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Abstract

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Title of Thesis

OPTIMIZAREA PERFORMANȚEI IN SCHIUL ALPIN PRIN ANTRENAMENT MENTAL, IMAGERIE ȘI PROGRAMARE NEUROLINGVISTICĂ

OPTIMIZATION OF PERFORMANCE IN ALPINE SKIING THROUGH MENTAL TRAINING, IMAGERIE AND NEURO-LINGUISTIC PROGRAMMING

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"You can't be full of yourself, because than God has no place to get in".

(Petru Ţuţia)

Key Words

Mental training, Alpine Skiing, Training, Imagery, Neuro-Lingustic Programming, Sport Performance

SUMMARY

Introduction and argumentation of the theme / 8

Goal of the study and it's importance / 10

Research hypotheses / 10

Research aims / 11

Theory and epistemiology of the research / 11

Scientific originality / 11

PART I THEORETICO-SCIENTIFIC FUNDAMANTATION OF THE PAPER

CHAPTER 1 THEORETICAL EXPLANATIONS OF THE THERM MENTAL TRAINING, MENTAL IMAGERY, NEUROLINGUISTIC PROGRAMING / 12

1.1. The origin of mental training (AM), sport performance and sport technique concepts / 12

CHAPTER 2 MENTAL IMAGERY IN SPORTS PERFORMANCE / 15

2.1.Mental imagery studies / 15

CHAPTER 3 ACTUAL SITUATION OF SKI STUDIES / 15

3.1. Recent ski studies / 15

CHAPTER 4 TECHNIQUES IN MOUNTAIN SKI / 15

4.1. Specific aspects concerning sport performance in mountain ski / 15

4.2 Mountain ski technique in competition / 15

4.3 Technical preparation of the mountain skiers, basic principles /15

PART II RESEARCH METODOLOGY

CHAPTER 5 THE RESEARCH PRESENTATION / 16

PILOT STUDY / 16

5.1. Research questions / 16

5.2 Specific hypothesis of the research / 16

5.3 Research aims / 17

5.4 Research methods / 18

5.5. Organization of research / 18

5.5.1 Steps and phases of the research / 18

Phase I - Setting goals- technique / 18

5.5.2. Tools used in the research / 21

5.6. Studies made to check the tests that will be used in the research / 21

CHAPTER 6 ELABORATION OF THE STRUCTURE IN THE PROPOSED EXPERIMENTAL MODELS OF RESEARCH / 22

6.1.Elaboration of the content and structure of the experimental model for mental training / 22

6.2. Proposed mental training plan in our research step by step /22

PART III PERSONAL CONTRIBUTIONS RESEARCH

CHAPTER 7 / 24

7.1. STUDY I objectifying the mental training through psychological tests / 24

7.2. STUDY II on objectifying mental training tests measuring psychomotor coordination by applying PSITEST tests by computerized system for evaluation in psychologytransporturilor **/ 24**

7.3. STUDIU III privind obiectivarea antrenamentului mental prin teste fiziologice / 24

CHAPTER 8 CONCLUSIONS AND RECOMMENDATIONS / 24

Bibliography / 24

Introduction and argumentation of the theme

Because in Roumania, ski did not have a good infrastructure for high performance sport, nor an uninterrupted physical activity due to meteorically conditions and short winters, 4 months of snow a year, we thought to approach this subject, of this sport's discipline, which we can consider as the queen of white sports. Psychological preparation in general, and mental imagery, mental training to be more specific, will be the main subject of this study.

It has already been shown in many studies now, that sportsmen need mental training. The relationship between individual psychological factors and performance, shall be described in few sentences below. In the case of sportsmen, who have difficulties staying motivated while are not competing, strategies of goal assessment can be used, to give them a certain direction or a goal for training. Especially when the sportsman fails to achieve a certain level of competition, mental imagery is used to focus on an image of desired reality, which can develop attention. Results of research (as in Burton şi Raedeke, 2008; Caruso, 2005; Vealey, 2007; Williams, 2001) show that elite and succesful sportsmen are more dedicated, motivated, more self-trusting , are focusing more on what is essential, are capable to deal with obstacles and show maximum efficiency under pressure. Following the line of previous studies, other researchers (Bertollo, Saltarelli, şi Robazza, 2009; Robazza şi Bortoli, 1998) have developed specific questionnaires for sportsmen, in order to test their menthal abilities keeping into account different competitional and sports standards. In Bertollo's *et al.* (2009) opinion, psychological variables and abilities which consist the base of top performances, were examined mostly through qualitative interviews or through a combination of questionnaires and interviews. Specialists can use such information for planing, implementing and optimization of psychological interventions, helping this way expert sportsmen and also novices

to achieve the highest possible level (Sadeghi, H., Omar-Fauzee, M., S., Jamalis M., Ab – Latif Rozita, Cheric M., Ch., 2010).

