

How to close the gap between non-sustainable and sustainable learning and training.

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1. The HRM-HRD magic box.

Many people who work in the area of training and development are creative in thinking up ideas and designing teaching concepts and models. Clients of advisory and training agencies are increasingly asking for training and education tailored to the organisation, latching if possible on to what the market has to offer in sophisticated training trends. To acquire a larger market share, competition between these suppliers demands strong, preferably unique profiling in this market. Those who read the praises sung in the suppliers' various full colour brochures are more likely to detect the style of a PR advisor than that of an applied scientist, much emphasis being placed on the wrappings as with such products as health tonics or motor cars, and that while most cars sold can actually drive. With success stories, expressions by satisfied clients and especially promises of unparalleled success achieved in a short space of time, and packaged in inviting slogans, the agencies are trying to attract potential clients into having a talk about this unique training approach. Anyone who considers this description exaggerated should just visit the ASTD exhibition hall or, in this country, the Performa show. Various training approaches, learning concepts, questionnaires up to, even, complete holistic approaches are offered as if the fashion industry were concerned.

However, anyone who now still works with the transformation theory or the chaos theory is out of date and is not keeping up with developments. We hear less and less of highly vaunted concepts such as "Learning Organisation", "Self-directing teams" and the "Intelligence Organisation". What is now in vogue are "New Learning constructivism" and "Performance technology", and new trends are already again emerging. Will these new prophecies survive or also quickly disappear behind the horizon? I fear that the latter will again be the case. Many management concepts are often translated into training concepts. My colleague Marcia Biesheuvel has helped me to chart out a number of these trends and the associated management and training concepts that have arisen in the HRD-HRM industry since the 2nd World War (Fig. 1).

Fig.1

Concepts since 1945

1947 Henri Fayol	- General Principles of Management	1966 Douglas MacGregor	- Theory X and Y
1954 Peter Drucker	- Management by Objectives	1969 Thomas Harris	- I'm O.K. You're O.K.
1960 Douglas MacGregor	- Joint performance appraisals	1970 Abraham Maslow	- Theory of motivation, Heirarchy of Needs
1961 Rensis Lükert	- 'Linking Pin' concept of Management	1971 Chris Argyris	- The system 4 concept of organizational climate
1964 Frederick Herzberg	- The Motivation-Hygiene concept	1972 Hersey and Blanchard	- Situational Leadership
1964 Eric Berne	- Bulk on studies of Freud to develop the parents/adults/child theory	1973 Victor Vroom	- Types of management decision styles
1964 Warren Bennis	- Organizational Developments and the fate of bureaucracy	1974 Warren Schmidt	- Conflict as a powerful process for change

Since then, the rate of development has accelared!

Diversification	Intrapreneuring	Knowledge Management
Strategic Business Units	Corporate Culture	Knowledge Creation
Theory Z	Decentralization	Living Organisation (De Geus)
Zero-Based Budgeting	Globalization	Balance Scorecard (Norton)
One Minute Manager	Cycle Time	Culture Architecture (Schein)
Assertiveness Training	Visioning	Spiritual Leadership (Chopra)
Wellness	Benchmarking	Servant Leadership
Quality Circles	Excellence	Blended learning
TQM	Innovation	Autentic Leadership
Quality Function Deployment	Empowerment	Human Performance Technology
Restructuring	Delayering	Human Performance Improvement
Activity Based Costing	Reengineering	Constructivism
Continuous Improvement	Matrix Organisations	Brain Based Learning
Learning Organisation	Transformation ?
Portfolio Management	Value chain	
T-Group Training	Lean (and Mean)	
Just in Time/Kanban	Satisfier/dissatisfier	
ISO 9000	Six Sigma	
	MBwA	
	Flow	

The increasing speed at which these trends follow on each other and increasing overlaps in an ever shorter lead time is noteworthy. There is a visible correlation between the number of trends and the lead time as is also the case with fashion goods. The burning question is whether this situation in the HRM-HRD market guarantees sustainable learning and training. Putting the question is answering it.

2. The grass is always greener on the other side.

When we look at other applied sciences, do we see the same developments? Will heart specialists also jostle for the patient's favours in a convention hall? I would not put it entirely beyond them.

When we look at the methods of medical treatment in applied medicine or, for example, the testing and assessment technologies in applied work and organisation psychology, do we then see another picture? Do their theoretical concepts stay longer in the mind? Some test batteries such as the Wechsler Adults Intelligence Scale have already been on the market for years, with a few updates. In applied physics, too, such as the aircraft industry, we certainly see changes in construction techniques but the pace of those developments seems nonetheless slower. These development processes seem to run differently. I have wondered whether doctors, nurses and aircraft manufacturers working on the same scientific bases as HRD professionals would not soon land up in jail. Why does it not happen to them? Are these applied sciences and their theoretical concepts based on another, stronger and more consistent scientific foundation? Or do they adopt other criteria?

