VERIM®

USER MANUAL

Personal & ProNet
Edition Version 4



MIND UNLIMITED

Here and now

Table of contents

Practice: “Using VERIM”

License agreement
Introduction – The Power of VERIM

Software Installation
Activation
Login
Setting the language
Setting the BF device

The Main Screen
Help in the main screen
Help - Module
PLOT’s Help Screen
General tips for the training

Energy Room
Center
Labyrinth
Balance
Luna Park
Elevator

Resource Room
Insects
Patience
Biathlon
Problem Prison

Intelligence Room
Music Plot
Plot It
Match Curve

Network Room
Follow Me
Dolphins Run

Progress Database
Exporting saved sessions data

Closing remarks

Theory: Psychointeractivity – Another Step beyond Biofeedback

PART ONE - Biofeedback
What is biofeedback?
Biofeedback methods
History of GSR

PART TWO - Psychointeractivity
A step toward Interactivity
A step toward Psychointeractivity
Biofeedback versus Psychointeractivity
Computer as Inner Theater?

License agreement
for the VERIM – software

Dear User,

Thank you very much for choosing VERIM, one of the front biofeedback applications, which will help you to achieve your personal goals.

Depending on your purchased VERIM version (Personal Edition or ProNet) you have received an activation key, which determines which version will be available.

The activation key is a single user license. It means that you can use the software on one computer at the same time only. This kind of license enables you to install the software on your laptop, home computer or even on your work computer but you agree just to use one at the time.

The "**Personal Edition**" license is restricted for private use only.

The "**ProNet**" license enables you to use the system for commercial, educational and research purposes and it includes a single user network license.

We recommend to attend one of our training seminars when you plan to use professionally VERIM.

The duplication of the software is permitted for backup or update purposes only.

VERIM takes no legal responsibility for any kind of psychic and psychosomatic results which can originate on account of improper use of the software.

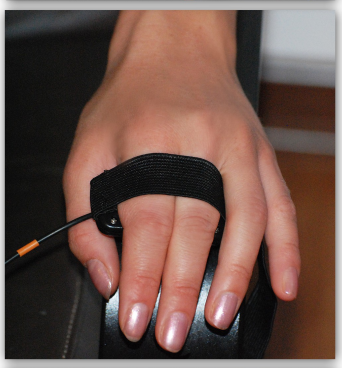
Your VERIM team

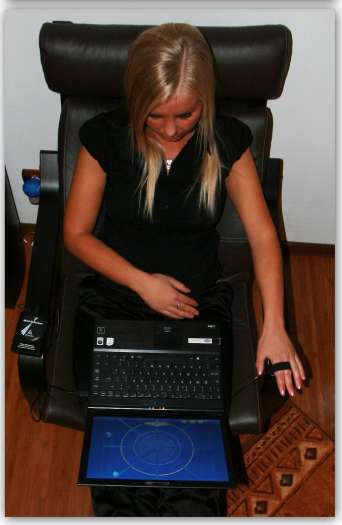
More information you can find at: www.verim.eu

The Power of VERIM®

Virtual **E**nergy-, **R**esource- and **I**ntelligence **M**anagement







- We believe that learning is the most valuable resource, now and in the future
- Learning is a process taking place everywhere and anytime – “here and now”
- VERIM is working with the new means of teaching:
  - Systemic Learning – psychological and physiological processes are one in Biofeedback
  - Self organized learning, you learn yourself how to learn optimally
  - Monitoring and self regulation in real time, objectively
  - Mental Training in a game environment, learning about yourself is a great fun bringing you powers of the mind
  - Find out how good you are compared to others in the “Mind-Unlimited” championship!

Note: In this manual we have selected “you” form. When you are working with clients the you form refers to them, of course.

Stress reaction is a very positive feature embedded deep in our brain. It helps us to deal with everyday problems and activates us in the states of fear. The problem is that in today’s everyday life we are exposed to increasingly many stress invoking factors…

We know today that too much stress may lead to psychological and psychosomatic problems.

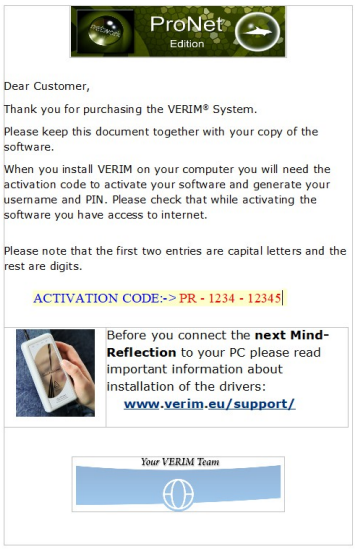
VERIM is a biofeedback and self didactic system which will help you to recognize your own stress patterns and you will be able to learn how to “change” yourself.

Change to more self conscious, acting and successful person, leaving the powerless victim of your inner patterns behind. There are many ways to move on this path, VERIM is one of them, very objective, well tested in seminars, attractive, effective and a modern one. Still it is just a very good tool and a learning system like an intelligent mirror showing you what is going inside – of you; how your thoughts are connected to your body and what power they have. You can learn to use this power inside of you and change your perception of the real world. Welcome to VERIM!

SOFTWARE INSTALLATION

- Please download the latest version of VERIM from www.verim.eu/support/ and unzip the downloaded file to a temporary directory.
  Run the "**setup.exe**" and follow the instructions.
  Please, note that the installation may take some time. Depending on the speed of your computer and operating system you will have to allow to install the software etc. Especially under VISTA it may take a while until the installation process begins. Also some longer animations will be loaded and at that time it appears there is no installation progress. Please wait for a few minutes.
- Click in the first window on >next<
- Sign the license agreement marking the checkbox field (below left „agree with the above. . .")
- Please leave default or set the determination folder and click again on > next <
- The installation begins.
- Click after the ending of the installation process on > finish <

Activation



In the VERIM box you have received a document including the activation code looking similar to the picture on the left.

Please follow the instructions to activate your software and you will receive your user name and PIN per email.

If the activation code is missing please contact VERIM directly at

info@verim.eu

or your dealer for further assistance.

Login



When the program starts for the first time you will see your user name as received during the activation process.

Please be aware about the use of small capital letters in your user name.

Click with the mouse on the empty PIN field and enter your 4-figure PIN code received by email after activation - the program logs in automatically when you enter the correct data.

Important:** Write down the name and the PIN just like it is written in the registration mail. Please, give no special signs and do not confirm with **"RETURN"!



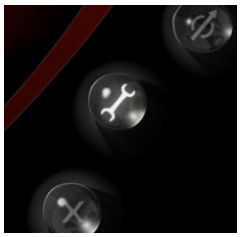
After the logging you will see the "main screen“ of VERIM.

If you are VERIM ProNET user you will see 4 "rooms"; "network", "intelligence", "resource" and "energy".

"network" is not visible in VERIM Personal edition, but it can be switched on any time by an upgrade of the license.

VERIM ProNET supports a multi-user data bank which is important if you want to work with clients.

Setting the language



Click on this icon to open the preferences.



Select the language and confirm to exit the preferences. Now all help screens will appear in the chosen language.

Setting the BF device

In the settings or at the right bottom corner on the main screen you can select the BF device.

Please read the online support section for more information first!

The Main Screen



After login the main screen will appear displaying VERIM's educational “Rooms”: „Energy”, Resource”, „Intelligence” and „Network”.

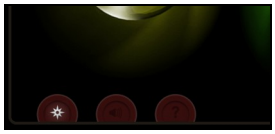
“Network” is available in the ProNet version only.

You can upgrade from Personal Edition to ProNet any time. You will just have to deactivate the current version and activate again with a new activation key for ProNet.

Help in the main screen

On the lower left corner you can select the following menus:
(Click with the left mouse key on the suitable symbols in each case)

Navigation

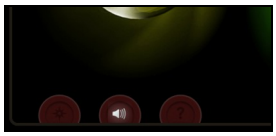


If these 3 icons are pulled up, other sub-menus will appear

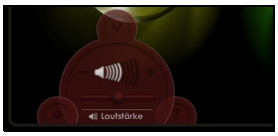


With „X Shut down VERIM“ you can close the application

Volume

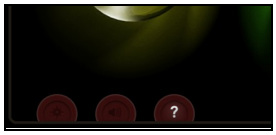


If these icon is pulled up, you will see the volume slider

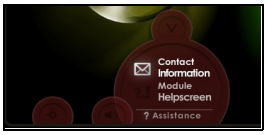


Now you can change the volume moving the slider

Help / Support

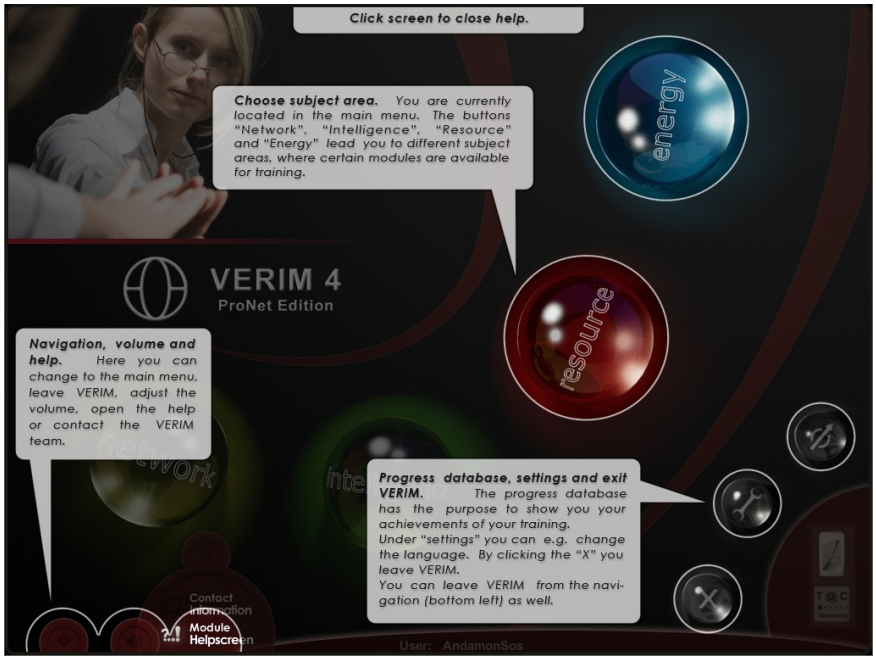


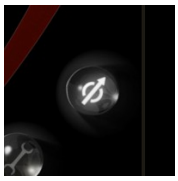
If this question mark will be pulled up, further sub-menus will appear



With „**contact VERIM**“ you will be provided to the VERIM information screen

If you click below on the left on the question marks key, you see further details on screen





Progress Data base to the practice results



Settings, like language and user management (VERIM ProNET)



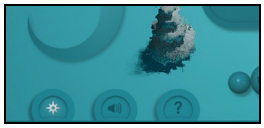
to exit VERIM

Select “Energy” –Room.

Here you will see several “Modules”. Please select “Balance” as an example.

Help - Module

navigation



If this symbol will be pulled up you can see further sub-menus



With „**X shut down VERIM**“ you close the program.
With **„change to main-menu“** you will come to the main screen

volume

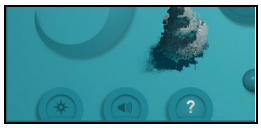


If this symbol will be pulled up the volume slider appears

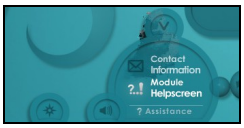


Now you can adjust the volume moving the slider

assistance

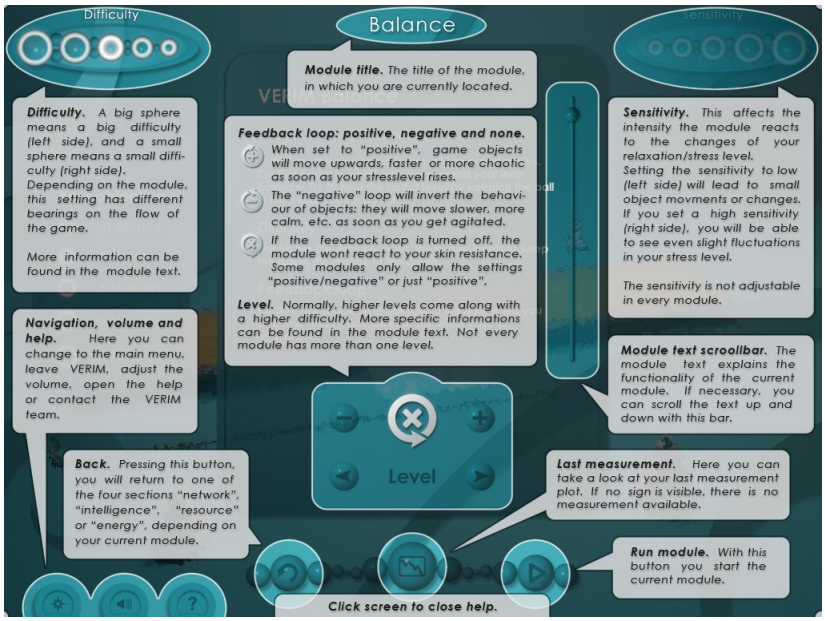


If this symbol will be pulled up you can see further sub-menus



With „**contact VERIM**“ you will be provided to the VERIM information screen

If you click below on the left on the question mark , you can select the option „Explanations to the module“.



