



Human Factors in Stressful Team Situations: A View from an Operational and Training Perspective

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Lessons learnt – the SOP

Investigation reports into occurrences, incidents and accidents – according to the established process – start with a narrative synopsis of what happened. This usually gets supported by factual information and data retrieved from different recording sources. The subsequent analysis then looks into causal factors and the dynamics involved and it puts all into context explaining links between the different factors. The findings then give us a clue why the mishap did occur. Finally the recommended actions propose what has to be done in order to avoid another such occurrence and thus improve the overall situation.

Applying models from researchers like James Reason or Bob Helmreich in these process steps helps us to systematise and thus to better understand the dynamics of the events. We understand how defence layers have been penetrated, how well or how badly threats and errors were managed – resulting in risk levels that – according to our investigations - then mostly got out of control.

From here and in order to improve, the industry and the regulators implement changes in process-, in hardware- and in skill-management. We get regulations, procedures, checklists, organisational charts adapted or even newly designed. We get hardware improvements and we get skill training reinforced, adapted or newly designed as well.

The shocker

Although we strive for continuous improvement on all fronts, again and again we are confronted with another mishap, occurrence or accident. A closer look reveals that in the majority of all cases it is the well known ‘human element’ that plays a crucial role and thus becomes a key issue for any future improvement.

In medicine they say that with further investments into medical **technology** only a tiny improvement can be achieved. But a systematic investment into ‘**human factors training**’ would have a much greater effect and success. As a well known research paper has disclosed, in the US between 48-98’000 patients die annually due to medical malpractice in one way or another.

But the microscopic look also reveals that it is not just the technical skill training and the classical ‘human factors’ training that is needed, but beyond yet another training domain needs our attention – the domain of the individual coping with stress; changing gear from functioning in the green range to functioning in the yellow or even in the red range. This paper tries to shed some light onto this domain.

It’s not only that an adequate training in ‘Threat and Error Management’ is badly needed in terms of developing strategies, “how we would proceed if...”. We need to get a step closer to the individual’s reactions under stress, learn and experience individually about our own stress patterns, develop, apply and modify intervention techniques that can be applied on myself and/or on other members of the team involved.

A closer look

Let's have a closer look into a few mishaps in different areas – the list could be endlessly continued:

09/11 Investigation commission

Do you remember those words heard from tapes played recently to 'The National Commission on Terrorist Attacks Upon the United States (also known as the 9-11 Commission)', when an FAA official asked some Defence Department official over the phone if they would launch fighters? The response was something like "...uhh....I don't know....uhhh..".

The response was a completely inadequate and failed 'professionalism' – but no surprise here; these people had been thrown from business-as-usual straight into top stress levels. Without any warning. And that's how it happens.

Management blunder

Remember the collapse of Swissair in 2001? We saw a new CEO, former CFO of a huge corporation taking command and asking insiders how it came that the former management – being involved in aviation and therefore being familiar with planning items like 'alternate planning' – could have gone that far without considering any alternative course of action. Exactly the same person then, later and under increasing stress did exactly the same – no consultation with any knowledgeable body, lonely wolf behaviour, tunnel vision 'how to save the company' without considering any alternative.... Stress-symptoms in quantity.

Malpractice

Keen to perform, keen to fulfil expectations, keen to compensate for lack of resources – these were the drivers in a recent incident in a Swiss hospital where an 82-year old patient had the wrong leg amputated and subsequently died. Under the magnifying glass of the investigation all sorts of stress symptoms surfaced.

Aviation

Remember when the captain of a mid-Eastern airline – the aircraft on fire and returning under emergency with open fire and panic in the cabin? On the CVR he was heard singing during final approach – only a closer look revealed that he was citing verses from Koran. Under the extreme stress he reverted to old methods of dealing with stressful situations – completely inadequate with what was expected in the given situation. Stress-symptoms in most pure form.

Politics

Remember when President Nixon got under fire about Watergate?
Remember those pictures on TV of him exhibiting deep stress patterns?

Common issues in all these cases:

- All key players in these examples were under stress.
- All of them had excellent training and all of them had passed the respective exams – so they basically knew what and how to do it and they all had also quite some practical experience behind them.
- The moment they passed a certain stress level their behaviour became narrow minded, narrowly focussed and one-sided. Tunnel-vision took over.
- Behind their very individual stress-bound behaviour ('tunnel vision') was a specific driver that delivered the motivation to exactly act the way they did.
- This switch from 'operating in the green range' to 'operating in the yellow (or even red) range' diverted them from adequately analysing and assessing situations but made them follow a different 'dominant logic'.
- The take-over of such 'dominant logic' – other than the logics we would expect under considerations done in a cognitive level thinking process – has

to do with something else than with what we have learnt, even what our experience would probably be.

By the way: isn't some of the behaviour that we observe sometimes on busy highways (not our own of course) close to what was just described above?

Backstage

Our behaviour, our functioning has several sources. It is an outcome of several layers of our personality, of our skills, of our experience, of our mindset – and of the environment of course.

