

HARNESSING OUR NATURAL BRAIN FREQUENCIES FOR IMPROVED LEARNING – NORMAL OR PARANORMAL?

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INTRODUCTION

For most of us, learning means trying to take in information whilst either in a classroom, on-line via a computer or through reading. We often do it whilst stressed with everyday life and wonder why we only remember a small part of the information seemingly absorbed. We would all like to be able to learn faster, in a more relaxed environment and know that what we learn will stay and be available for use when needed. This is especially relevant for the complex technical data and formulae needed for specific engineering applications.

Accelerated learning may be the answer for many of us. It is a set of innovative techniques designed to allow us either to assimilate knowledge faster or retain more of the knowledge absorbed. There are many ways to do this but this paper focuses mainly on anchoring and the use of sound and other wave frequencies to help us learn, discussing whether the use of these tools can be considered the norm or bordering upon the paranormal.

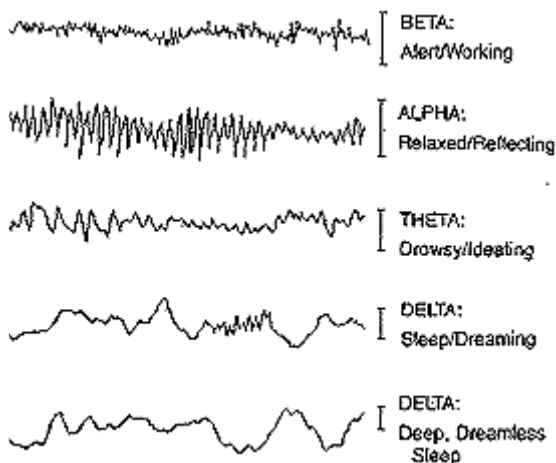
SUPER LEARNING TECHNIQUES

Anchoring is an association between a specific stimulus and either a state of mind, idea, feeling or thought. We have all heard of the experiments done by Dr Ivan Pavlov where he trained dogs to salivate to the sound of a bell via the creation over time of a neurological link between the dogs' hunger and the ring of a specific bell. What Dr Pavlov was in fact doing was creating a learning anchor for the hungry dogs.

This technique can be used to induce an associative state when a certain stimulus is applied as it has been found that whenever a person is in an intensely focused state where the mind and body are strongly linked together and a specific stimulus is consistently and simultaneously applied at the peak of the state, the stimulus and the state become neurologically linked. Perdios (1)

The brain works in different states and one – the Alpha State – is important for accelerated learning. The brain is an electrochemical organ generating

electrical power (a brain that is functioning well can generate up to 10 watts) and this is shown in the form of brainwaves from beta (most alert) through alpha (relaxed), theta (drowsy or meditative) and delta (asleep). The frequency ranges of these brainwaves range from 15 to 40 cycles per second (beta) down to less than 3 cycles per second (delta) with alpha waves cycling at between 9 and 14 cycles per second and theta at 5 to 8 cycles per second. The lower the frequency, the higher the amplitude of the brainwaves. See diagram below for an illustration of the relative brainwave patterns. (source Intelegen (5))



Using music (classical pieces in the baroque style are often employed in this way) that has around sixty beats per minute induces the alpha state, removing stress and achieving a relaxed but alert mind which enables new skills or concepts to be assimilated more easily. The use of music in this way acts as an anchor for the new information, or even mindset that can eventually be recalled without having to replay the anchoring music.

HARNESSING BRAINPOWER

Research has shown (Ostrander and Schroeder (2)) that when the mind is in a totally relaxed state (alpha/theta state) it synchronizes with the earth's cycles (the Schumann resonance) which seems to open it up as a good channel of communication allowing information to be absorbed more easily –

and more importantly *remembered* more easily. This is known as Hypermnnesia or supermemory which allows the mind to work faster whilst the body slows down. This alpha/theta state (there is some overlap between the highest theta waves and the lowest alpha waves here) can give free rein to a flow of positive ideas.

Alfred Tomatis (3) discovered that the design of the ear not only allows hearing but also acts as an energiser for brain and body. This gives a super power for expanding mental ability. This discovery emerged from studying various musical pieces such as Bach, Mozart and Gregorian chants, looking for electrical potential indicating release of stress and fatigue. The high frequencies in the above pieces powered a recharge of the brain's electricity and released muscle tension.