Now you can see detailed descriptions and explanations of all available options and settings.

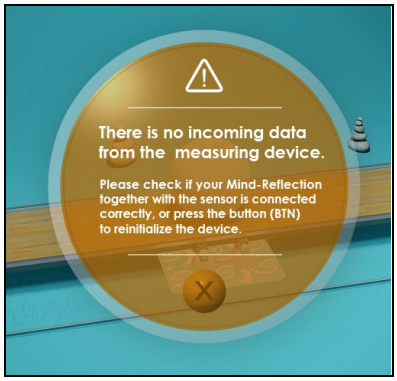
By clicking on the background you can leave this help screen.

Before you start a session in any of the modules, you must first connect the Mind-Reflection biofeedback device and you put on the electrodes over two fingers.
Then you have to activate the device with the "BTN" button.
The LED beside the BTN switch shouldn't blink (on / off) but it should change its color from red to yellow to green.

Please refer to the Mind-Reflection's manual before plugging it in.

If you take off the electrodes, the Mind-Reflection switches itself off after several minutes. Before you can start with the next session you have to press

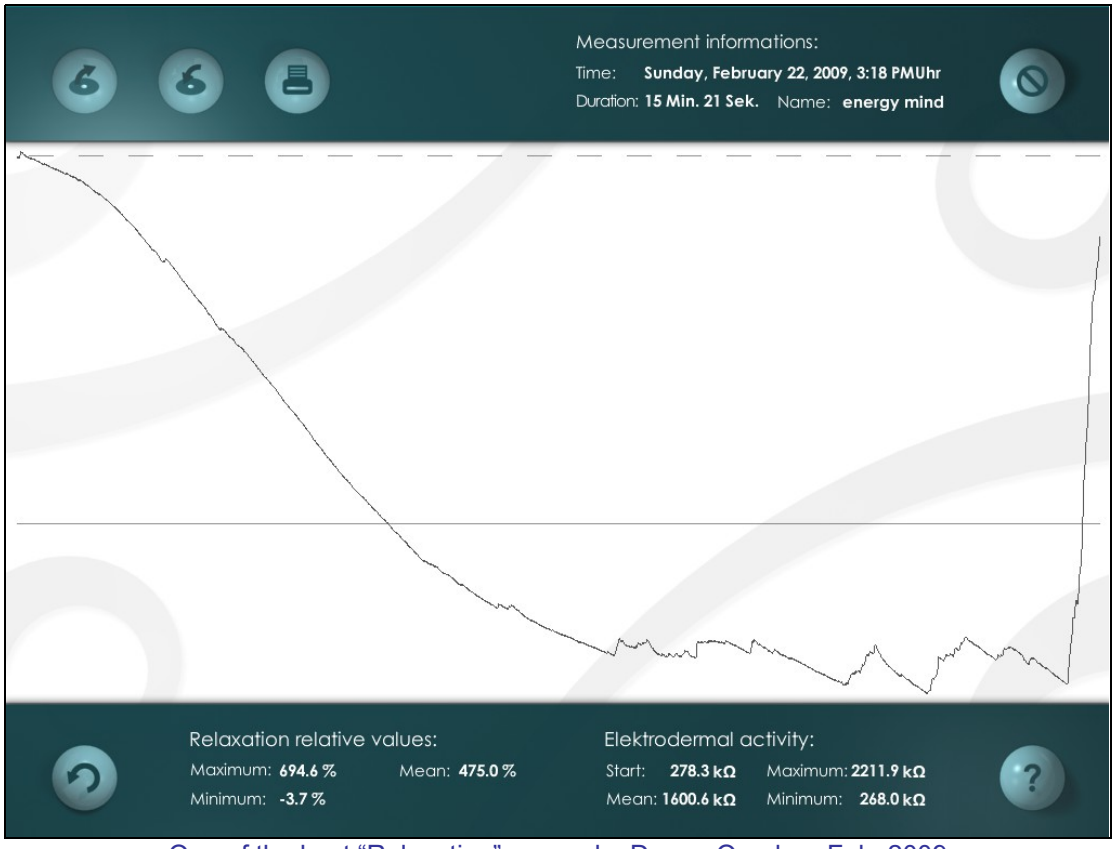
the "BTN" switch once more to activate the device otherwise the software will display a warning!



If „incorrect“ data of the Mind-Reflection will reach the software VERIM, an alert will be displayed. Please, check the connections and if the device is properly switched on, and that the electrodes are properly connected and if they were correctly pulled over the fingers. Then restart the session.

Now you are ready to start with the VERIM.

Through many years of experiences using VERIM in seminars we know how important it is in the beginning of the training to correctly understand the measurement process and the interpretation of the “Plot”.

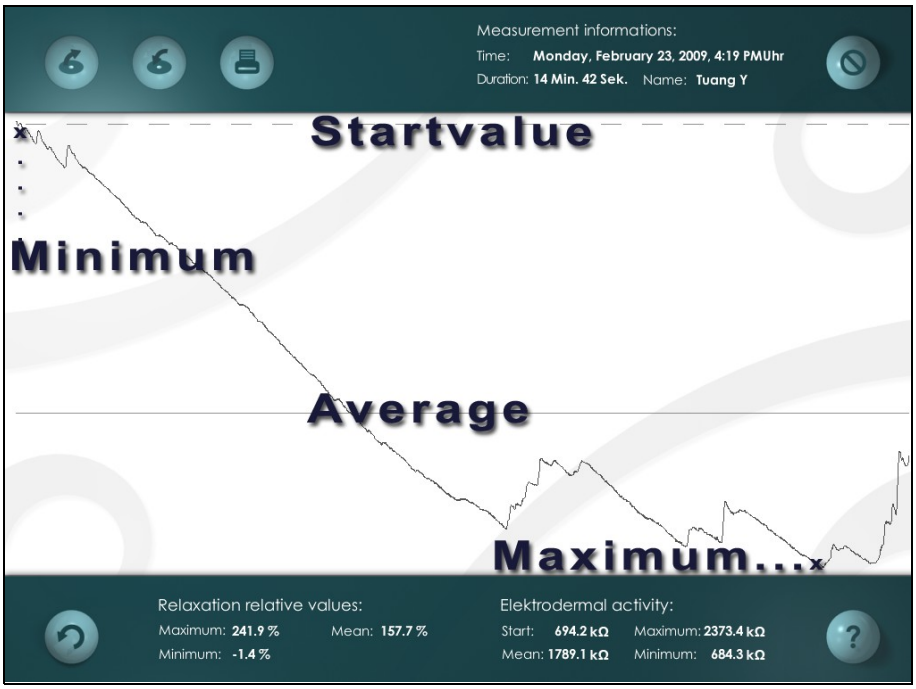


One of the best “Relaxation” scores by Daeng Oraphan Feb. 2009

PLOT's Help Screen

Start with the module "center" in the "Energy" room. Please set the sensitivity second to the right and the difficulty in the middle.

This is a "classical" biofeedback module. When you relax and focus at the same time the circling "bubles" will move more to the center. Just do nothing at the beginning, just observe how the bubles move towards or outward the center. Then observe what will happen when you try to "control" them, what happens when you stop breathing for a short period of time. After about 15 minutes stop the session and look at the plot.



What is the meaning of the lines and the numbers?

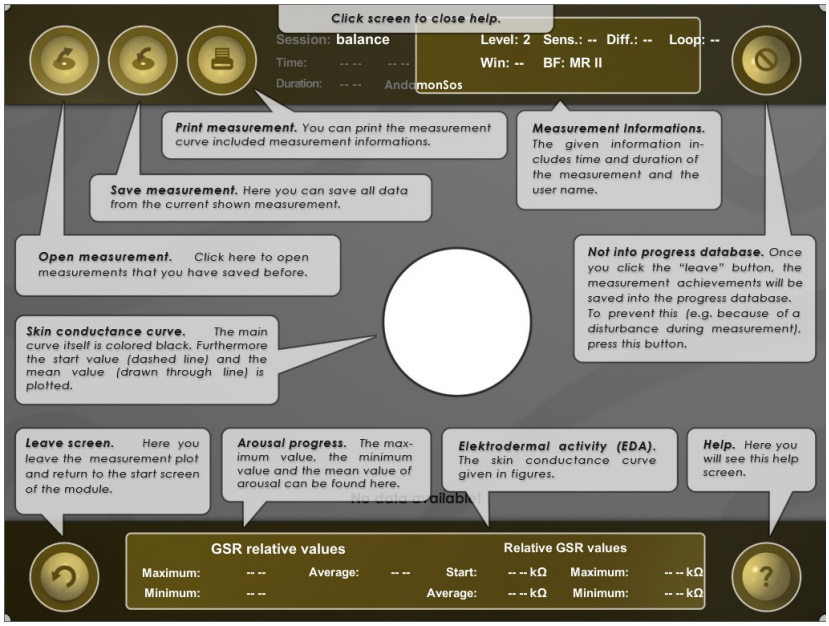
- **The plot** shows you the GSR change over time. When you relax the curve will go down, when you activate it will move up.
  The plot is **relative to the start value**, which is calculated at the beginning of the session. The **start value** is represented by a horizontal dashed line. The **average value** is represented by the constant horizontal line.
- The "**Maximum**" is again relative to the start value and is shown in percent. In this example the maximum of relaxation is 241.9%, in the last minutes of the session. Its absolute value in KOhm is 2373.4
- The "Minimum" is also relative to the start value and shows the maximum of the activation in negative percentage. In the example it is -1.4% in the first seconds of the session and its absolute value in kilo ohms is 684.3
- The start value in KOhm, in the example 694.2
- The average value, of the whole session in kilo ohms, here 1789.1

In this example you can see that the skin resistance, measured in kohms gets greater when you relax, lowers when you get stressed or activated. Or other way around: the skin conductivity gets greater when you stress or activate yourself and gets lower when you relax. More about it later in the “Energy Room”.

The skin resistance in humans can change over 1000% during a day. That’s why the system calibrates itself each time you start the session and the plot is represented in relative values.

Our experience shows that a maximum relaxation of 100% in the “western” culture is already a very good result, but some people in Asia reached over 800% in that time. This comparison shows you well how powerful our activation/relaxation system really is.

When you click on the question mark symbol at the left bottom more explanations. Just click anywhere on the screen to exit the help screen.



Tip:

	At each modules start screen you will find this symbol. Here you can display your last session, if available, or open saved ones.

Now, as you understand much better the evaluation of a VERIM session, we can start with the training itself.

General tips for the training

Two questions are asked very often:

The first one is: *„Which module should I start with ?“*

And the second is: *„How can I relax effectively?“*

To both of them there is one clear answer: „We do not know it, only you can find it out with the help of the VERIM“. Not that we don’t want to answer this question, but we do not want to interfere with your own personal learning process. Nobody knows in advance how you will react in each module and you will have to find out yourself what are your strength and weak points.

The activation and relaxation is your internal processes and the software does not know what you think. However, the software can measure your activation and recognize an instant "change", fluctuation of your stress level. The modules are so constructed that specific abilities can be trained. For example, with the module "Centre" you can work on your ability to relax, and with the module "Balance" to effectively focus yourself and with the module "labyrinth" you can learn more about inner flexibility.
In order to structure the training we have divided the modules into four categories, four virtual “Rooms” (Network included).

For every module the following areas are described:

- **„Your goal“** – what you can try to achieve in this module
- **"Settings"** – which parameters like "sensitivity", “difficulty”, “biofeedback loop” etc. are available and how they influence the training environment
- **„This module you can apply for“** – generally what you can do with the this module, as for example train with closed eyes or to monitor your GSR in real time on a plot (Music Plot).
- **„This tool is ideal for“** – for what learning purpose, goals you can use this particular module, e.g. “to practice relaxation”, “to develop the flow state” etc.

Here is a suggestion, based on our years of experience, for a possible sequence of modules to start with:

- Center – to practice relaxation and concentration
- Labyrinth – to reach flexibility
- Balance – internal balance, focus
- Music plot – some exercises with closed eyes
- Luna park – the first experiences in direction of "The Flow"

In case you encounter some problems in the passive modules like “Center” or “Labyrinth” then try the more active ones in the “Resource” Room.