Taking up a model from psychology will help us understand some of this complex process. Let's have a closer look into how our 'human computer' in terms of a functioning input-output system works.

Interestingly we can model our 'computer software' also into a part that might be called 'system software' whilst another part might be called 'application software'. The 'system software' is representing our 'self' whilst the 'application software' represents all that we have acquired in terms of skills. The 'self' represents e.g. value system, self appreciation, appreciation of others, attitude.

The difference to any technical computer: our personal, human built-in 'system software' cannot be updated anymore once it has gone beyond a certain development stage.

Heredity, childhood experience and other influences shape our basic personality structure that – at the age of around 7 yrs – has already reached final development stage, 'system software version 3.0'. It's with this system software version that we will handle all our future in terms of how we function – there is no much change to this basic structure anymore once we have passed our first 7 years of personality development. What we do change – and we do it at large – is the implementation of all kinds of 'application software'; software we need to run an adequate professional life, to do what we like to do in our spare time etc. But: all this takes place on the foundation of that very specific, very individual 'system software' version 3.0.

If we now take a closer look at the phenomena representing specific individual behaviours – means specific individual 'system software' – we observe that we have **different modes of functioning** indeed:

Perception

Some perceive the world through thoughts; to do so they need facts and figures, and the ruling principle applied to deal with the world is the principle of logic.

Others perceive the world through opinions, to do so they need trust into others, and the ruling principle applied to deal with the world is the principle of value system.

Others perceive the world through emotions, to do so they need relationship with others, and the ruling principle applied to deal with the world is the principle of compassion.

And so on; statistically there are some six such different ways how to perceive the world.

Communication

Some communicate in a directive mode ('go get me...', 'tell me...'), whilst others do it in a more nutritive way ('so nice to be here....'); there are several ways how to do it.

Psychological needs

Some strive for recognition of work and for time structure, others look for recognition of person and for sensory, others strive for action, other for solitude... also several different specific psychological needs that can typically be found in specific personality structures.

Character strengths

Some are adaptive, persuasive and charming, others are spontaneous, creative and playful, or others are dedicated, observant and conscientious. A range of character strengths that differs amongst various types of personalities.

Stress patterns

For us the most important differentiation amongst various types of personality is the specific reactions of the individual to stress. These stress patterns relate to very early experience in our own life – whether we trust ourselves or not, whether we trust others or not.

We distinguish between light stress and heavy stress. The latter being characterised by stress that really has a heavy impact on us – we ‘really get wet’. It’s stress that might have to do with fundamental threat to our life, our existence or our self-esteem or with the lives of our loved ones.

Level 1 to level 3

Stress patterns have different intensities. A light stress (level 1) might arise several times a day – anytime we have to do something that does not just satisfy basic needs or means fun to us. We then typically react according to a specific driver – this one linked to the specific typology we represent: ‘be perfect’, ‘be nice’, or ‘be strong’ as to mention some.

If the stress increases to the next level, we then are submitted to attacking others, blaming others or becoming a drooper – taking up the role of the victim.

And:

It is not only such ‘inside-the-system’ stuff that makes us different: specific types differ in choosing words, setting tones, gestures, postures and facial expressions.

Back to start

Looking into occurrences – whether in medicine, in aviation, in business management, in crises management – in our investigations we come across stress influenced behaviour of key persons again and again.

Wouldn’t it be wise to have such key persons, decision makers and opinion leaders to know more about their stress patterns? How they develop, how they start to pop up, how the influence their rationale behaviour? How to counteract and get the stress level down again?

Wouldn’t it be wise to have others to know about such stress phenomena and have those being able to adequately intervene once a key player has been thrown into stress? Allow for stress reducing intervention instead of stress increasing confrontation?

Such insight into one’s own stress patterns can be achieved. The mastering of stress reducing intervention technique can be achieved. The knowledge and the methodology are available¹.

But

In technology focussed fields like aviation any methodology to tackle with findings of investigations is traditionally tailored along technology methodology and is less human process focussed. And in exactly this domain – the area of the human factors – we are subjected to occurrences again and again.

The time has come to do a step forward!

Proposal

- Have relevant people to know, to experience about not only their specific business area, but also about their specific mode of operation once they get under stress.

¹ **Kahler, Taibi.** *The Mastery of Management.* Kahler Communications, Inc., Little Rock, Arkansas, 1988.
www.kahlercom.com

- Have such training being integrated beyond transfer of 'human factors knowledge' through tutorials or CD ROMs.
- Have teams being trained to cope with stress symptoms typical for the individuals of that team.

Conclusion

In the complex man-machine-environment interface the machine improves constantly – heaps of money getting involved. The environment has to be accepted as a random variable. But “man” is amongst the most complex of the components involved. And this component gets added to the system as newcomers again and again. And it constantly shows up as a major causal factor in mishaps in any area concerned. Do we really take adequately into consideration the ability of the “man” component to deal with his/her built-in, own variability?

Process improvement and safety enhancement should be achieved by focussing more onto the functionality of the man-component under stress.