' component of human behaviour are varied and may be both sound and reasonable, depending on intentions, goals and contexts. But an absence of reference to an individual's innate characteristics – those which cannot readily be captured through observation of physical responses to events – can mean continuing uncertainty about likely future behaviours in times of stress or anxiety. In contexts requiring an attentiveness to customer service (aviation, medicine, emergency, sales) it must be of concern if there is no data about individual reactions in contexts where their innate (but unknown) 'self' may (for any reason) override relevant learned skills and capabilities.

A key reason for the comparative absence of attention to the 'human/emotional factors' in training learning is that it involves making values-based judgments about another person – and few people feel equipped to do so. Yet possessing validated ways of assessing this 'black box' of human behaviour can provide life-saving strategies for use in times of stress – and in times 'business as usual'. That is – having a validated methodology for supporting assessment of 'personality' will be of great value in any context where 'understanding self and others' is a tacit (often explicit) requirement for employment.

One well researched tool that enables access to the 'human black box' and which can accurately predict specific features of an individual's range of stress-driven behaviours is known as Process Communication Management (PCM).

3. MOTIVATION NEEDS AND ENACTMENTS

Developed by Dr Taibi Kahler (Kahler, 2008), it draws on a wide range of on-going psychological research. At its core is a concern for identifying and understanding each human being's essential motivational needs, and how these are best met - and what happens when they are not met positively. This body of research shows that when motivational needs are met positively, humans are happy, healthy and effective. If, however, motivational needs cannot be met positively, humans will do things, consciously or subconsciously, to get the needs met – negatively!

The implications of this are profound indeed. Since 'all actions make sense to the actor', individuals who are not getting their needs met positively will take action to get unmet needs met negatively – and when they do so we begin to see them creating events ranging from angry exchanges to 'near misses' - and beyond.

Through its ability to help identify behaviours in advance of any stress situation, PCM contributes an extensive body of knowledge for use in supporting learning via simulation environments. It is especially beneficial in regard to rehearsal for as-yet unidentified stress inducing situations, where there is a higher than usual risk of error and mistake making. The benefits begin – in this respect - with information it offers about those habits of mistake-making.

3.1 Why Do We Make Mistakes?

What factors are at work in us such that we cry *"Oh! No! I knew not to do that!"* just after we have (again) committed some familiar error? Are they identifiable – these 'forces' which lead us time and again into error – and so often at those moments when we are most in a hurry, under pressure or experiencing stress? The short answer is 'yes they are'! But the much longer, more complex, answer concerns working out how to recognise that there is a pattern at all. Since each new 'episode' is occurring in a new 'event' zone, it may appear to have little to do with previous events, apparently having been triggered only by what is happening now.

3.2 The *Comedy* of Human Nature

The Italian form of improvisational theatre known as 'comedia dell'arte' (Claudon, 2008) provides an intriguing insight into how human beings seem (and are seen) to be perpetually repeating the 'same old' mistakes - creating havoc and requiring some form of desperate action to retrieve the situation. The vital knowledge informing this mode of theatre is awareness of the repetitive nature of human behaviour. As time passes, we acquire automatic responses to situations based, as Kahler shows, on our unique set of motivational needs - so we respond to apparently 'new' situations in the 'same old' ways, exactly as the 'commedia' actors represent so cunningly.

3.3 Seeking 'Cause' And 'Effect' Connections

Researchers looking for 'causes' and 'effects' among the complexities of human behaviour have identified many specific patterns. In the early 1960's, Janus used the term 'groupthink' to indicate how decreased objectivity mars group performance (Janus, 1971). He showed how a group can become self-deluded about its morality and feel invulnerable to criticism. Using first the Cuban Missile crisis, and then the Challenger disaster as case studies, he identified eight characteristics of groups that fall into error. Three of these are

- An *illusion of invulnerability* - leading to **excessive** optimism and risk taking
- Group members *rationalise*/ignore warnings or threats to their work
- An *illusion of unanimity* – means that silence is interpreted as consent

Harvey's concept of 'The Abilene Paradox' highlighted the impact of Janus's 'illusions of unanimity' by showing how group members - who may silently disagree with group decisions - publicly agree with them - often with disastrous results (Harvey, 1999). In the 1980's Mangham (using commedia dell-arte as a metaphor for his observations) analysed common patterns that arise in management teams, when individuals exercise power - either to the benefit or detriment of group goals (Mangham, 1986).