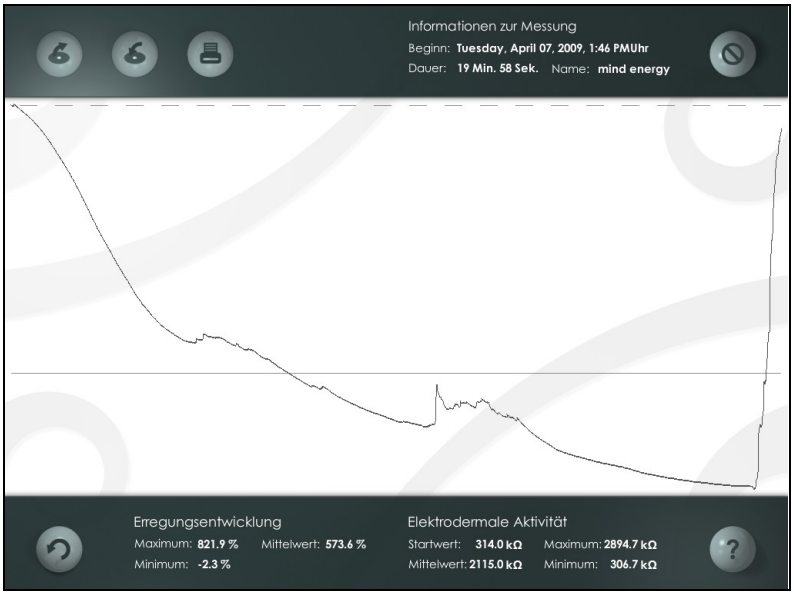
The more you train with VERIM the more experienced you get and then you will know what specific modules are good for. VERIM is an open learning tool, it means you can use specific modules for different purposes. For example you can use “Music Plot” to monitor acoustically your relaxation progress but you can use it for setting markers to view your GSR value in a communication training.

Remarks:

At www.verim.eu you will find more about the VERIM seminars and the "Mind Unlimited" Championships with VERIM.



Here the three best nominees in 2009 from Thailand. Daeng in the middle, Nok to the left and Tuang to the right.



The world record in “Relaxation” in 2009 by Daeng Oraphan from Thailand.

It shows very well that even a “Master” can get better after training with VERIM.

Compare the February 2009 measurement and this one from April 2009.

She scored over 120% better than in February!



What is the inner ENERGY?

What we mean here as energy is the mind's ability to work properly, and not only the physical energy – the one which you can measure in calories.
We can learn to use this energy of the brain very effectively and not to waste it in unnecessary stress. When we become aware of how the connection of thoughts, emotions to our stress level work together we can also learn to regulate this fine network and tune it to our specific goals like learning, relaxation or even activation.

In our turbulent times it is more and more of advantage to be skillful in "stress-energy management". Why dissipate much of our mind's energy instead of using it in a constructive way? In this sense **focus** means the centering, concentration of the mental energy and **relaxation** is an open state enabling minimum "power consumption" and self-regeneration.

VERIM is a very powerful tool, based on years of experience in seminars and coaching. It combines the objectivity of the measurement and virtual training environment. It consists not only of passive training, in some modules you have to be very active as well – in your mind and body.

In a modern way we use computer based virtual environment for learning, but please do not forget who is learning about whom? In this meaning the learn effect is very, very real and this experience based knowledge you can use in everyday situations.

Sometimes learning with VERIM can be very hard and direct. It simply will be objective. But still it is better to learn what really is, free yourself of self made illusions. Maybe you believe you can relax very well and it may be on the contrary…or you find out you have problems to activate yourself? With the help of VERIM you will find out about your own responses in specific situations and then you will have the choice to use the old patterns or try new strategies.

GSR (or skin resistance, electrodermal activity etc.) is a very good, if not the best, psycho-physiological parameter representing your inner arousal at a very deep level (activation of the autonomic nervous system: sympathetic nervous system).

In the Energy Room you can work on the following key issues of energy management:



Self regulation -

- **Relaxation** – we define it as the ability to reduce your stress level measured directly by GSR (skin resistance).
- **Activation** – as a stress level which can be induced by fear, frustration, aggression, or feeling of joy. Activation cannot be differentiated on this level as positive or negative.

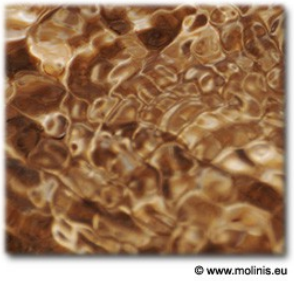
GSR (or skin resistance, electrodermal activity etc.) is a very good psycho-physiological parameter representing your inner arousal at a very deep level (activation of the central-autonomic-nervous system).



Flexibility – the ability to chose proper strategies for specific tasks and situations. First you have to recognize your patterns and then be able to dissolve them using other possible ways of reacting.



Focus – the ability to concentrate, without the necessity to activate yourself too much. You just use the necessary energy and nothing more as you can focus yourself on the specific task. When you are not well focused your mind is wondering around and spending energy on things which are of no concern in this moment. It is wasting the energy. The focus and relaxation are correlated very strongly.



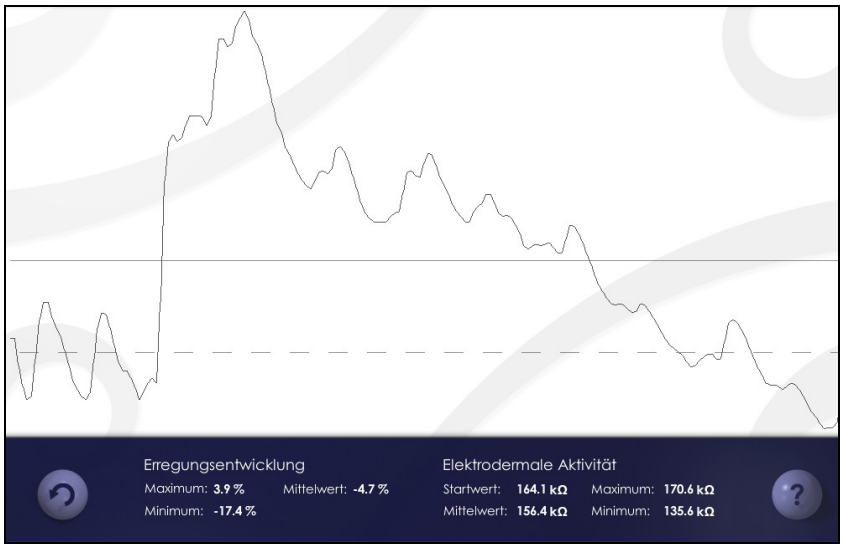
The Flow – is a an optimal state of the mind for the specific task. Often it is the ability to stay in focus although the situation activates you very much.

It is not a mystic state at all, but a real psycho-physiological one, where you are very focused, creative and productive.

This is the state you know you give a good presentation, dance performance or solving of equations - just your mind and body are perfectly working together and you are focused on the task, never matter what you do, the things flow without unnecessary effort and you are *here and now*.

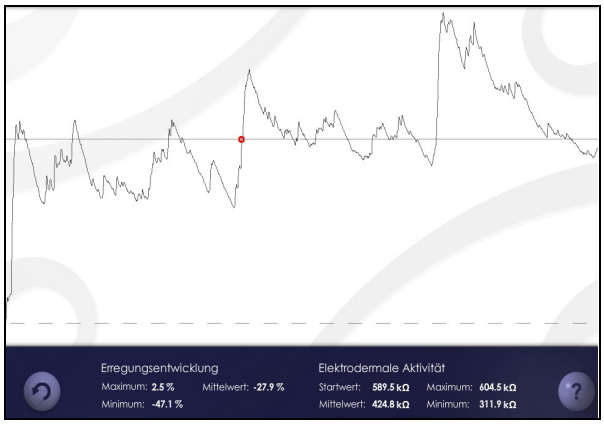
You cannot force yourself into relaxation. That is why we do not use the terms like “Mind Control”, we more talk of Mind-Tuning and self-regulation. Tuning and regulation require that you first know where you are and then find a way to open yourself to the desired “change”. In order to do this you need to focus yourself, otherwise you are doing something other but not opening yourself to the state you

want be in. You can compare the situation with VERIM and biofeedback in general as trying to learn a child to use the steering wheel. The child has to find out itself what movements it has to do so that it can turn its bobby car to the left or to the right. The same with your mind – it has to learn how to reach this or that state, and VERIM is just your environment. It objectively shows you which direction you take and sometimes provoke you for a learning experience... But you will learn yourself and decide where to drive.



A fast activation and a slow relaxation…

For many of us it is much more difficult to activate ourselves than to relax. As relaxation is so important for regeneration or learning the more activation is important for our survival. Without the activation we would not survive as a species. Observe how fast a reptile is changing from relaxation into flight or fight? This same process is encoded into our bran structure as well.



The activation can go high very rapidly because it is so important for our life. Relaxation can wait… and takes some time – it is a secondary for our survival. Today we are exposed to so many threads, the stressors, that we have no much time left to come to peace and relax. We tend to stay at a higher activation level and it works well…for some time. If we do not break this habit we will be faced with burn out syndromes sooner or later.



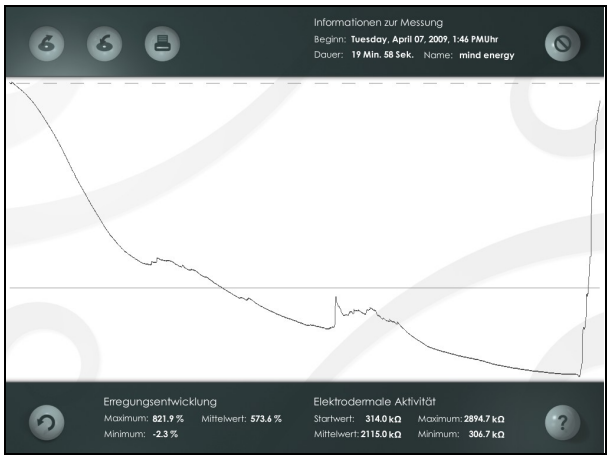
When in danger a reptile can activate itself very fast and needs much more time to calm down.





Here you can see what is possible:
A GSR measurement of a Thai business women, Daeng Oraphan in a VERIM seminar in Thailand.

In the first seminar in February 2009 she made 459% GSR change with open eyes and 629% with closed eys. For comparison, a good result is already when you can relax 100%.



Two month later, after working with VERIM she achieved in the next seminar word breaking record of 821%!

More on the un-limits of the mind you can find on:

www.mind-unlimited.eu

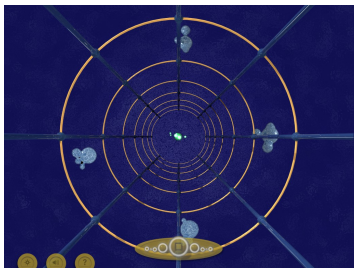




Center



This module is a classical biofeedback application for relaxation and focus.



Bubbling bubbles circle around a center.
Try to bring all bubbles into the center and let them stay there for ten seconds.
If you manage this, you will go to the next level. Try to bring the bubbles into the center again and hold them there for 10 seconds.
You can go in this way through seven levels.

This tool is ideal for:

- To practice relaxation / concentration
- To learn the self regulation (Mind tuning)
- To develop "The Flow" state
- The Development of the sensitivity for internal changes
- To investigate connections between state of excitement, emotions and thoughts

Settings:



- **Level 1:** relaxation (10 s)
- **Level 2:** relaxed focus
- **Focus**
- **Difficulty –** the higher the setting the faster the bubbles will rotate
- **Sensitivity** – the higher the setting the more will the bubbles respond to your GSR change; they will move to the center when you relax and focus but will spiral to the outside when you get activated and distracted. Through the "sensitivity" setting you also change the threshold of each level. When you are already good at the training you should lower the sensitivity and this way challenge yourself!

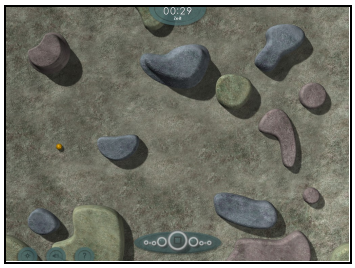
Tips:

- **Please set the „difficulty" to 3 and the „sensitivity" 4 in Level 1**
- **Try to breathe relaxed, slowly and deeply**

Labyrinth



This module is a classical biofeedback application for learning flexibility.

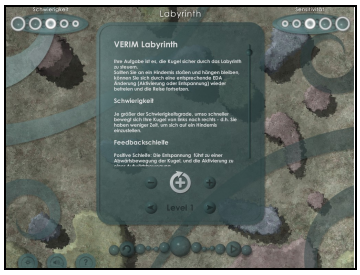


Steer your ball through a labyrinth. Should you bump into obstacles and you get stuck, you can escape again and continue the trip by a suitable activation or relaxation.

