**Sustainable Development in Primary and Higher Education through
Computer and Web basded Training and Learning with
Hi-Tec-Motivation**

Introduction

A major challenge to modern education and learning is to combine rapid growth of learning content with a value based personal development. While learning and especially higher education in the past was a privilege to an elite, the inter-connected knowledge based world of the 21ˢᵗ century requires high level learning and devlopment for all citizens.

Institutional learning in elementary and secondary schools as well as in universities is more and more challenged by this change of requirements. Institutional learning is limited and restricted in many ways and requires to be extended by new forms of learning and training.

One major accelerator of a sustained education and learning landscape are computer and web-based learning and training, which are also known as elearning or Distant Learning Technologies.

I will refer to these new learning and training technologies in a practical way with a common term, every body can understand:

The virtual classroom. An omnipresent learning space which can be accessed and applied by any citizen in the world at a low cost and at any time.

The Virtual Classroom is transcending institutional learning formats. It is especially of value to the emerging markets nations, that strive to build up a highly motivated, reliable work force, a leadership elite with integrity and vision and an acedemic environment, which is highly productive in developing new technologies and scientific insight.

Let me outline the key advantages of DLT compared to traditional learning is:

- DLT delivers complex high level learning at a low cost
- DLT is available 24/7
- DLT can be accessed by the student from any place on the planet with a computer and internet access
- DLT combines various learning and development tools and formats (reading, audio, visual, multi-media, chat room, etc.

- DLT works as an amendment to traditional institutional learning as well as a stand-alone substitute of traditional forms of learning (e.g. Virtual Campus, Online Universities)
- DLT provides new formats to enhance learning and development (e.g. Whole brain techniques for enhanced memory, speed reading, creative problem solving and goal-actualiziation)

Hard and soft skills

Learning, training and development in traditional formats has long been focussing on intellectual skills, such as mathematics, language, sciences and social sciences.

Personal development, such as integrity, motivation, creativity, emotions, communication skills and personal values have been undervalued. Research shows that a sustained value based education that integrates both intellecetual learning and personal development has a positive influence on both individuals as well as society. This is especially true in multi-ethnic societies, where value based education (tolerance, empathy) leads to a more stable society.

Hi-Tec-Motivation combines intellectual learning and personal development through whole brain technology

Hi-Tec-Motivation as a key innovation in Distant Learning Technologies. It was developed to deliver an integrated format for combined learning and personal development. It is provided as an audio-tool, that when applied on a regular basis will accelerate and improve any learning and development process.

Left an Right Brain

Modern motivational psychology distinguishes between left brain functions (intellectual, logic, word processing, mathematics, digital processing) and the right brain functions (creativity & arts, imagery, music, symbols, emotions, spirtual, simultanious data processing, intuition). Right brain functions as the so called soft skills are neglected in formal education while left brain functions are over-emphasized.

Hi-Tec-Motivtion is designed as a whole-brain technology, to stimulate left and right brain hemispheres to synchronice and co-operate for optimum learnign and training.

To understand the benefits of Hi-Tec-Motivation, let me give you a few key informations first:

- HTM is provided as sound preferably as music or ambient sounds
- HTM makes the learning situation more comfortable and fun as it reduces stress symptoms such as anxiety or fear of failure during examins
- HTM Sounds enhances focus and concentration during the learning and training session
- HTM makes it easier for the brain to attain information as well as to memorize
- HTM makes it possible to combine hard skills and soft skills, e.g. you may combine language training with improving the students ability to present and express him or herself in front of others
- If applied regularly, the student or trainee is becoming more self-reliant, more goal oriented, more creative and develops positive attitudes which results in improved readiness and social behaviour.
- In other words HTM creates not only a virtual classroom but also a virtual coaching for personal development

Now the major question is: How can a sound technology provide so many features that allow such complex synergies?

The answer is two-fold:

HTM converts learning and training content into a „brain friendly" format. When we talk about whole brain acitivities, we simply mean that more of the brain functions work together to process information. When only left brain activity is used to attain information, it is very difficult to memorize and apply the data. When both brain hemispheres are active, which means emotional learning takes place, learning is much easier and actualization effortless.

HTM aplies a combination of two well-established digital techniques to create a virtual training space in the brain:

1. Whole brain sound frequencies: The sound frequencies synchronize with the brain wave patterns of the student, when using stereo headphones. This means the student literally tunes in to state of hightened awareness and receptivity simply by using a headset during learning. The amplitude of the soundfrequency is a mid alpha (10-14 Hz), which has proven to reduce major stress-symptoms like muscle tense and increases mental imaging so that the learnign content is better visualized and memorized. Alpha is almost always accompanied by endorphine increase, which triggers positive emotions.

2. Key elements of the learning and training content is put into instructions (I am concentrated and focused, Mathematics is easy, I understand and apply correctly the logics of binomial theoreme). These instructions are converted into sounds like music and ambient sounds thru a complex text to speech to sound synthesis.

The combination of these two techniques specifically enhances brain activities during learning and training. The more complex neuronal activity is triggered the better the results. This is also valid for lsenso-motoric training in sports.

Application, Reserach and Technological Development of HTM

HTM was developed and evaluated together with Technical University Munich. It was rated „Highly Efficient" by McKinsey & Co., the company`s vision to apply HTM as an accelerator of a sustainable ethic based world economy was rated „Highly Commended" by the International Schumpeter Award of university St. Gallen. In 2011 HTM was awarded a Gold Medal for best Innovation at the Tesla Innovation Festival, Novisad by University Novisad and the United Nations.

At present HTM is delivered on CD or as a web download (MP3) through a website.

The sound synthesis is provided by a linux based server application, which was developed with Dr. Alexander Bornschlegel, alumni of Entrepreneurship Center of Technical University Munich. This server application can be connected with a desktop or applied as a stand-alone device. It renders content and music in real-time and works a single workplace application.

The next step would be to upgrade this server based solution into a web-server application with an according web surface, that allows the user to upload theri content and music and download their personal HTM sound files.

We are now looking for proposals of universities for a joint project including

1. Programming of a web server application of the sound synthesis which allows simultanious access of users via a website
2. A web-based user surface for easy submission of content and music
3. An evaluation of at least six months with at least 100 students / users including a written documentation in English

The participating university will receive a full license for free unlimited application of HTM for their campus and students. The intellectual property is to remain with HMS Consulting.

Pre Test

To guarantee maximum benefit for the development partner HMS Consulting will provide a number of HTM files to run a pre-test. This pre-test will be free of charge and without obligation. Content translation other than English will be provided by the development partner.

The introductory program in English (Smart Success) will be provided with this proposal online and may be downloaded and copied for evaluation purposes.

An introductory book and CD is available in German at www.amazon.de entiteled „Smart Success".

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