Each of these researchers was interested in a 'part' of the complex whole of human behaviour. They were seeking for the 'causes' of specific group-based behaviour/s and proposing strategies for teams/members to avoid the resulting mistakes. While none uncovered knowledge that could predict, with certainty, what might occur in any particular real life situation (nor in a simulation of such 'real life' for that matter), their work illustrates the frequency with which human beings tend to follow certain well-worn paths (i.e. patterns) that become evident to a trained eye. The solutions, suggested by each of these researchers, for reducing error and angst in teams and groups, focused chiefly on efforts to observe group behaviour in order to devise and enact appropriate interventions in a timely manner.

3.4 The *Tragedy* of Human Nature

The authors all agree on the tragedy of the frequent inability of humans to create productive teams. While these – and other – theories explain how it happens none can fully explain why. Nor can they assist in helping to predict future behaviour.

Argyris and Schon (Argyris, 1991; Argyris & Schön, 1996) took a different tack by focusing on the '*subtle patterns of reasoning which [underlie] our behaviour; and how those patterns continually [get] us into trouble*' (Senge, 1990). Their work has had a wide impact. They emphasise the importance of understanding how thinking becomes trapped into a reliance on 'single loop thinking' inhibiting our capacity for assessment of motives and emotions in the moment of action.

They strongly recommend using 'double loop thinking' (also known as asking the '*question behind the question*', (Miller, 2001) a concept which builds on their proposition that humans use 'mental maps' to guide our actions, while remaining largely unaware of the form or content of such maps, and follow them unquestioningly. To apply 'double loop thinking' we must develop the habit of checking that proposed actions are actually addressing the 'real' rather than the 'presenting' condition. However a continuing barrier to doing so resides in our unawareness of enacting two (competing) theories of action, in regard to how we explain our actions to ourselves, and others.

The first of these theories of action is our 'espoused' theory. This terms describes what we 'say we do' and sincerely believe we are enacting. The second is our 'theory *in* action' - what we are seen to be doing. This is how we actually behave, and includes how others experience the results of that behaviour. Observers see the gaps between these two 'theories', but only with great difficulty can we do so ourselves [the old adage 'do as I say, not as I do' captures this succinctly]. While Argyris and Schon say that it is possible to identify and reduce the size of [but never close] the gap between these two 'theories of action' – they agree that it is difficult to do so.

In this regard it is useful to note that Mangham's work showed it is possible for human beings to become conscious of personal behaviour and their impact when our '*performance becomes 'laboured'- a matter of effort'*. That is we can see how our actions adversely affect our intentions - when the effort to operate 'habitually' becomes too hard to sustain. This is where simulations about human behaviour are remarkably useful – and provide often painful opportunities to observe for ourselves the gaps between our 'espoused' and 'in action' theories.

4.   SIMULATION AND MOTIVATION

Role play based simulations – and other forms of simulation that engage human beings in 'learning' via hypothetical contexts – create exactly those contexts where it becomes too hard to sustain familiar habits. However, in doing so they run the risk of becoming 'threatening' and 'complex' settings within which individuals struggle fiercely to retain their hold on habitual behaviours – even if surrounding contextual factors suggest this will be counter-productive.