This tool is ideal for:

- To practice relaxation / concentration
- To learn the self regulation (Mind tuning)
- To develop "The Flow" state
- The development of the sensitivity for internal changes at the psycho physiological level
  To investigate connections between
  state of excitement, emotions and thoughts

Settings:

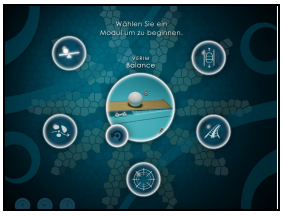


- **Difficulty** – sets the horizontal speed of the ball
- **Sensitivity** – the higher the setting the more sensitive will the ball react to your GSR change
- **Biofeedback looped fixed to positive** – when you relax will the ball go down

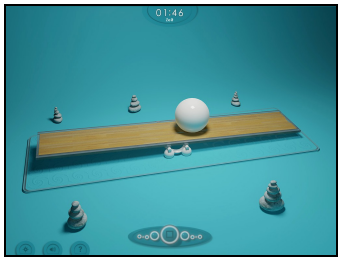
Tips:

- **Please set the „difficulty“ to 3 and the „sensitivity“ 4**
- **Try to breathe relaxed, slowly and deeply and try not to control the ball through breathing**

Balance



This module is a classical biofeedback application for learning to stay in focus.

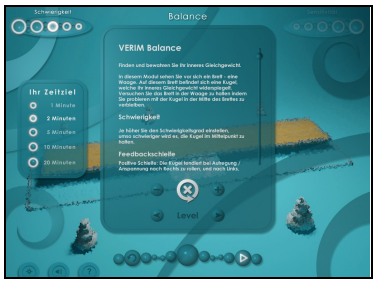


On a swing board there is ball representing your inner focus. Your goal is to keep the ball in the center, staying focused for a selected period of time. If you change your activation to rapidly, a single thought is enough, the ball may roll down. If it rolls off the board you have failed, if not you have achieved your goal and you may increase the difficulty setting…

This tool is ideal for:

- Focus – to practice concentration
- The application as a monitoring of the concentration with the meditation, even purely acoustically applicable
- To learn the self regulation (Mind tuning)
- To develop "The Flow"
- The Development of the sensitivity for internal changes at the psycho physiological level
- To investigate connections between
  state of excitement, emotions and thoughts

Settings:



- **Level 1:** the ball can not fall off while the traing. Places of potential fall off are marked in the plot.
- **Level 2:** the ball may fall off which ends the session.
- **Difficulty** – the higher the difficulty setting the more sensitive will the module react to your local GSR change and you will have harder to „stay in balance“. The ball will roll to the left when you relax to fast or to the right when you activate to fast.
- **Timeout –** the Timeout for the session.

Tips:

- **Please set the „difficulty“ to the minimal value first and the timeout to 2 minutes in level 1. When you can keep the ball for this settings increase the difficulty and timeout values**
- **Try to breathe relaxed, slowly and deeply**

Luna Park



With this module you are able to drive a psycho interactive roller coaster.



You sit in a roller coaster and you have the possibility to drive with high speeds and drop to huge depths to drive yourself then for a short time on your head standing and then again you drive up to vertiginous heights. You steer the speed alone through your relaxation state or excitement state.

This tool is ideal for:

- To develop "The Flow"
- To practice relaxation / concentration / activation
- To learn the self regulation (Mind tuning)
- The development of the sensitivity for internal changes at the psycho physiological level
- To investigate connections between state of excitement, emotions and thoughts

Settings:



- **Difficulty** – the higher the value the slower is the base speed of the rollercoaster
- **Sensitivity** – the higher the value the more sensitive to your GSR change will the rollercoaster react
- **Biofeedback loop**
  - Positive: the rollercoaster will move faster when you relax
  - Negative: the rollercoaster will slow down when you activate yourself
  - (X) no influence on the speed of the rollercoaster by the GSR

  Level – 1 to 3; three different landscapes with some surprises on the way and one backward trip as well (Level 4)

Tips:

- **Set the sensitivity and difficulty to 3 to start with the training in Level 1**

Elevator



With this module you are able to find out your typical "day state" and learn to reach your desired "level".



You glide with the lift in a Tower upwards or downwards.
Fix for yourself first the floor which you would like to reach, and determine how much time you want to give to get there. Try to reach the chosen floor in the given time. You steer the lift through change of your relaxation state or state of excitement.

This tool is ideal for:

- To practice relaxation / concentration
- To learn the self regulation (Mind tuning)
- To develop "The Flow"
- The Development of the sensitivity for internal changes at the psycho physiological level
- To investigate connections between state of excitement, emotions and thoughts

Settings:



- **Difficulty** – the higher the value the less seconds you have to accomplish your goal to reach the target level (the timeout is in seconds)
- **Sensitivity** – this parameter has to be set when you first time use this module. This module uses the absolute values of the GSR and has to be calibrated for each user separately to reflect the current “energy level”. Follow the instructions on the screen.
- **Biofeedback loop (fixed)**
  Positive: the elevator will move up when you activate yourself
- **Target level** – set your desired level here

Tips:

- **Set the difficulty in such a way that the elevator is somewhere in the middle floor. This way you will have enough „floors”/levels for moving up or down**





What are resources and which learning aims you pursue with the modules in the resource room?

Human resources develop out of a combination of thoughts (knowledge) and the dealing with your feelings. One of the most central resources in the learning process of the emotional intelligence is itself becoming conscious of personal qualities; that means to develop a self-confidence. In the perception and with the knowledge about our strengths and weaknesses so we can form more intelligently the access to ourselves and to our surroundings.
The concept „Humanly resource“ comes in all fields of work stronger and stronger in the center of the attention. The knowledge and the social intelligence of the employees show a determining factor of an enterprise in an information society.

Important resources can be:

Patience – To be patient means:

- To be better in handling with unexpected situations
- To react on external demands and difficulties with a good feeling and inner balance
- To meet problems with patience
- To develop a general patience in everyday life
- Simply having less stress and more pleasure in life

Frustration tolerance – increasing it means:

- To accept contradictions and to react in a constructive way to them.
- Learning to handle with loss and defeats
- To admit own mistakes as a part of a learning process.
- To avoid aggressive reactions

Concentration and good Response Time – To remain a long time in the Focus and to be able to react very fast.

You can use it everyday situations like car driving, at work, sports, dance & martial arts, playing cards etc…

Having the ability of focusing on a task while remaining aware of the surrounding environment and having very fast reaction time is life saving. (Avoiding car accident, pooling a child drowning in a pool….)



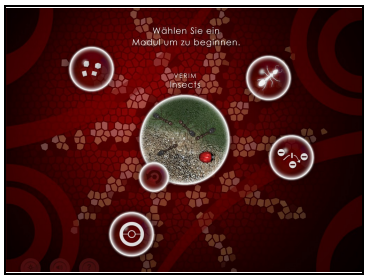
The Flow – is a an optimal state of the mind for a specific task. Often it is the ability to stay in focus although the situation activates you very much.
This is the state you know you are creative, give a good presentation, give the best dance performance or solve equations – just your mind and body are perfectly working together and you are focused on the task, the things flow without unnecessary effort and you are “here & now”.



"Mind Tuning“ or Self-regulation – mastering it will help you:

- To react to external stress factors not by rigid reaction patterns but to be able to act consciously in a self defined way – not to react, but to act –
- To investigate own feelings and to name them
- To recognize internal “programming”
- To visualize oneself in upcoming situations and to prepare oneself for them

Insects



With this module you are able to play properly with the "mouse", to catch insects and to experience their "psycho interactive" behavior as a mirror of yourself.

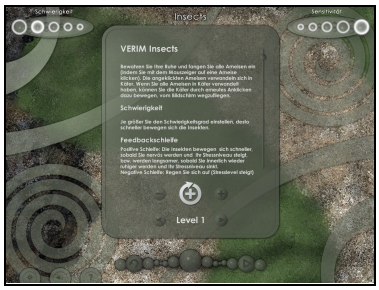


Many ants run through the screen. Keep your head and catch all ants by clicking on them. The clicked ants change immediately into beetle. If all ants have changed into beetle they can be animated (again by clicking) to fly away from the screen.

This module is ideal for:

- To learn self regulation (Mind tuning)
- To shorten reaction time
- To develop "The Flow"
- To learn patience
- The development of a sensitivity for internal changes at the psycho physiological level
- To investigate connections between state of excitement, emotions and thoughts

Settings:

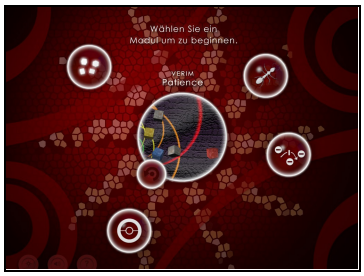


- **Difficulty** – the higher is this value the more faster is the basic speed of the insects
- **Sensitivity** – the higher is set the sensitivity the more will the insects react to your GSR change (only when the biofeedback loop is set to positive or negative)
- **Biofeedback loop**
  - Positive: the insects will move faster when you relax
  - Negative: the insects will move faster when you activate yourself
  - (X) no influence on the speed by your GSR change
- **Level** – 5 levels (1-3 relaxation/activation, 4-5 focus)

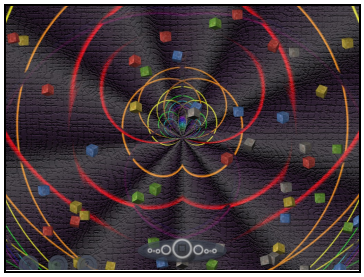
Tips:

- **Please set the „difficulty“ to 3 and the „sensitivity“ to 4**

Patience



With this module you are able to play properly with the “mouse“, to catch cubes and to experience their psycho-interactive behavior



50 colored cubes appear on your screen and in an unpredictable manner they disappear again.
Click every cube once - and they becomes slightly transparent. If you click by mistake a transparent cube the play begins again from the start. Each time you make a mistake the time is marked on the plot.

This module is ideal for:

- to reach an improvement of the contact with failure and frustration (frustration tolerance)
- To learn self regulation (Mind tuning)
- To shorten reaction time
- To develop "The Flow"
- To learn patience
- The development of a sensitivity for internal changes at the psycho physiological level
- To explore connections between state of excitement, emotions and thoughts

Settings:



- **Difficulty** – the higher is this value the more faster is the basic speed of the cubes
- **Sensitivity** – the higher is set the sensitivity the more will the cubes react to your GSR change (only when the biofeedback loop is set to positive or negative)
- **Biofeedback loop**
  - Positive: the cubes will jump faster when you relax
  - Negative: the cubes will jump faster when you activate yourself
  - (X) no influence on the speed by your GSR change
  - **Level 1:** relaxation/activation
  - **Level 2-3:** focus

Tips:

- **Please set the „difficulty“ to 3 and the „sensitivity“ to 4**

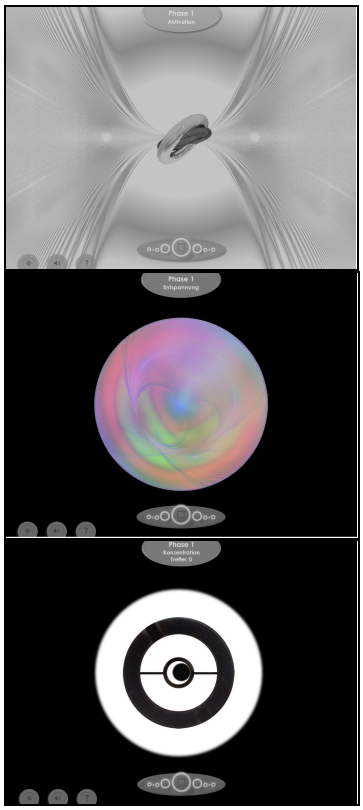
Biathlon



With this module you are able

to pass and to train typical mental phases of the biathlon like

- Activation - running
- Relaxation - preparation for shooting
- Concentration – shooting



This module is made up of two phases and each phase divides itself into the segments Activation, Relaxation and Concentration.

In the activation you must mobilize your forces, and move your body into an active state. A feedback about your activation you receive by means of two rings which will move faster at a suitable activity.

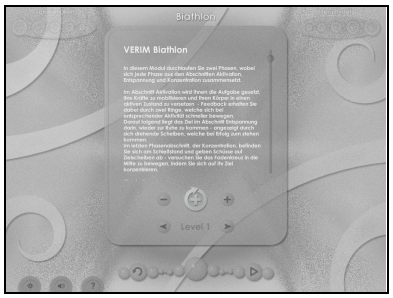
In the relaxation it is your job to be settled down again. Your efforts are indicated by turning discs which come with success to the standing position.