Researchers (Burton şi Raedeke, 2008; Vealey, 2007; Williams, 2001) focused on individual psychological factors (setting goales, relaxation, imagery and self-talk) and on their influence in performance. Recently, researchers used a more holistic aproach , that focuses on the holle and the interdependence of the parts (Gammage, Hardy şi Hall, 2001; Gucciardi *et al.*, 2009; Vealey, 2007; Williams, 2001).

Goal of the study and it's importance

The goal of this research is to identify certain psychological factors that will help along with the relevant psysical ones in optaining skier's performance behavior and achieving sport performance. Research can contribute to the presence and implementation of more efficient mental training methods, so that performance will be easier to obtain and smaller physical costs of achieving such performances.

So we have chosen from different studies, only representative references for the study's scope. The superior rang themes were combined in six general dimensions, that are going to be followed.

This study focused on imagery, NLP techniques as tools for mental training. Results showed that, during this study, most of the sportsmen agreed with imagery and NLP techniques, they talked about such aspects and consider them as useful before, during and after the competition.

Research hypotheses

In this research it is assumed that the implementation of certain mental training programs, are based on imagery techniques of NLP, relaxation techniques, clear goal setting, and we will be able to develop a structure and an adequate content in the preparation, pre competition and competition periods of practitioner sportsman and mountain ski, in order to enhance sport performance.

Research aims

In the implementation of mental training, more specific, imagery techniques but also NLP, we aim to:

1. Create new models, enhancing sportsmen results and increase sport performance through implementation of special mean (technical preparation) in mountain ski.
2. Enhancing sportsmen's performance behavior and modifying negative dysfunctional emotions before and during competition: stress, anxiety.
3. Increasing positive emotions: self-trust, self-esteem and equilibrium management.
4. Mental control of fatigue.
5. Increasing attention's capacity and focus, attention's perception, perceptive faculty and distributive attention.
6. Determining the specificity of sensations and perceptions in the two sports, mountain ski and judo, after applying Jacobson S. (2009) și Bandler. R., & Thomson, G., (2012) tests.

Theory and epistemiology of the research focuses on topics like: principles, laws, theories, concenpts, norms, ideeas about sport performance, psychological factors, that influence mental training, cognitive and behavioral education programs for skiers between 12-19 in mountain ski.

Scientific originality is determined by the adaptation and implementation of a mental training program for skiers of 12-19 years, children, small and big juniors, consisting in a complex technique and psychological preparation program, during three competition years (October 2012-March 2015). The research results are presented in a psychological and physiological view. The analyses are made, quantitative by using statistical techniques in SPSS program and qualitative, by examining the skier's participant notebooks.

Practical value of the paper is characterised by the development of an experimental model that includes the way in which the structure is implemented and the development of the program's content in ski sport training, accomplishment of all the required techniques and enhancement in the technique of mountain ski descending, in both series.

Implementation of the research results. We expect that the methodology and the content of the program's experimental model, will be implemented in the ski training of the following clubs: CSS Gheorgheni, CSS Baia- Sprie and IEFS students in ski major, that form the

experimental group, and could be implemented in all the ski clubs in the country and also as scientific material for students studying psychology or sports.

Limitations of the paper

In the elaboration of the plan, we need to keep in mind certain suggestions, of different researchers from the domain of sport psychology and mental training: we need to keep in mind the benefits and limits of imagery and NLP. This functions well if the sportsman gets totally involved and if imagery is part of the daily program.

It is possible that in using mental training, in imagery to be needed help in the development, enhancement and evaluation of the preparation program, from psychologists, which may not be present in all clubs.

Pulse oximeter studies can be used mostly in studies where you have to determine the values of effort capacity, physiologically speaking.

PART I

THEORETICO-SCIENTIFIC FUNDAMANTATION OF THE PAPER

CHAPTER 1

THEORETICAL EXPLANATIONS OF THE THERM MENTAL TRAINING, MENTAL IMAGERY, NEUROLINGUISTIC PROGRAMING

1.2. The origin of mental training (AM), sport performance and sport technique concepts

Imagery is a mental ability that researchers in the field started studying relatively recent. Sportsmen, coaches and trainers say that imagery is often used and that the way it is utilized is linked to the behavior during training sessions (Gammage, Hall și Rodgers, 2000; Vealey și Greenleaf, 2001).