Such simulation contexts - where individuals find themselves acting in contravention of their espoused theories - make use of those comedic/tragic aspects of human nature identified by the creators of commedia dell-arte so long ago, and re-identified in modern research. They are most effective as learning vehicles when they have an explicit goal of assisting players reduce their internal gaps in perception. To do this effectively requires individuals to have access to a framework that helps them understand personal motivational forces as more than automatic responses in the moment.

5.   PCM AND MOTIVATION

PCM provides just such an essential framework to help individuals 'see into' the 'black box' of their own motivational structure. While providing

extensive insight into behaviours and contextual factors influencing what is observed and experienced, neither Argyris & Schön nor Mangham have provided a framework with which to anticipate behaviours ahead of specific contextual triggers. As a theoretical framework PCM addresses this gap because it focuses precisely on the external cues we display about our internal motivational state. While the research is extensive the resulting frameworks are deceptively simple and apparently[1] easy to learn.

5.1   Being/Staying *OK*

Kahler's work is specifically concerned with the perspective of human communication that links external cues with internal motivational states. Drawing on the principles of Transactional Analysis (TA) as developed by Eric Berne (Berne, 1964) and influenced by the work of Paul Ware (Ware, 1983) Kahler developed a means of adapting Berne's simple but compelling model for explaining factors underlying human communication.

Berne proposed considering our internal motivational framework in relation to how we think about ourselves, and others. Figure 1 shows the format of these relationships. In a positive frame of mind – akin to what Karl Rogers called 'unconditional positive regard' (Rogers, 1982) - we have a state of mind that can be summarised as perceiving the world in terms of *"I am OK. You are OK."*
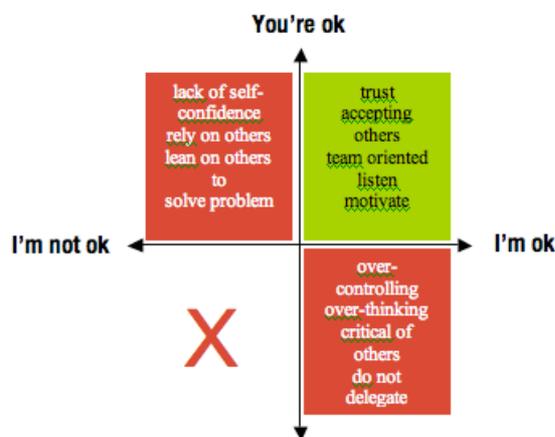

Figure 1 the OK Corral (Berne 1964)

If – for any reason - we lose our positive stance we slip into one of two opposing mindsets – either *"I am OK. You are not!"* Or *"You are OK. I am not."* Under severe stress we may slip from either of these into the entirely negative space of *"I am not OK. And you are not OK."* Our focus here is on the first three mindsets, and as Figure 1 shows, each of these creates within us a distinctive stance that becomes evident in our words and actions.

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[1] Appearances are, as so often, deceptive here. PCM repays close study manyfold – but is not an 'easy' tool to grasp.

5.2   Slipping Away from OK

As long as we are in an 'I'm OK – You're OK' mindset we are team-friendly, cooperative, and non-judgemental. The moment we come under pressure – if we do not have a means of identifying and correcting for the impact of the stress - we start to leave this mindset. We then begin to move towards 'I am OK. You are not OK' and start judging/ belittling others. Or we move to 'You are OK. I am not OK' and begin to judge/belittle ourselves.

Neither of these mindsets encourages cooperation, positive action or support. In moving into either mode we are becoming a problem - a liability to ourself and others. If left unchecked the emerging negative mindset progresses to systematic disruption of our life and that of others. We 'cut corners' because we 'know better', or frustrate others because we expect them to be 'as committed as we are'. Or we expect others to fend for themselves, and do not support them.

An irony of this slip towards negativity is that as we speak and act we are actually putting out signals indicating the nature of our distress and even paradoxically seeking help to have our needs met and move back towards being OK. However the actions/words we use often serve to provoke a negative response in others who counterattack, counter-blame or avoid us entirely. They become ways of having our needs met negatively – right at the point when we would most benefit from having them met positively.