In the concentration, consisting of a balanced mixture between activation and relaxation, you are asked in the shooting gallery to deliver shots on targets. Try to move the cross-hair in the middle, while you concentrate upon your aim.

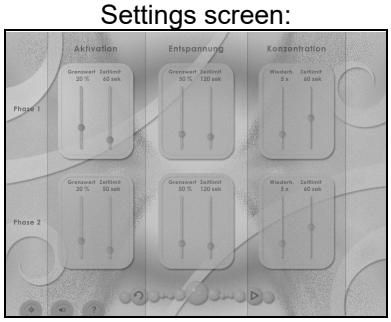
This module is ideal for:

- To learn self regulation (Mind tuning)
- To develop "The Flow"
- The development of a sensitivity for internal changes at the psycho physiological level
- To investigate connections between state of excitement, emotions and thoughts

Settings:



Settings screen:



- **Activation**
  - **Threshold** – the higher you set this value, the more you have to activate yourself in this phase
- **Timeout** – maximum time for this phase
- **Relaxation**
  - **Threshold** - the higher you set this value, the more you have to relax in this phase
  - **Timeout** – maximum time for this phase
- **Concentration/Focus**
  - **Repeat** – the number of the shots (5 is standard)
  - **Timeout** – the time for each shot in this phase



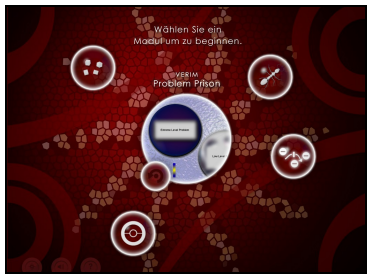
Markers:

Activation: green- threshold reached, red – timeout
Relaxation: green- threshold reached, red – timeout
Focus: blue – targeted, yellow - missed

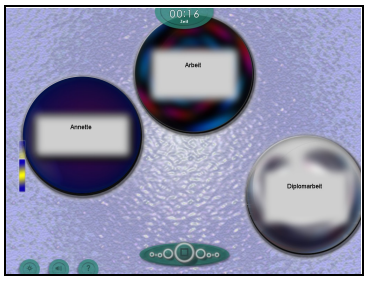
Tips:

- Suggested settings for the phase 1 & 2:
  - **Activation:** 20%, 60 s
  - **Relaxation:** 50%, 120 s
  - **Focus:** 5x, 60 s

Problem Prison



With this module you are able to write personal contents / events in the training software and to "head" for them and to free yourself emotionally from them

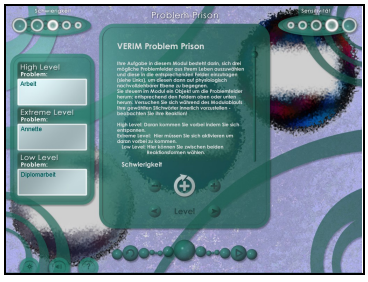


Select three problem fields in your life, and write this in suitable three fields "neutral level", "extreme level" and "low of level".
Now you ca "travel" along your problem fields. You only go past to the "high level" field, while you relax. To go past to the field "low level", you must activate yourself. With the field "neutral level" you have the free choice how you would like to pass the problem. While you try to pass the single problem fields, get involved mentally in your respective problems and observe your inner reactions.

This module is ideal for:

- To recognize emotional problem areas and to work on their resolution
- To recognize own feelings
- To try out alternative strategies solutions for the emotional blockades
- To learn self regulation (Mind tuning)
- The Development of a sensitivity for internal changes at the psycho physiological level
- To investigate connections between state of excitement, emotions and thoughts

Settings:



- **Difficulty** – sets the horizontal speed of the ball
- **Sensitivity** – the higher the setting the more sensitive will the ball react to your GSR change
- **Biofeedback looped fixed to positive** – when you relax will the object go down
- **Problem Zones**
  - **High Level Problem –** here you write down the name of a person, a short description of a situation etc. which "invokes" an activation in you - you get angry, frustrated and you want to train to change your response to more neutral or even relaxed in this specific situation
  - **Neutral Level Problem –** here you write down the name of a person, a short description of a situation etc. which does not "invoke" an or relaxation activation in you – there is no response in you and

you want to train to change your response to more active or relaxed in this specific situation

- **Low Level Problem –** here you write down the name of a person, a short description of a situation etc. which “invokes” a relaxation in you - you get “unmotivated”, no drive and you want to train to change your response to more active in this specific situation, be more motivated, have more drive

Tips:

- Please set the „difficulty“ to 3 and the „sensitivity“ to 4
- Begin with persons close to you, with real situations and avoid abstract definitions.
- You can repeat sessions with the same entries – the problem fields will distribute randomly so that you can avoid the same patter of activation.
- Reconsider the problem definition after several sessions – other configurations.
- A typical example: **Your boss in High Level** – you feel stressed when you see your boss, your thoughts are not focused, your hands are getting wet and cold. This is a good training “person” for searching a new pattern in your behaviour. Maybe a constructive talk with the boss, feeling the boss (empathy)?
  Your partner in Neutral Level – In recent weeks you are not feeling very empathetic towards your partner. You want to change it and look for more extreme reactions.
  Jogging in Low Level – you want to motivate yourself to do your jogging minutes in the morning – activate yourself!



What is Intelligence on psycho-physiological level?

The “Intelligence Room“ creates a virtual space for learning the self-verification and self-enhancement.

The GSR is an easy, but very direct, indicator of the stress level and it shows us our basic arousal patterns and of other animals. You can not develop emotional intelligence without integrating this foundations of our “old brain’s programs”. Even a single thought or an emotion can cause a rapid change of the skin resistance. Read more on Fight-or-flight response.

A single thought or an emotion can cause a change of the skin resistance. In this training “Room” your abilities in the self-verification are mostly coached by means of a plot. You will quickly learn to be aware of your own psycho-physiological states.

You will also be able to understand better the connections between the thoughts, to the emotions and the internal psycho-physiology of the people around you. Thereby you become “more intelligent” also at the emotional level. You will thereby become “more sensitive” for yourself and more emphatic for the people around you. Using this knowledge you can make new decisions, because the internal processes become clearer for you. You may be surprised to find out how few people do act “logically”, and how many react “emotionally”. The logic is very often used as a post explanation of an emotional act.

If you have taken the step to the introspection, your vision about yourself will change. Your self-esteem will gain strength. Too often we act as „emotional robots“ of being incapable to make our own, responsible decisions. If you, however have experienced these internal processes and you have integrated them into your life, you will also feel no desire to fall back into the old behavior patterns.

You will simply attain new emotional freedom, “be enhanced”, with a new responsibility for yourself and others.

Psycho-physiology is a good starting point for discovering how much we are entangled as mammals by the evolution, what Lewis, Amini and Lannon called very nicely the **Limbic Resonance** in their book “A General Theory of Love (2000)”.

More on this in the group psychointeractivity, which is a complementary concept to the lymbic resonance, which can be presented objectively with VERIM.

On which learning goals you will focus in the modules in the Intelligence Room?



Intelligence on the psychophysiological level – helping you:

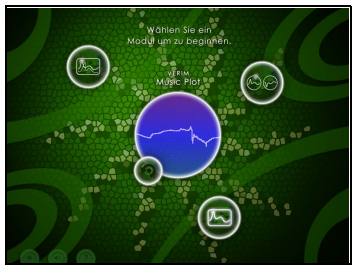
- To be better in self-verification
- Having better relations with others
- Increase your emphatic abilities
- Having less stress and more pleasure in life



„Mind Tuning“ or Self-regulation – mastering it will help you:

- To recognize own internal “programming”
- To investigate own emotions and to verify your psycho-physiological reactions.
- To react to external stress factors not by rigid reaction patterns but to be able to act consciously in a self defined way – not to react, but to act –
- Achieve deep relaxation and high focus

Music Plot



With this module you are able

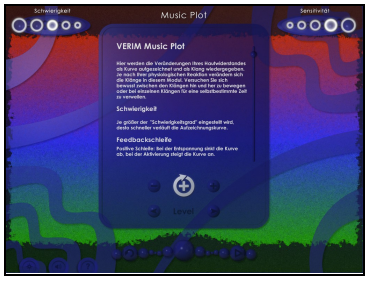
- to make a long time recording of the GSR: Monitoring including setting markers during the session (as in every VERIM module using the F1 to F12 keys which are key coded on the plot)
- to train with eyes closed due to sound feedback
- to show how sensitive the GSR is to your thoughts and feelings



Here the changes of your skin resistance are recorded as a curve and are returned as a sound. According to your physiological reaction the sounds change in this module. Try to move consciously between the sounds or to stay with some sounds for a self-determined time. This is a very open tool, with (almost) no limits to recording time and possible application.

With this module you are able to draw your GSR curve and play a sound changing to your GSR.

Settings:



- **Difficulty** – sets the speed of the plotted line
- **Sensitivity** – the higher value the more sensitive will the plot react to your GSR change. If you have over clipping lower the sensitivity value next time
- **Biofeedback loop fixed**
  - Positive: when you relax the plotted line will move down
- Levels: 1 – relative activation, 2 – adaptive activation, 3 - focus

Tips:

- Please set the „difficulty“ to 3 and the „sensitivity“ 4
- In Music Plot you have sound feedback so you can do the training with closed eyes.

Plot It



With this module you are able

to draw your subjective GSR curve, and to compare this curve after the meeting to the really measured curve.

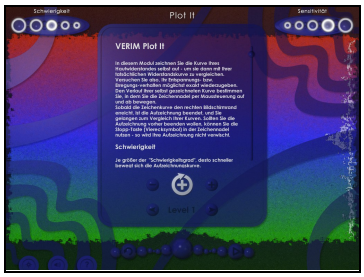


In this module you draw with the mouse the plot of your skin resistance in the way you feel it by yourself and then you can compare this subjective curve to your really measured curve. The program will evaluate the correlation as well.

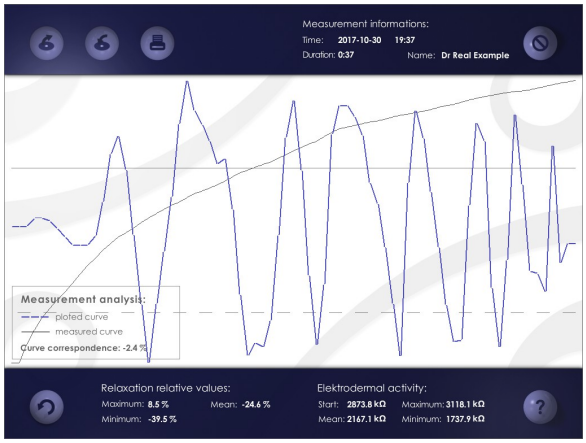
This module is ideal for:

- Development of sensitivity for internal changes at the psycho physiological level
- To investigate connections between state of excitement, emotions and thoughts

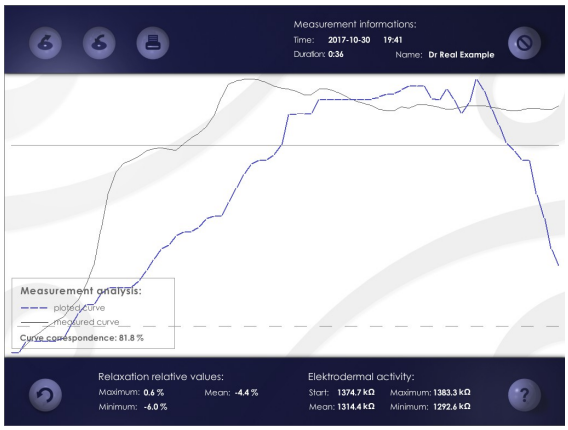
Settings:

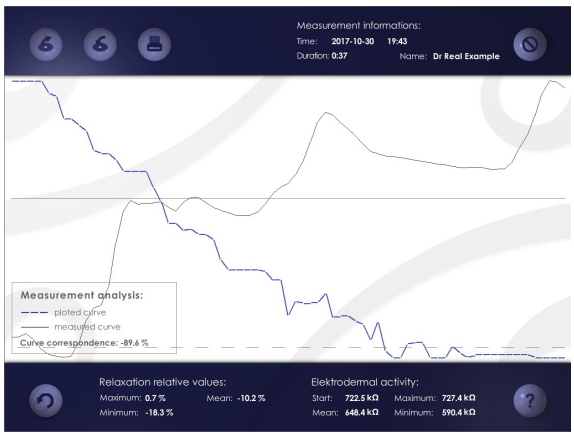


- **Difficulty** – sets the speed of the plotted line
- **Sensitivity** – the higher value the more sensitive will the plot react to your GSR change. If you have over clipping lower the sensitivity value next time
- **Biofeedback loop fixed**
  Positive: when you relax the plotted line will move down



No correlation – the subjective feeling is not corresponding to the measurement!