Given the fact that studies regarding the practice of imagery have a positive view, more action is needed to better understand the way in which imagery affects behavior (Gammage*et al.*, 2000; Vealey, 2007). From the perspective offered by studies from this field, imagery is an element of specific psychological abilities for sport or a tool for mental training, that can help sportsmen to succeed and can prolong physical performance, especially during competition.

NLP could provide the keys tu use the brain easily and efficiently, implementing it in sportsmen training. As the studies of many authors show:

a. Merim Bilalic, researcher at Univ. of Tubingen, in Germany (Richard Bandler and Garner Thomson, 2012, p.103), compared images of RMNf of champions and beginners and discovered that simply using a faster and more complex decision making strategy, champions had developed an ability to activate the right hemisphere from the left.
b. Even when two persons talk about the same thing, certain linguistic analyses through RMNf, showed that in English also, nouns have 25 different semantic characteristics (Bandler, R., and Thomson G., 2012, p.98). Identifying semantics of certain words for each sportsman, in roumanian will be one of our objectives.
c. Neuroscience confirms that: each hemisphere of the brain is specialized to develop certain abilities and to generate different styles of thinking. Apparently we evolved simultaneously or separately, using the left hemisphere and the right one in different emotions that seem to activate the hemispheres in different ways (Bandler, R., and Thomson G., 2012, p.126). (Identifying "key words" that elicit positive emotions in the specific chosen area in sport, in this case, mountain ski).
d. The first researches conducted using fMRI, show that cerebral activity of the persons that are suffering from a panic attack, is focused only in one hemisphere. This thing has been proven and confirmed in studies that show that positive emotions are especially localized in the left hemisphere, while being upset, sadness and anxiety are developed in the right one, says Richard Bandler and Gardner Thomson (2012).

Neurolinguistic programming

What actually is mental repetition? It is a process callef "future-pacing", it was acknowledged as a key in blocking on the spot the changes initiated by each technique. It implies two steps (Bandler, R., & Thomson, G., 2011, p.350).

1. Create a new complete sensation representation of the new process or behavior
2. Associate yourself with the representation and imagine yourself doing the first step for a few times, until actions become natural.

Understanding NLP's priciples allows anyone with the wish to study human excellence in any area of application and to win and develop necessary tools to create new models to stimulate change. NLP could be defined as the art of excellence science or the study of subjective experience. Most of the human experience can be modeled, learned and hand down to others. NLP puts at our service new tools all the time to modify and optimize our subjective experiences, Richard Bandler (2012, p.127).

Language contribution: as was corectly infered by the co-founders of NLP, the most important factor in the construction of reality is the language (Bandler, R., Thomson, G., 2011, p.98).

The power of words- when the leaureate for the Nobel prize, Eric Kandel, showed that Aplysia (Bandler, R., Thomson, G., 2011, p.358) Kandel was the first scientist which proved that screws, other simple organisms and also for primates, even humans: learning changes the structure of neurons in the brain. He proved something that has guided the developers of NLP even from the beginning: we can reprogram your neurology by systematically using language.

Modeling – Mental models serve to explain the world and move in it. When a person succeeds to live inside his own model, without the need to argue it, preferably surrounded by people who think the same, than is when he feels safe.

Problem solving - Bandler, R., Thomson, G., (2011), citating William J.J. Gordon describes what it is called "hedonic answer", splitting it in two parts. He writes about a strong positive sensation that develops until the end and about a period dedicated to problem solving. In the same time a small quantity of positive sensation manifests during the hole duration and they give the agreement to the positive trend, enhancing the creative process (Gordon, W. J.J., *Synectics,* Harper & Row, 1961)

CHAPTER 2

MENTAL IMAGERY IN SPORTS PERFORMANCE

2.1. Mental imagery studies

Factors that influence mental training efficiency

Imagery based on a variety of different information, for example, inter an extern visualization or kinesthetic, auditory, tactile and olfactory is meant to be more efficient than imagery based on less informational resources (Morris, et al., 2005).

Continuing with this resume of factors that influence mental training efficacy, **the content of imagery and temporal equivalence** are being described. When imagery is closer to reality and more positive, it is more efficient, which can be expected from mental training.

Mayer și Hermann (2009) give a clue that **mental training used before sleep,** has long effects and it could help to improve efficacy of the mental training program.