PCM enables use of observable behaviours as a means of identifying personality traits and needs. Understanding *needs* as fundamental drivers of behaviour enables informed use of targeted actions to redirect behaviour back to a positive orientation. Simulations give educators endless opportunities to create safe, bounded environments in which needs, their underlying beliefs and consequent behaviours can be both provoked into visibility and then addressed and adjusted to reduce the risk of future slippages into negative mindsets.

5.3   Simulations and states of OK-ness

Using simulations to train for behaviours that are appropriate and sustainable under pressure is a fairly recent addition to formal educational contexts. Their capacity to unveil hidden motivators/beliefs shaping behaviour is incomparable. No amount of 'being talked at' in lectures or seminars can ever provide the internal shake-up that occurs when we see for ourselves that we have just failed to operate in accord with what we say we believe.

In places where an educator is the only person speaking there is little chance to create opportunities for observing behaviour to assess its compatibility with stated learning goals. Yet what we do and how we speak are more reliable signs of our emotional state than how we sit and listen!

Simulations are clearly structured to focus on action and interaction - and specifically action most likely to be a person's 'default' behaviour – created to achieve outcomes (usually defined via some form of 'success'), not crafted to impress or conceal the 'inner person'. While alert participants may be able to maintain a state of "OK-ness" - and thus hold close to their espoused beliefs - others, less aware of the impact of external pressures, slip towards one or other form of negativity.

5.4 Emotions, Reactions And Simulations

Skilful simulation designs – coupled with effective usage – can cause participants to 'betray' themselves into being themselves. The tightly controlled structure of a simulation generates various means of 'dis-arming' participants such that instances of the gap between 'saying' and 'doing' emerge without artifice. These, in turn, generate new insights, making adjustments to future perceptions and behaviours both possible and relevant – and all this within the 'safety' of a 'challenging activity'.

'Safety' is, of course a relative word here. Many participants with an inclination towards self-doubt or self-glory may find a particular simulation context too challenging and seek refuge in attacking or blaming the simulation itself. Both responses – as provoked by the design - are highly revealing of a state of mind. Consider – as an example - a participant who verbally, and then in print, attacks the use of a simulation whose content had (in a manner unanticipated by designer or user) threatened a somewhat fragile sense of self-worth. The emotional response of "I'm OK. You're not" had not been anticipated, or allowed for, in the structure. At such times effective facilitation, and the personal integrity and strength of the facilitator, are essential for identifying options for longer-term change.

PCM is a rich source of options for designer, participant and facilitator in considering these options. It provides explicit guides for analysis by helping to 'looking backwards' into events and behavioural responses to identify causes of disruption. This, in turn, provides guides for re-shaping future actions.

Figure 2 - core elements of the human operating system (Naef, 2009)

Figure 2 is a way of representing how the impact of past experiences can erupt into action at both anticipated and unexpected moments. The upper level can be thought of as the 'application software' that is shaped and developed by all the factors through which we learn and change. The lower level represents all we inherit, experience during the nine months in the womb, and our first five to seven years of life. On our application level we accumulate knowledge, skills and experience, and the older we get and the more we use this application software the more experienced we get.

Sometimes we find ourselves in a context where prior 'stuff' from within our human operating system starts to interfere with what's going on at the application level. That's when we do things that do not correspond any more to our knowledge of good practice as previously learnt and usually applied.

And this is what a good simulation does. It creates intentionally unsettling sequences 'near enough' to prior familiar contexts with just enough disturbance to unsettle 'taken for granted' (unspoken) assumptions. The activity is relevant and has fidelity to a known/familiar context. The intention behind using a simulation as a learning strategy is not to disturb participants' 'comfort levels' seriously or for a long period. The aim is to generate opportunities where relevant behaviours will be enacted in a setting allowing for close and detailed analysis.