Many discoveries like the one above have been unearthed whilst researching psychic potential as healers and other spiritual people often work whilst in meditative or trance like states. However, although their bodies are totally relaxed their minds are alert and open to information transmitted on the same frequencies as their brainwaves (alpha/theta state). It can be posited that if the whole planet resonates to a certain frequency – that of 7.8 – 8 Hertz (Schumann resonance) which ties in with the alpha/theta state (relaxed and meditative brainwave state) then just as a radio can be tuned into a certain frequency and receive information, so can the human brain receive 'messages' when also in this state as it is tuned into the planet. Is this the answer to ESP?

This is but one example of how physics could eventually de-mystify the paranormal if we accept and open up to the fact that we are surrounded by electro-magnetic frequencies generated naturally as well as those which are 'manufactured'. The latter are of course easily accepted – think about our microwaves and mobile phones for example. So why is it often difficult to accept the natural frequencies generated not only by the earth but also the rest of the cosmos which surround us and affect our daily lives?

Physicists have been working on these natural frequencies for decades yet it is only recently that their findings have been gaining wider acceptance. For example Beck in the 1980's who studied the wave patterns of healers throughout the world and noted that their brain wave patterns matched the earth's vibration and also the timing of the earth's bio-magnetic field pattern or Schumann resonance. Zimmerman also noted that in this state the left and right hemispheres of the brain become balanced in an alpha rhythm that can be transferred through touch which means that the

healer is acting like a tuning fork for the earth's bio-magnetic field as he or she resonates at the same frequency. Strauss (4)

What this in effect means is that the two hemispheres of the brain are communicating at a higher level of consciousness which allows both to work together more effectively. As the left side of the brain processes information in a logical manner and the right side processes intuitively the logical and creative aspects of a person are brought together. Consequently this allows the imaginative and analytical sides to function more cohesively resulting in an enhancement of memory retention and assimilation - precisely what is needed for efficient and effective learning. Intelegen (8)

Binaural beats are another way to induce the alpha or theta states. These are the results of signals of two different frequencies being input, one to each ear. The brain recognises phase differences between the signals and generates the binaural beats. These are low frequency beats within the same range as the brainwave range of frequencies and are associated therefore with the corresponding states – beta through to delta. These beats are often embedded into audio (music or other background sounds) via headphones for enhancing or accelerating certain functions such as learning, relaxation, creativity and visualisation. Intelegen (5)

POTENTIAL USES

The use of the sub-conscious mind rather than the conscious to improve our learning abilities opens up a vast range of opportunity. "Like an iceberg, the sub-conscious part of our mind is vast and has a much greater scope of mind power and connectivity than the conscious". (Strauss (4)) It is well known that Albert Einstein formulated his general theory of relativity whilst day-dreaming, letting his sub-conscious mind overtake him, overcoming the mental blocks and obstacles of accepted thinking in everyday life. Although he is revered as one of the greatest thinkers of recent times, this example serves to illustrate how powerful this technique can be and what potential there is when applied to learning techniques in education or many fields of business today.

So, let's explore this area a little. As articulated above, the issues for companies when employees are being educated are more than just the costs incurred and the absence of the staff for the duration of the course. If more information could be retained and learning done during quiet periods in

the working day then this would overcome managerial concerns about educating their employees and result in a much stronger workforce and therefore more competitive company. Knowledge is critically important in business today – it is a key success factor in an ever increasingly competitive world.

The potential for advanced thinking amongst the research and development laboratories within a company are enormous as new areas of the brain are utilised in order to think differently when resolving problems, improving existing products, working on new technological advancements or designing complex components such as micro-chips and other miniaturised technology.

So how could we make use of the techniques for engendering hypermnesia in the workforce today?

First of all we can posit the following hypotheses:

1. If employees could learn on-line in a special area for short periods of the working day, fitted with headphones through which binaural beats were played they would learn more and retain the knowledge better whilst not losing too much time away from the office.
2. If soft background music in the correct tempo is played whilst learning in the classroom, the students will be in a much more relaxed state, and able to assimilate and retain more knowledge than otherwise.
3. If soft background music (again in the correct tempo) is played within the working environment then employees could not only use this as an anchor for learned information, but it would also create the correct state of mind for further learning whilst actually working. (This may not always be possible depending on the nature of the working environment)
4. The relaxed state of the employees could be moved to a much sharper (beta) state when needed for certain tasks or timeframes (such as early afternoon when people tend to normally be in drowsy state if they have had a heavy lunch) by the use of music with a more upbeat rhythm.
5. The use of frequencies in these ways could make a company more competitive as the workforce will use far more of its potential than otherwise and be more open to innovation than if constantly in a single (beta) state.

The first two hypotheses are backed up by the research referenced in the text above and therefore possibly more easily proven, whereas the

rest would need a potentially lengthy research program in order to prove they are valid over time.