Goal oriented strategies in mental training (MA)

Setting goals refers to a certain level of performance in a given period of time. Goals usually focus on enhancing a measurable ability, such as "I will try three time a touchdown, I will run 90 meters in every mach, I end the block or I will try two interceptions this season" Lefkowits, J., McRuff. David, R., Mullen, J., W., (2010)

2.2 Imagery studies in different sports

2.3. Mental imagery theories in sport mental training

2.4. Steps and goals of sport mental training

CHAPTER 3

ACTUAL SITUATION OF SKI STUDIES

3.1. Recent ski studies

CHAPTER 4

TECHNIQUES IN MOUNTAIN SKI

4.1. Specific aspects concerning sport performance in mountain ski

4.2 Mountain ski technique in competition

4.3 Technical preparation of the mountain skiers, basic principles

PART II

RESEARCH METODOLOGY

CHAPTER 5

THE RESEARCH PRESENTATION

PILOT STUDY

5.1. Research questions

1. Identifying the main VAK communication channel, based on different sensations (visual, auditory or kinesthetic) and perceptions, for each sportsman, in such way so we can customize mental training to obtain maxim efficiency, by applying the tests Jacobson S. (2009) and Bandler. R., & Thomson, G., (2012), first before implementing the mental training programs (initially testing both groups: ski group and Romanian Olympic judo group).

2. Initial testing focused attention capacity, before applying the mental training programs, using the MA test (in both groups: ski and judo).

3. Initial testing distributive attention capacity, before applying the mental training programs, using AD test (in both groups: ski and judo).

4. Initial testing perceptive attention capacity and observant spirit, before applying the mental training programs, using AP2 test (in both groups: ski and judo).

5. Initial testing state anxiety (EMAS) and emotional distress (PDE) of sportsmen, before applying the mental training programs, using AP2 test (in both groups: ski and judo).

6. Making correlations between attention's specifics in mountain ski and attention in judo.

5.2 Specific hypothesis of the research

1. By applying mental training techniques, imagery and NLP, the level of performance will increase by optimizing skiers behavior.

- enhancing the technique
- increasing the ideomotor imagery capacity of skiers
- increasing the capacity of using "key-words" – triggers of action, "tags"
- positive moments from the past that we can support in achieving the present goals and metalanguage specific for mountain ski – technique language from the field of mountain ski, NLP techniques.

2. Increased ski performance is due to emotional control mechanisms like:

- increasing positive emotions: self-trust, self-esteem and equilibrium management
-mental control of fatigue

5.3 Research aims

By comparing and correlating the obtained results from two sports groups, judo and ski, based on the specifics of each sport, research aims are:

The main objective is increasing sport performance in mountain ski by implementing a mental training program in the experimental group, compound of the next ski clubs: CSS Gheorgheni, CSS Baia- Sprie and IEFS students majoring in ski.

General aims of the study:

a. Operational aims

I. NLP techniques – Jacobson S. (2009) and Bandler. R., & Thomson, G., (2012) – Meant for finding the main communication channel for each sportsman - applied at the beginning and the end for both groups.

II. Cognitive processes tests – applied at the beginning and the end for both groups.

- Attention (mobility and focus) –MA
- Distributive attention AD
- Perceptive attention and observant spirit AP2.

III. Tests for anxiety and stress (PDE test – emotional distress and EMAS – anxiety) – applied in the beginning and the end for both groups.

b. Intermediate aims

IV. Implementation of NLP techniques – (during the hole experiment) – in mental training in connection with the target purposes, applied at the beginning and the end (on both groups).

Identifying the semantics of certain words – by assessing sportsmen' notebooks declarations.

Identifying key words – action triggers- specific in mountain ski, that elicit positive emotions for optimizing ski training.

Identifying tags – specific for ski competitions, that elicit positive emotions for optimizing ski training.

V. Technique preparation programs by watching technique films and correcting the technique , Valerio Malfatto, (Coursi di Sci, 2011 / 2014)

VI. Jacobson relaxation technique and “exercitiu de impamantare” by Liana Stanciu (2013).

c. Final aims

VII. Testing ideomotor representation capacity: (on the experimental group), “die”, “segments” and “body in space”.

VIII. Testing for the hand-eye coordination capacity of skiers from mountain ski, by applying ACRM test (focused attention with manual reaction), hand-eye coordination. Indices measured with this test: VP – perception speed=number of omissions, EP- perception accuracy= number of errors, EX- focused attention= correct answers/150+wrong answers (tested at the beginning and the end, for both groups.