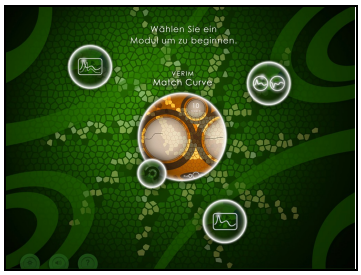


Negative correlation – the feeling is very good but it's interpretation oposite!

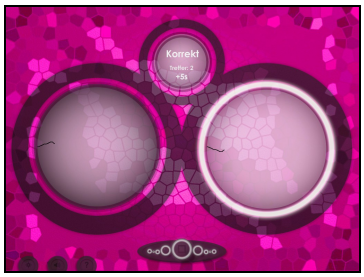
Tips:

- Please set the „difficulty“ to 5 and the „sensitivity“ to 4
- You need some experience with Music Plot in order to work with this module.
- During the session you may close the eyes and take the sound as reference of what you are plotting.

Match Curve



With this module you are able to learn to recognize your measured curve GSR, and to make a distinction from the simulated curve



In this module two measuring curves are shown to you at the same time. Develop strategies to find out which curve is yours.

This module is ideal for:

- To learn faster your self-assessment (GSR)
- The development of a sensitivity for internal changes at the psycho physiological level
- To investigate connections between state of excitement, emotions and thoughts

Settings:



- **Difficulty** – sets the speed of the plotted line
- **Sensitivity** – the higher value the more sensitive will the plot react to your GSR change. If you have over clipping lower the sensitivity value next time
- **Level** – 1 & 2

Tips:

- **Please set the „difficulty“ to 3 and the „sensitivity“ to 4**



Why training in a network?

The **ProNet** user have the possibility to train in pairs, teams or groups. But what is so different while training alone or with others? We can say from the seminar experience –"Everything!". The social situation changes our inner responses diametrically. In seminars we have seen how masters in personal training fail completely in team training.
The group psychointeractivity of VERIM was granted the European patent in 2006.
It can be applied to tele-coaching settings but may lead to a cultural revolution in art and media as well.

On which learning goals you will focus in the modules in the Network Room?



Self verification in a group on the psychophysiological level – helping you:

- To be better in self-verification in a social context
- In self-enhancement in a social context
- Increase your emphatic abilities
- Having less stress and more pleasure in life
- Having better relations with others



Emphatic abilities – mastering them will help you:

- Respect others emotions without their personification
- To investigate own emotions and to verify your psycho-physiological reactions in a social context
- To react to external social trigers not by rigid reaction patterns but to be able to act consciously and mature



Team-building – mastering it will help you:

- To learn "The Flow" in a group
- To adjust your inner focus for group processes
- To activate or deactivate your inner energy for group needs
- Flexibility in a group
- To learn the paradox of dolphins run versus rats run.

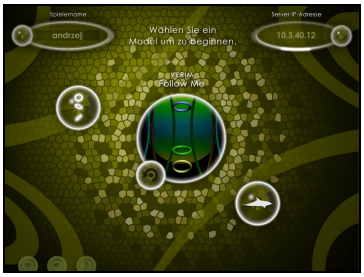
At the present time we offer two open network modules and are already working their expansion. The network modules have been tested in seminars and we offer a "*VERIM Coordinator*" extra module controlling via the server up to 16 users.

It is strongly recommended that you make VERIM Trainer's certification before you start "networking"!

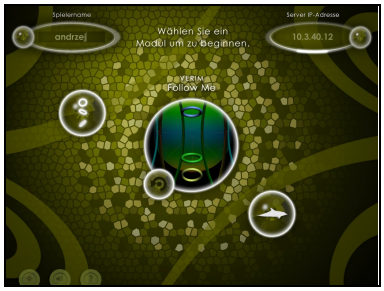


Mind-Unlimited.eu championships in Poland 2009

Follow Me



With this module you are able chat with others in the network and communicate via GSR level as well



Follow Me is an open network tool and has no fixed goals to achieve. It may be empathy or open coaching training. You see yourself and your partner(s) as rotating rings, which correspond to your GSR change. In the chat room you can exchange messages and see the reaction to them.

This module is ideal for:

- **Empathy-Training, Negotiation-Training, Leadership –Training**
- The development of a sensitivity for internal changes at the psycho physiological level **in yourself and others**
- **To try out alternative non-conflict strategies**
- **To learn the Mind-Tuning in a social context**
- To investigate connections between state of excitement, emotions and thoughts

Dolphins Run



With this module you are able chat with others in the network and communicate via GSR level as well and run a championship in relaxation and concentration.

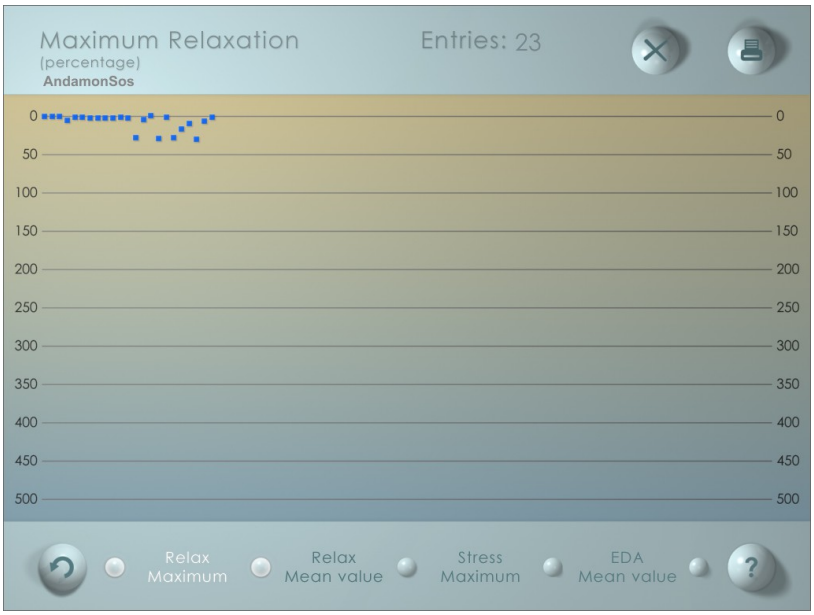


Dolphins Run is network module for conducting championship in a constructive way – the winner is the one who can more relax and concentrate. You can use the module for team training as well.

This module is ideal for:

- **Negotiation-Training, Leadership –Training**
- The development of a sensitivity for internal changes at the psycho physiological level **in yourself and others**
- To investigate connections between state of excitement, emotions and thoughts

Progress Database



In VERIM ProNet you have the possibility to work with many clients. Each client's settings are saved together with main statistical values of each session.

On the three screens you can follow the tendency.
By clicking on each square you can display some information about the session.

Currently the functionality of the Progress Database is being expanded and will be available for VERIM 4 users.

Exporting saved sessions data

In case you want to export a sessions data into a statistical program here is a short example how to prepare the file for import.

All the data is being saved in .txt files so you can open them easily without any conversion.

In the square parenthesis after “#data:” the GSR values in Ohm are being saved (every 0.5 s). All you need is to copy it to a text file without the parenthesis and its done. Here a short example from VERIM 3. VERIM 4 sessions are processed in analogous way:

> [#User: "Example", #myDate: "2017-11-02", #myTime: "20:15", #startValue: 2813572.2222, #AverageValue: 2515032.4074, #Markers: [[5, 15]], #data: [3023850, 2920750, 2895900, 2882450, 2835625, 2773825, 2706425, 2659900, 2623425, 2597150, 2573375, 2546000, 2513475, 2490650, 2465800, 2443550, 2410375, 2362450, 2317625, 2277850, 2250700, 2243275, 2235600, 2223650, 2219850, 2215500, 2196850]]



you change to

3023850, 2920750, 2895900, 2882450, 2835625, 2773825, 2706425, 2659900, 2623425, 2597150, 2573375, 2546000, 2513475, 2490650, 2465800, 2443550, 2410375, 2362450, 2317625, 2277850, 2250700, 2243275, 2235600, 2223650, 2219850, 2215500, 2196850



Closing remarks

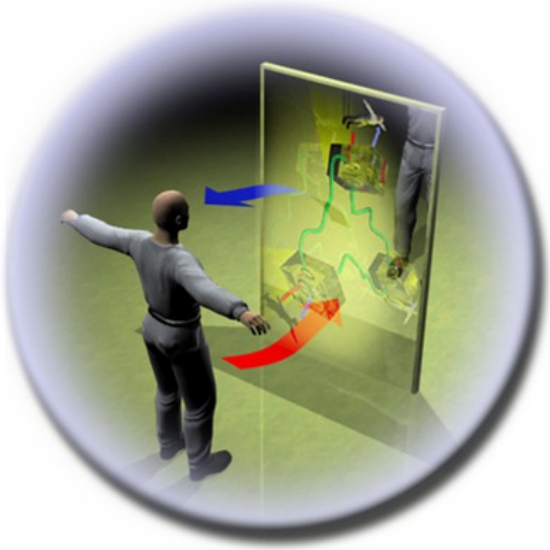
VERIM has already a long history. It was founded by Dr Kloeckner and me in 2000. The predecessor to VERIM was Mental Games, where the first concepts of psychointeractivity were implemented. Meanwhile VERIM is being applied in many fields, and is being praised for its simplicity and clear structure and effectiveness in self regulation.

My personal feeling is that present times are even more ready for VERIM as almost 20 years ago. And 20 years working with people is a lot of experience which is bringing new VERIM's possibilities.

Please visit verim.eu for lectures, training and seminars.

> I invite you to read the appended theory part, as it may explain some of the concepts used in the manual.

Psychointeractivity

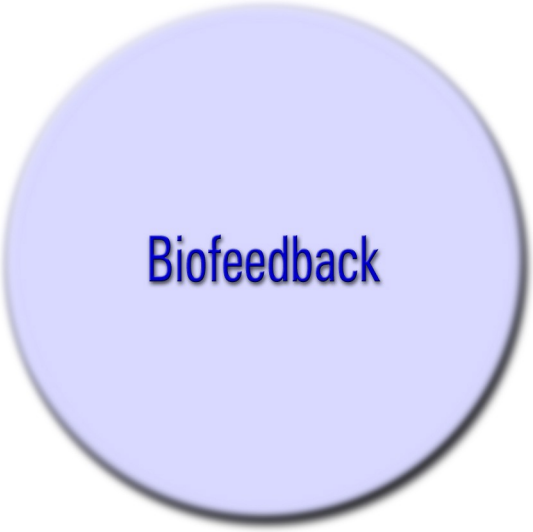


- A NEW STEP TOWARD PSYCHOPHYSIOLOGICAL SELFREGULATION -

"Exploring Psychointeractivity:
Applications and Implications for Human Resources"

© 2000 - 2018 Andrzej Andamon Slawinski

PART ONE



What is biofeedback?

Biofeedback is today a well represented and scientifically acknowledged field of studies. The biofeedback technology has found a wide range of applications in the therapy of psychosomatic, psychic and neurological problems. Also it has been successfully applied in stress management and sport training programs.

There are many definitions of biofeedback and several theoretical approaches. The literature list about biofeedback runs into thousands of publications.

Before going through several definitions of biofeedback let's consider the following measurement's options, for example measuring the temperature of a person's body:

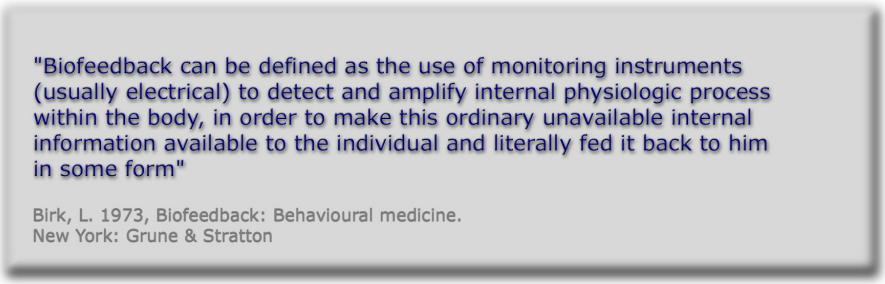
- **Single measurement**
  -> diagnosis
- **Multiple measurements over time**
  -> monitoring
- **Self monitoring**
  -> biofeedback
- **Self monitoring and regulation**
  -> biofeedback training

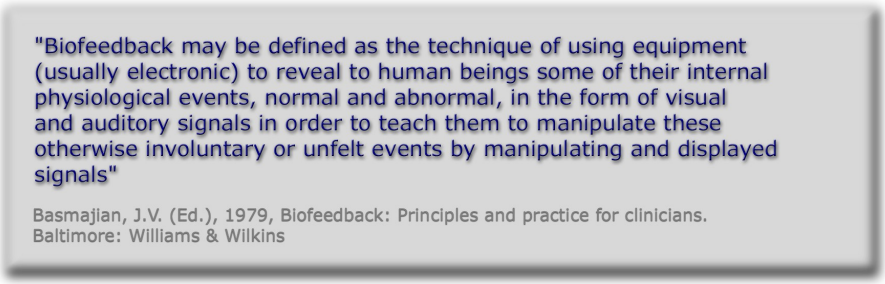
A single measurement gives a possibility of a diagnosis, like "high", "low" or normal. When you measure this parameter over time, plotting, recording or just observing it, we "monitor". This technique may be useful to follow a development of a certain parameters for example for life signs monitoring: heart rate, respiration, EEG etc. Still the person being measured is not instructed to observe or change the displayed data.
Exactly here begins the biofeedback – when the measured person can observe the specific parameter and is aware of it. The next step is when the person tries to regulate the specific parameter – here we can talk of biofeedback training already.