3. Impairment risk.

My assumption is that when applying learning concepts, training models and the like, we adopt less stringent criteria and are also assessed far more leniently at the bar of science than is the case with other applied sciences, because the impairment risk with a speculative application in our specialist field is slight. With an unfounded, dubious application of an HRD concept, no one is killed or injured, mental traumas with the former sensitivity training apart.

Although no directly dramatic accidents occur with an unsubstantiated application, our field runs the risk of eroding and of being taken less seriously because of the rapid succession of models, theories and training concepts. The actions of alleged gurus with their fairground behaviour, including walking on hot coals, juggling and alike, means that the image is not improved in consequence. Fortunately, opposition is steadily growing within our field to this erosion and the call for ever more sustainable practice of the profession is becoming steadily louder. How this can be achieved is not a question that is easily answered.

4. Scientific or practical evidence.

Some of our colleagues suggest practical evidence as a sufficient remedy against the deterioration of the specialism. If it only works in practice. Many concepts and models also suffice in practice. Even models where it is more than convincingly demonstrated scientifically that they are based on purely speculative and unscientific grounds have proved quite viable in practice. Although we must sometimes assume that the well-known "Hawthorne effect" is largely the reason for this.

I have also long gone by the idea in educational practice that practical evidence could legitimate equitable, pragmatic pursuit of the specialism but I have nonetheless now become increasingly convinced that practical evidence in itself is inadequate in the long run to legitimate a sustainable teaching theory and that only properly scientifically underpinned concepts can offer any guarantee of a more long lasting and less fickle existence. Adopting practical evidence alone as the necessary criterion also leaves the door open to questionable concepts based on purely speculative philosophical, spiritual and even religious principles, exercised by enthusiastic master trainers who are able to recruit followers quickly and effectively (Wilber, Tolle).

I feel that learning applications based on one or other doctrine of salvation are generally harmful to the public health. Whether the now upcoming, so-called "Constructivism" based on a trend in philosophy and the social sciences must also be regarded as questionable I happily leave to the opinion of others.

5. The hard science.

If we accept that equitable, sustainable practice of a profession will remain tenable in the long run only if based on effective, reliable and sound scientific research, the question arises of what scientific discipline(s) would then have to provide this basis. Are the social sciences sufficiently up to the task? I doubt it. These sciences, too, know their limitations in consistency and verifiability. A social-scientific theory or concept is all too easily exchanged for a new concept and correlations are still too easily regarded as topicalities with a mathematical, statistic certainty. The search for a harder scientifically justified basis for our specialist area already quickly takes us into the more exact sciences such as biology, genetics and the cognitive neurosciences. The latter in particular can rely on increasing interest.

Can the cognitive neurosciences achieve the extended base for a more sustainable learning theory? We cannot implicitly answer this question with an unambiguous "yes", for two reasons: firstly, most of the cognitive scientific manuals devote very limited space to the learning phenomenon. And when they do so, they generally mention the effects of learning on the development of the brain, with particular reference to the plasticity of the brain. Most subjects concern patient care and the associated pathology. Casualism embraces syndromes such as Broca's aphasia, dyslexia, attention loss, amnesia of the short or long-term memory, the impairments of ageing such as Parkinson's, Alzheimer's and difficulties in the development of intelligence, difficulties in emotional intelligence, brain traumas, and the like. I have found no real research results that point in the direction of a more prescriptive learning theory or an approach in that direction. Dirksen (2005) too, makes critical comments on the books by certain authors (especially Jensen [2000]) in the area of brain based learning. "Many implications are insufficiently underpinned, or cannot be supported by scientific research. It seems as if the findings that do not fit the constructivist model are left out of account". So says Dirksen. In a number of cases, a connection is made to a limited extent between an improvement in learning under the influence of the stimulating effect of neurotransmitters, with the strong influence of dopamine on the amagdyla and the indirect effect on the nucleus accumbens receives particular mention. A real learning pill of the kind that many hope to use one day will still be long in coming. All in all, a handful of hope providing material but still too little in substance to be taken as a breakthrough in cognitive neuroscientific research regarding a learning theory.

Learning concepts based on the so-called triune brain theory of MacLean and Vroon or on left-half-right-half dominance are still too widely meshed and too speculative to pass the "bar of science" unimpaired.