The standard structure of a simulation – briefing, action and debriefing – creates a bounded space within which participants create and encounter events that are known to be 'not real' - yet also 'not unreal'. Resolving these encounters supports and challenges learning by creating moments and events that have potential to trigger the 'below the surface' factors which overrule 'usual' behaviour. That is, for most participants the experience of a simulation is known to be artificial and therefore temporary. However the design *is* created to be 'real enough' to provide opportunities to ensure learning through analysis of action 'in the moment' - with consideration of how this learning might alter future actions and responses.

Combining knowledge of PCM with simulation-based learning allows participants to identify how their actions did - and did not - mesh with expected behaviours. It encourages a search for underlying beliefs and 'life positions' (in regard to being 'OK') that are influencing moment-by-moment actions. This in turn enables individuals to plan and enact changes in behaviour focused on altering ineffective belief-driven motives.

6. ASSESSING SKILLS / SHAPING ACTIONS

6.1 Assessing Non-Technical Skills

NOTECHS (*non technical skills*), ANTS (*Anaesthetists' non technical skills*) and NOTSS (*non technical skills for surgeons)* are well known tools used by trainers and assessors, to identify and report on enactments of observable behaviours. The term 'non-technical' in all these acronyms refers to 'the cognitive and social skills required in any operational task involving decision making and team work.' (Flin et al., 2003)

These cognitive and social skills might be thought of as the kind of behavioural activity that is an 'acting out' of individual 'needs' in positive modes. Each format for assessing non-technical skills has its own criteria, standards and 'behavioural markers' with which to assess responses. They are widely used to assist in developing 'hard skills' through training designed to engage and sustain 'automatic response' behaviours in times of stress.

6.2 Shaping Actions

These instruments cannot – of themselves – provide guidelines for altering the factors *influencing* future behaviour. They illustrate when individuals or teams are operating effectively or not. They are not as helpful for identifying underlying causes or indicating remedial options. Nor can they, in themselves, prevent individuals from descending into deep distress during emergencies. In other words, use of observable behaviour to shape training improves observable skills, but something else is needed if individuals are to anticipate, with any hope of appropriately influencing, their behaviour in unrehearsed future situations.

Simulations can be used for rehearsal of pre-determined skills and also for assessing the extent and sustainability of improvement under a variety of conditions. PCM contributes a theoretical framework for achieving improvement in (for example) micro-managing emotionally based responses under stress.

7. HUMAN FACTORS

In a general sense 'human factors' - as a term linked to work on 'machine' based simulators – relates to study and development of solutions for more effective integration of human beings and the machines they are using in their work. In this sense it began as a study closely related to ergonomics – however it has a much wider remit in the 21st century. A study for Air Traffic Management (Kirwan et al., 1997) noted major research areas include (inter alia)

1. Interface design & workplace layout
2. Environmental considerations
3. Communications aspects
4. Job and team design – *facilitating high motivation and teamwork*
5. Selection, training and procedures – *the right person for the job, and proper training and aids*
6. Human error & recovery – *detecting and correcting or avoiding the consequences of human errors, and ensuring the human can detect and correct machine errors/failures*

All this is vital of course, yet this list does not include reference to helping the 'human' in the equation to better understand him/herself in context. PCM proposes five 'behavioural cues' - *words, tones, gestures, face and posture* – with which individuals are able to monitor their own – and others' moment-by-moment responses to events. The goal is to enable all involved to be aware of the characteristics of those moments when unknown, and yet possibly deadly, 'automatic' reactions are triggered thus creating the potential to deform or destroy desirable outcomes.

8. CONCLUSION

This is not so much a conclusion as a beginning. While PCM has been researched in school and juvenile contexts (among others) this paper is the beginning of a research process designed to extend the broader societal understanding of how simulations and PCM combine to create learning contexts that are powerful, insightful and go beyond skills training.

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