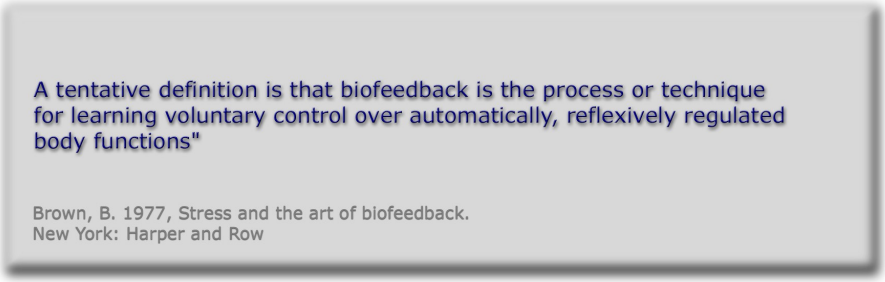
And here are some modern definitions of biofeedback:

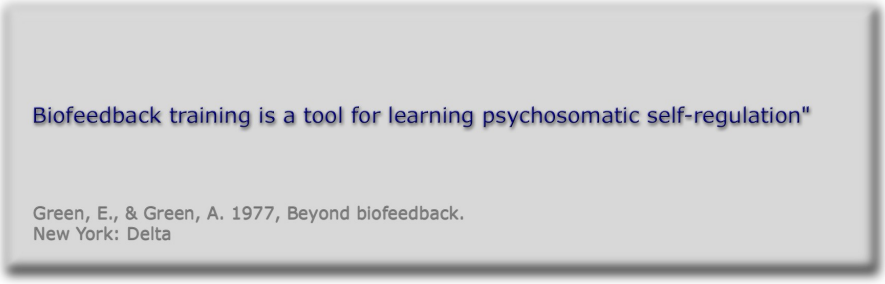
"Biofeedback: the technique of making unconscious or involuntary bodily process (as heartbeat or brain waves) objectively perceptible to the senses (as by use of an oscilloscope) in order to manipulate them by conscious mental control"

Merriam-Webster Advanced Dictionary,
Electronic Edition by Franklin, Bookman









Three main theoretical models underlying these definitions are:

- **Learning theory model** – Biofeedback is instrumental conditioning of neuromuscular and autonomic activity using the *fed* in signals as positive reinforcement.
- **Cybernetic model** – Biofeedback as the external feedback loop of physiological signals makes possible for a motivated person to make appropriate inner adjustments.

- **Stress management model** – Biofeedback is used as a tool for stress reduction

All these definitions and models have in common the therapeutic aspect of biofeedback. Another branch of biofeedback technology has developed parallel to the clinical applications and is connected to the “self-awareness” ideas. Here is not the therapy of some “abnormal” human condition the main goal of biofeedback application, but the achievement and control of “expanded” states of consciousness.

One of the pioneers of these ideas, C. Maxwell Cade, formulated this in the following way:

> "Essentially, biofeedback is a new way of learning about ourselves, or a way of relearning, or realizing for the first time, what the body already knows - how to act, how to feel, even how to heal - if we listen to it.
> With biofeedback instruments and techniques, the art of listening to internal cues can be restored, or established. Since one can not control that of which one is unaware, biofeedback can be said to provide the means to become aware - acutely aware - of ourselves, and thereby to gain the possibility of self-control. […] The chief characteristic of the biofeedback process classifies it as a cognitive process; this characteristic is awareness of the relationship between mental activity and the feedback signal initiated by the bodily activity which is being learned."
>
> C. Maxwell Cade & Nona Coxhead, 1979, The awakened Mind: Biofeedback and the Development of Higher States of Awareness. Wildwood House Limited

Before I introduce a new concept for the application of biofeedback technology let us take a short look at different methods of gaining psychophysiological information and also at some historical aspects of this fascinating field.

Biofeedback methods

Any possible method for gaining the signals coming from the human body can be theoretically used for biofeedback. Some of the most applicable methods today are:

- **Skin Resistance** – Terms: galvanic skin response (GSR), electrodermal activity (EDA) consisting of electrodermal response (EDR) and electrodermal level (EDL), skin conductance activity (SCA) and its components SCR and SCL, skin resistance activity (SRA) and the specific parts SRR and SRL. Two electrodes are placed over the sweat glands[1] of

[1] A gland of the skin that secretes perspiration and opens by a minute pore in the skin

the skin, and a small voltage is applied to the electrodes, a circuit is created, and an electric current in microampere range will flow.

- **Electromyography** – EMG. It measures the electrical correlate of the muscle contraction in the micro volt range.

- **Respiratory Feedback** – RESP. A belt or a distance sensor over a chest or temperature sensor in front of the nose / mouth is monitoring the respiration process.

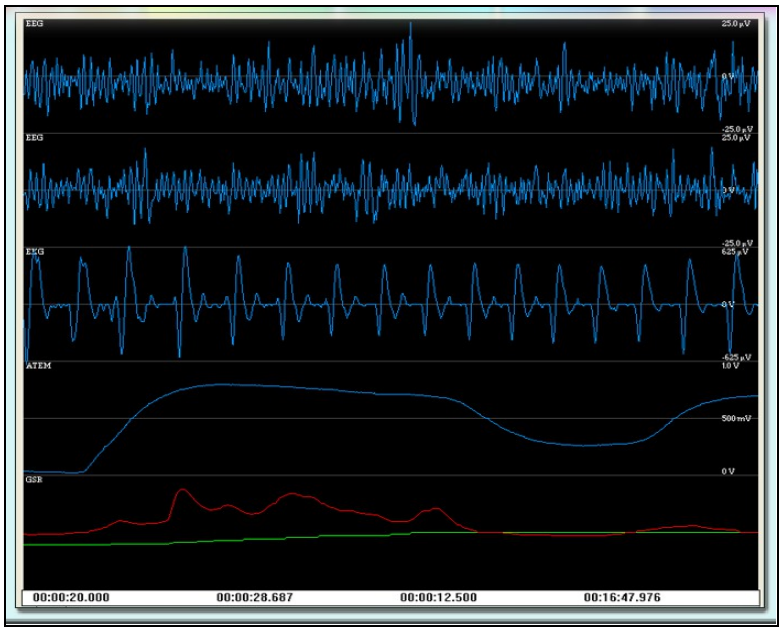
- **Peripheral Temperature** and **Finger Phototransmission** as correlates of peripheral vasoconstriction.

- **Heart Rate –** HR. The heart rate measured by an ECG system or finger / ear phototransmission sensor unit.

- **Electroencephalogram –** EEG. Small electrical changes in the micro volt range are being picked up by a system of electrodes fixed on the surface of the head. For biofeedback application the “brain waves” are being analyzed for their local distribution in the left, right hemisphere and their spectral (frequency) distribution.

Other, more exotic form of biofeedback like light evoked ultra-weak photoluminescence, are very promising but still in the stage of research and very are costly.

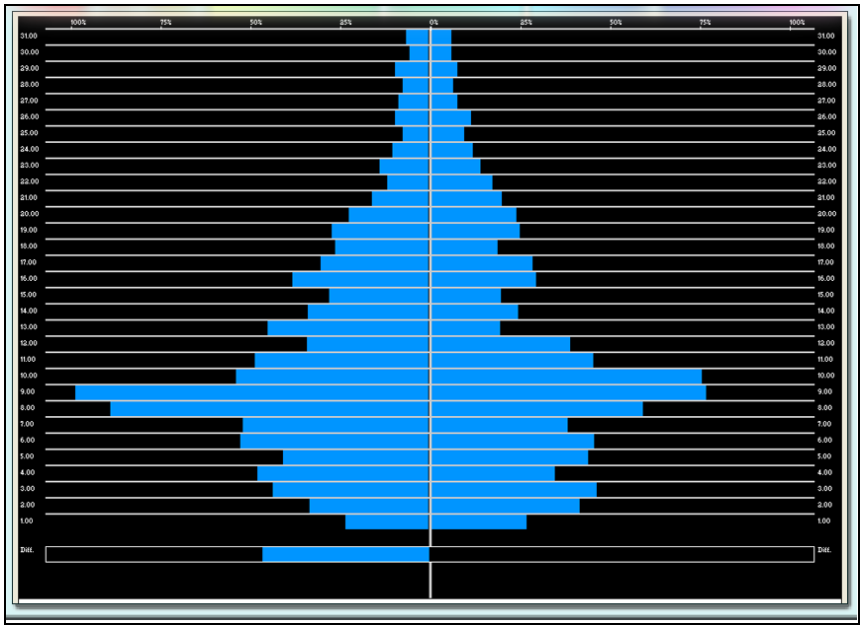
Skin resistance or applying the historical term, galvanic skin response (GSR), is one of the easiest and robust methods for biofeedback. Although it is simple in application it delivers quite complex data from which many **aspects of activation, relaxation but even concentration/focus** can be derived.



Here is an example of plotted data:

- EEG - left and right hemisphere
- Pulse
- Respiration
- GSR represented by two lines; the base in green and the local change in red

Of course such a way of displaying the data is of no much use for biofeedback training. It has to be transformed into audio-visual, analog representation.
Just transforming the first two channels of the EEG sample by FFT algorithm you can display a “Mind-Mirror”, showing in real time the spectral distribution – which frequencies are active in the left and right part of the brain.



“**Mind-Mirror**” of the EEG data of the previous example here translated into spectral bars of the left and right hemispheres’ activity – here clear Alpha range at 9-10 Hz.

Such representation is already quite suitable for EEG biofeedback training with open eyes. The training person can “see” the frequencies in his brain and so has the proper visual feedback to observe any changes.

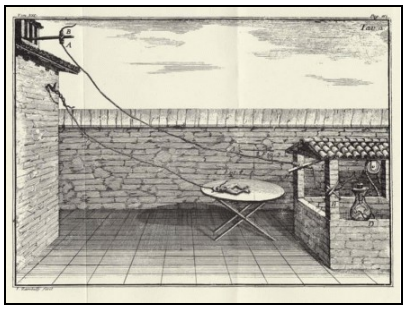
HISTORY OF GSR



On the painting:
Luigi Galvani (1737-1798)

It is difficult to fix the point when biofeedback era began.

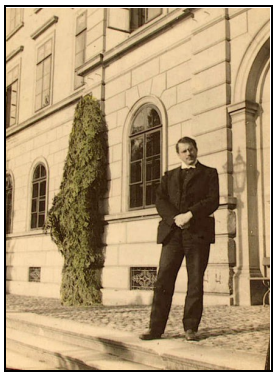
Some refer to Galvani’s discovery of the electrical process in nerve and muscle action, which quickly stimulated research into the medical applications of the electricity.



Here a picture showing the setting for his experiments.

By 1840, it was widely believed that electrical process over the body provided a basis for explaining disease and generating diagnoses and therapies. By 1870 sophisticated instrumentation and procedures had been developed as part of electrophysiological research methodology.

Sudden changes in skin resistance were seen as a source of artifact at this time and even special instruments were build to control or suppress these changes. First in 1879, Romain Vigouroux measured skin resistance in several cases of hysterical anesthesia.
In 1888, Chatles Fere, a colleague of Vigouroux, noted changes in skin resistance after physical stimulation.
In 1915 this process was called galvanic skin response (GSR) and Fere's study was referred to as the first statement of an arousal theory.
Several years earlier, a German researcher, Hermann, found out that GSR is connected to sweat gland activity, thus giving a physiological explanation for the phenomenon.
In 1889, the Russian investigator, Ivan Tarchanov, was able to show that **mental activity** could cause changes in GSR. The works of Fere and Tarchanov were forgotten for many years.
In 1904 as a Swiss engineer, E. K. Müller, noticed that GSR changed even with regard to **psychological events**. He passed his observations to the Swiss neurologist Veraguth, who was a friend of Carl G. Jung.