A second factor, which plays a role in addition to the still barely developed theory forming is the sanguine expectation within the cognitive sciences that pet-scans and fMRI scans provide a clear insight into people's learning behaviour. Scans of this kind undoubtedly have made a major contribution towards making the complexity of the brain comprehensible, especially with regard to patient diagnosis. But according to Dobbs (2005), more and more voices are putting question marks to the reliability of conclusions based on fMRI data. I quote: "It is not simply a matter of the accuracy of fMRI technology, which after all measures brain activity indirectly, by recording the increase in the blood supply, but also a question of whether, and if so, to what extent, complex mental functions can legitimately be linked to specific areas of the brain". Critics feel that the fMRI takes too little account of the fact that the brain makes use of networks that extend over various areas of the brain and places too much emphasis on local activity. According to them, precisely the communication between areas of the brain is of crucial importance for the mental functions. By way of illustration, I am showing you the fMRI scans of 6 persons who took the same memory test.

6. Brainbased training too early?

It is quite surprising that having regard to the above so many brainbased training courses are nonetheless marketed. Should this be due to the aim to distribute a new training approach faster and earlier than competitors? Knijff alleges in many fairly polemical articles that the content has already long be subordinated to market demand. Analyses of various brainbased training programmes published in the USA and in this country show that the focus is still aligned only on a very limited number of subjects such as Power training for the memory, mind mapping, improving the intelligence (?) by amongst other things Nintendo games, rapid reading, information processing and even musical training. As already stated, some people actually advocate practical experimentation, anticipating and hoping for a future when sound, unambiguous training theory founded on cognitive neuroscientific research will have been discovered, allowing for the probability to boot that this hopeful development, too, will be over-ruled as a transient curious hype by a new hype e.g. spiritually oriented meaningful learning theory , to mention just one diversion, the first symptoms of which are already on the horizon (Wilber, Tolle). Another, further risk is that of non-brain scientists scurrying off with neuroscientific concepts and bedding these into their training programmes without any scientific foundation. The conference reporting on the congress of the Netherlands Organization for Scientific Research regarding a "New Learning Science" (2005) also gives warnings at various points that pretensions as to Brain Based Learning in particular must be critically scrutinised:Such products (i.e. new didactic models or instruments) are normally presented as "applications of neuroscientific research" but are not founded on evidence-based educational work. An initial screening by the OECD has also indicated that many of the "neuroscientifically underpinned" assertions quoted are incorrect.

7. *A perspective or not?*

As designed, the brainbased learning concept has the capacity in my view to grow into a scientifically sound and consistent learning application. Because too little material is as yet available, a broad area of research still lies fallow. Over-early applications encroach on the soundness of the concept. By analogy with E. Wilson (1998) I would strongly argue for a conciliant inter-disciplinary approach where not only the cognitive sciences but also biogenetics, socio-biology and biochemistry are involved in the area of research. Whitmore (2004) contrasts the biological approach with the cognitive approach and the behavioural approach and even advocates the biological approach because "the biological approach conceives of the brain as a complex network of relay switches, or neurons, organised into maps". There is a good deal to be said against this conception and opting for a basic science for brainbased learning concepts seems to me not a good idea. The sciences mentioned above have more to tell us jointly than the biological approach or cognitive science on its own. The outcome of broadly multi-disciplinary organised research should in due course form the pillars under the bridge from non-sustainable learning to sustainable learning. But a number of conditions must then be met. Firstly, scientists from the various disciplines must learn to understand each other, there is still too much linguistic confusion about sometimes very basic concepts such as consciousness, learning (intentional, incidental, declarative learning and skill learning) and memory (episodic and semantic memory) and the like. Secondly, concepts from the one epistemological field must be prevented from being transported to another epistemological field without any recalibration, something against which the social sciences repeatedly offend (Van Ommeren, 2001).

8. *Summary and conclusions.*

1. The divide between non-sustainable and sustainable learning can be bridged only by teaching practice with properly underpinned and scientifically consistent models and theories supported by sound research results.
2. The rapid succession of different models, concepts and speculative theories in training practice does not promote the image of a sound specialist area.
3. Practical evidence by itself is not sufficiently adequate in the course of time as legitimation of a sustainable teaching theory which may well prove successful in practice. The Hawthorne effect ensures that many models that have no sound scientific basis can nonetheless expect a certain degree of success in their practical application.
4. Teaching concepts based on cognitive neuro-sciences may well offer more prospect in the future of scientifically grounded educational practice and can as such form the pillars of the bridge from non-sustainable learning to sustainable learning.
5. Over-early application in educational and training programmes of elements from cognitive neuro-sciences is harmful to the building of a scientifically consistent specialist area, which increases the likelihood of this promising development also again being abandoned as a transient, replaceable trend on the scrapheap of past trends.

6. We are not yet at a stage where cognitive neuro-scientific research can unambiguously underpin a grounded learning theory, certainly not insofar as the outcome of the various brain scans is still too multi-interprettable.
7. A truly great leap forward could be achieved if research into sustainable learning concepts and applications were not only based on the cognitive neuro-sciences but were also investigated in a consistent manner in conjunction with biogenetics, socio-biology and bio-chemistry.

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