Note that these hypotheses assume that any music played does not include any binaural beats within the tempo as these could be seen as a subliminal control technique. A separate piece of research would have to be done with full knowledge and agreement of all of the actors.

WHAT DOES THIS MEAN IN THE REAL WORLD?

The potential for increasing a company's competitive edge and therefore profitability is staggering. Many people are constantly tired through being in beta state for long periods (which is encouraged both in education and also in the workplace) especially when in roles that demand long periods of intense concentration and technical ability such as engineering design. To be able to stay in a more relaxed state for long periods would not only allow faster learning, it would also be refreshing and therefore result in a more able person all round – one with the greater potential for delivering higher quality outputs, better engagement in the marketplace and driving higher profits for the company. One anecdotal testimony of being in a binaural beat induced theta state is the need for less sleep as well as a high energy and mental alertness when coming out of the state. Intellegen (7)

Imagine being actively encouraged to daydream?! Research and development groups take note – this could mean the difference between innovation or 'me too' in the marketplace. (This, of course would be a highly profitable side benefit!)

All establishments can benefit from making use of these techniques to improve learning but it is perhaps those where there is a greater focus on the more scientific/positivist angle where 'absolute' knowledge is key that often has to be learned by rote such as mathematics and engineering that could benefit the most. The need to absorb often difficult but critically important information may be the deciding factor in whether these techniques come into common use.

The major inhibitor to all of this is the shift from the normal modes of learning and working to those that can be seen as almost paranormal. (especially in a scientific environment where everything must be proven) The techniques discussed above are used mainly by those involved in 'supernatural' fields today. Psychics, healers and others have been in tune with the earth's vibrations for many years as well as the frequencies that are

bombarding us daily from out in the cosmos. For millennia the human race has accepted and used these 'force-fields' and it has only been in the last few hundred years or more that these have become lost to us as we have focused more and more narrowly upon our material rather than the natural world.

Things are now beginning to change and we are becoming more open to our own abilities in these areas as ongoing research is carried out into the effects of the natural frequencies of both our planet and ourselves these 'paranormal' activities are being proven time and time again by long respected physicists such as Russell Targ, Elizabeth Targ and Fritz-Albert Popp amongst many others. See McTaggart (6) for details of work done by these scientists.

CONCLUSION

Although we are beginning to understand what our own potential may be if we make full use of our sub-conscious rather than merely our conscious minds, we are still far from exploiting this far reaching ability in our daily lives. Mainstream acceptance of this is not yet there and these little understood concepts can often be perceived as 'spooky' by the majority and out of balance with the material world within which we reside. However, the movement towards harnessing our inner abilities, as well as the knowledge of the electro-magnetic forces surrounding us, is beginning to open up the workplace to innovative learning techniques like those outlined above.

This short paper has not even scratched the surface of this fascinating subject but hopefully has given some food for thought as to the potential that can be realised. Any company or educational establishment that is farsighted enough to step forward and embrace these new ways of helping people to learn, and more importantly to remember, information that all of us spend so much time and effort in attempting to assimilate in other ways today, could reap the benefits in the future.

NOTES

The harnessing of people's sub-conscious abilities to allow 'super-learning' is an innovation that needs further exploration in order to refine the techniques discussed in this paper and employed today. There are many research articles related to these techniques and some can be found by visiting www.accelerated-learning-online.com.

(Of course this site and other similar sites are themselves examples of innovation in learning as they have taken a lot of education out of the classroom which, as already discussed, in the business arena has meant employee absence, some loss of productivity, both in lost time and because work piles up whilst the employees are away, also any knowledge gained is often lost in the ensuing catch up period once returning to the office! Any methods of learning whilst 'on the job' are welcomed by employers today and this has resulted in many companies now making use of their intranet as well as external web sites in order to deliver the more generalised on-line courses that can fit into an employee's working day.)

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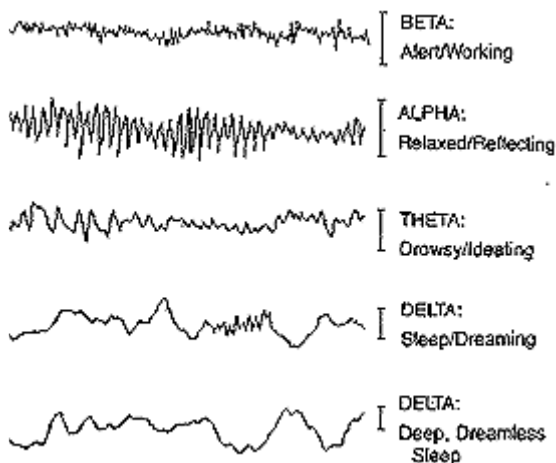
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