Carl G. Jung used the GSR in word associations experiments and by 1907 he considered GSR or "**psychogalvanic reflex**" as a method to objectify unconscious "emotional tones".

He was also the one who brought the ideas of GSR to the United States.

The actual state of the GSR in biofeedback is very well described by Charles J. Peek in one of his standard works:

> "This physiological variable has appeared in countless psychological experiments, in clinical practice, in "lie detector" equipment, and even in toys and parlor games. Biofeedback has used it for access to autonomic arousal. Skin resistance is recognized as a distinctively sensitive to transitory emotional states and mental events, while often remaining more or less independent of other biofeedback measures such as muscle tension and skin temperature. It is a complex variable, responsive to a wide range of overt and covert activities and external and internal stimulation.
> Its responsivity to psychological content in actual or laboratory human situations apparently prompted Barbara Brown (1974) to dub GSR "skin talk." […] That is, EMG and temperature biofeedback tend not to reflect mental events as quickly or with as much resolution as GSR."
>
> Charles J. Peek, A Primer of Biofeedback Instrumentation in Biofeedback:
> A Practitioner's Guide by Mark S. Schwarz and Associates, 1995, The Guilford Press N.Y.

For all this reasons GSR was a perfect method to start with the development of stress management biofeedback software modules: “Mental Games” and “VERIM”.

PART TWO



A step toward Interactivity

In the first stage of the development “Mental Games” was designed as a standard biofeedback application and this is reflected in the “Level I – Psychophysiological”. At first I tried to develop the training modules using “Delphi” and C++ but soon I found out that it was rather an arduous way to follow this project.
I decided to implement a standard multimedia authoring system, “Director”, in order to have a quick access to flexibility and interactivity. The C++ codes were only used to communicate between the GSR device, ThoughtStream, and the multimedia application itself. This strategy paid off in shorter times of development and the increase of esthetic representation and led to a new concept combining multimedia and biofeedback technology.

A step toward Psychointeractivity

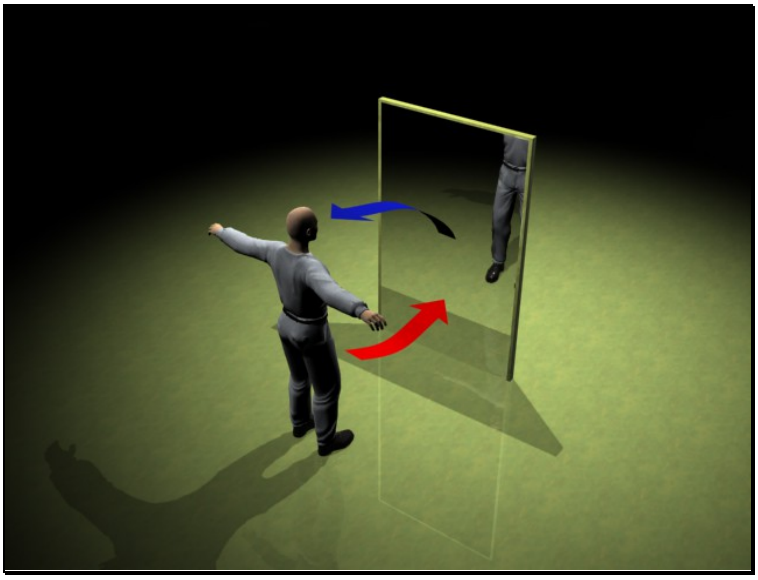
Level II of Mental Games, “Sensomotoric” gave me the first impulses for developing the concept of psychointeractivity: the positive and negative biofeedback loops. Further ideas for the concept emerged while designing and programming of VERIM modules and their practical application in seminars for sport and management. Also the preparation for the patent pending on biofeedback network technology resulted in new ideas about psychointeractivity.

I have chosen this term to stress the **psycho**logical aspect of biofeedback, here represented by GSR, and the **interactivity**, which became an inherent part of multimedia application, or a human – computer interface.

Biofeedback versus Psychointeractivity

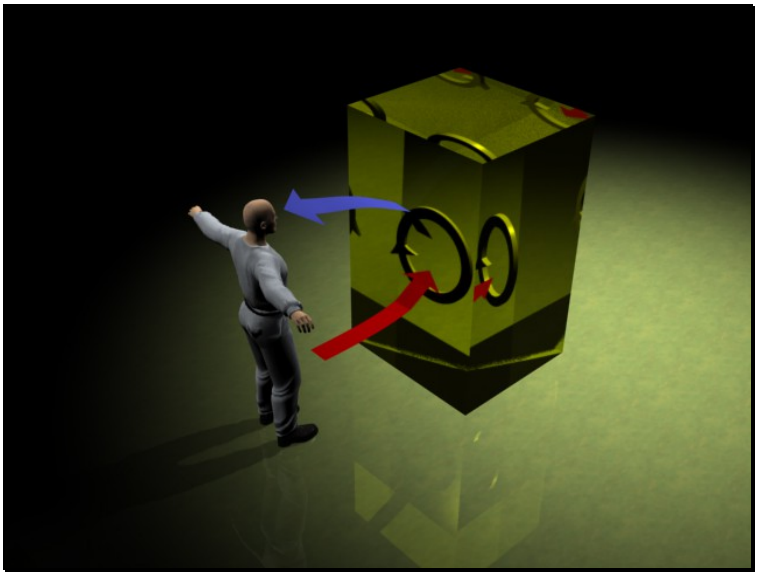
A simple implementation of biofeedback into a multimedia production does not justify the need for coining a new term. In my opinion, there is a practical necessity for a new name, differentiating between standard biofeedback applications and new possibilities or even philosophy of *psycho – inter – active* technology.

Remark in 2010: As I wrote this text in 2000 I did not dare to think of the impact the PI-Technology may have on our culture. Today, as this technology finds more and more ways into our life, for me it is just a logical step, a necessity of personalization.
As we have more and more technical possibilities to interact with each others, make thinks personal, it is obvious we will go farther in creating the world spinning technology more and more human. And then the “psycho physiological signals” will be the key opening new dimensions. I am working on a portal specially dedicated to the PI, please visit ***www.mind-reflection.com*** *for more philosophical issues.*



Imagine biofeedback as a mirror in front of a person. The person can see in the mirror a representation of his psychophysiological parameters, for example the GSR level.

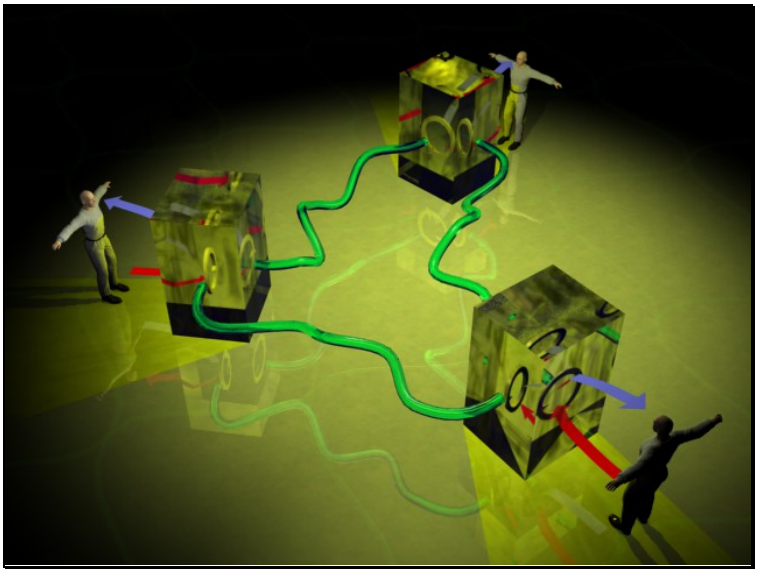
The mirror is merely a reflecting **plane**, an algorithm displaying the GSR level in some form, unable to ***react*** on its own**.** Only the human (and animals?) can react to the displayed information in this setting.
The interaction, or the loop is limited to one way only.



Now, imagine that the mirror becomes a psychointeractive crystal cube.

The GSR of the person is not displayed directly to the person by the cube but is being stored and processed inside to enable a decision what information or action will be displayed as next to the person. It may be just a linear “mirroring” as in biofeedback but it may also be a quite different, nonlinear **reaction**; a new scene, a new situation, a new game.

This will invoke a reaction in the psychological system of the person, which will show itself in the GSR. The GSR is being monitored by the cube. In this sense our psychointeractive cube knows the actual arousal state of the user with regard to its actions and now two way **interaction** is possible.



The idea of psychointeractivity is not only restricted to human – computer interface but can be also used for **human - human interaction** via psychophysiological parameters.

An interesting aspect about the psychophysiological signals is that they are often not conscious and are not controlled by the user. This gives the psychointeractive system a **communicative advantage**.

Computer as Inner Theater?

In her book “Computer as Theatre”, Brenda Laurel writes:

> "The shape of a play can be visualized in terms of the pattern of emotional tension created in its audience. Typically, tension rises during the course of a play until the climax of the action and falls thereafter. […]
> The climax of a play is the moment at which one line of probability becomes necessity, and all competing lines of probability are eliminated. Hence the climax is not only an emotional peak but informational as well. In fact, the implicit assumption in this analysis is that there is a direct relationship between what we know about the action and how we feel about it. The manipulation of information establishes causality and probability, and it is the basis of such audience responses as suspense, surprise, and catharsis."
>
> Brenda Laurel, 1993, Computers as Theatre, Addison Wesley

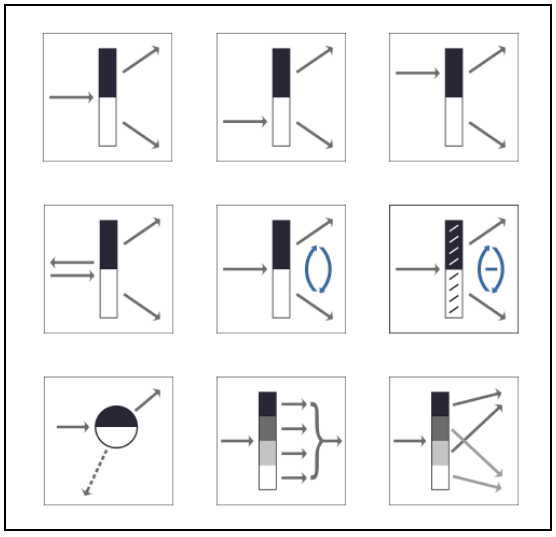
This is precisely the way a standard play is build. Brenda Laurel uses her knowledge of theater as a basis for developing multimedia productions.

Now, how can data relating to the emotional tension the observer is experiencing according to the play's development, change the play itself?
Can you think of a film changing its scenes, action and story depending on the emotions it invokes in you? What about a multimedia adventure game branching into multiple paths where each "node" scene evaluates your mental, conscious reactions and your mental, emotional actions of which you are not aware?

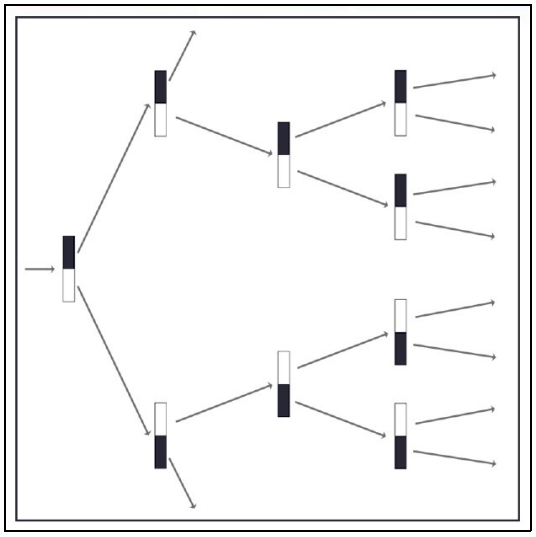
What about a film where you watch together with others and the plot is reacting to the group?

After many years it is clear to us that the concept of psychoineractivity was crucial to the development of VERIM. But bthe story does not end here.

We are working on new VERIM products like VERIM Duo or VERIM PI, where the concepts of psychointeractivity and lymbic resonance will entangle each other.



Above PI-decision points creating a topology of a story board. I created them as a theoretical framework together with my son Aurelius, for his masterwork in Psychointeractivity.



The first point, we call "differential decision point" switches the plot depending on a simple reaction of the "user" in/to the specific scene. The plot can become very complex and it is an artistic challenge to make the story still meaningful and congruent to the "reactions" of the user.