IX. Testing for motor coordination capacity and skiers of mountain ski reactivity, mental control of fatigue, using the test CRM. Indices measured with the test: IM- motor learning, CMC- movement coordination, ER- reaction accuracy, RR- reaction speed, CMD- movement coordination- dissociate movement synchronization, CMS- movement coordination- associate-dissociate movement synchronization, AR- self-regulation (tested in the beginning and end for both groups).

X. Biofeedback measures, relevant for psycho-physiological functions of skiers before, during and after learning the relaxation techniques: for example, this functions can be cardiac rhythm (pace), respiratory frequency (number of respiratory cycles per minute), plethysmography- blood flow at capillary level, electric skin conductance, in the experimental group.

XI. Analyses of oxygen and hemoglobin level in the blood using the pulse oximeter.

XII. Statistical analyses of the data, using SPSS.

5.4 Research methods

5.5. Organization of research

5.5.1 Steps and phases of the research

Phase I - Setting goals- technique

Helping sportsmen and team in setting goals is an efficient method to enhance team cohesion, motivation and process oriented behavior (Burton, Naylor & Holliday, 2001; Elliott & Voight, 2001; Galvan & Ward, 1998; Swain & Jones, 1995; Weinberg, Butt & Knight, 2001; Weinberg, Butt, Knight & Perritt, 2001). Trainers use setting goals strategies if they on of the following actions:

*Setting a training plan (verbally or written) with the skiers

*Setting a mental training plan with specific themes (verbally or written) with the skiers

*Setting relaxation themes which must be accomplished for each mental training session.

*Setting performance goals on certain preparation steps

Phase II Relaxation techniques and self-talk of skiers- learning relaxation techniques

Pre competition programs usually have cognitive, behavioral, emotional and energizing components. Cognitive components include focus suggestions, productive cognitions and self-talk. Behavioral components include global examinations and individual rituals. Emotional components refer to affirmations that increase trust by blocking frustration and negative feelings and also using social network support. Finally, energizing components refer to enough repose, recovery activities, adequate alimentation and hydration (Beauchamp, Bray & Albinson, 2002; Orlick, 2000; Weinberg & Comar, 1994).

Phase III Imagery techniques in mountain ski- Learning imagery techniques

Trainers and teachers that already use at least one of the techniques mentioned below, actually use imagery:

1. Using video support, proposed by McCann (2001). For mountain ski we propose ***Coursi de Sci***, Valerio Malfatto *2011/ 2014* *www.jamsession.it*
2. Modeling of the execution technique proposed by Valerio Malfatto (2012), in each preparing step and competition.
3. Checking the competition site before the season starts.
4. Using a creative language to teach complex sport abilities (McCann, 2001).
5. Reassessing tactics and competition strategies during training sessions and in difficult moments of the competitions. Many times between one array and another in mountain ski, the coast can suffer radical modifications, which will determine a different approach of technical procedures.

6. Mental repetition of the tactics, programs or technical procedures before execution. Imagery can be used anytime, before or after training or competition, during pauses, in the spare time or during recovery after accidents. The most important thing to remember is that the more you practice imagery, the more you develop your abilities and increase benefits.
7. Mental visualization of the field, a night before, or even before competition or before each session.

Phase IV Increasing skiers self-trust

Top performers in any field (from sport to business or art) are confident with their performance. They do not doubt their abilities (cognitions and self-talk), but they believe, that they can and they will perform very well. The way in which sportsmen think and talk to themselves can help them or confuse them (Bandura, 1997; Feltz & Lirgg, 2001; Short & Sullivan, 2003; Weinberg, Grove & Jackson, 1992; Voight, 2002). As we showed in this study, sportsmen that are more aware of their cognitions and their self-talk and that have a plan to handle the thoughts and negative self-talk, ski better and face easier each pressure moment.

The strategies presented below can be used to increase trust:

*Encourage them after a good competition or a performance after a session.

*Mix critical feedback with encouragements if suited (ex: “at a certain point you had a good balance but you still have work to do”)

*Even when a punishment is required, point at the action, not at the individual (ex: “you see how you attack the porțile, la șicana a 2 a and not „you smartiepants! How do you ski? What kind of skier are you?).

*Use rewards (ex: customised helmet, the skier of competition title, more free days) to point out the right behavior, opposite to always criticizing skiers for incorrect actions. Generally speaking, rewarding skiers for positive aspects (vs. punishment of the negative ones) will encourage similar behaviors.

Phase V and feedback and feed before processes

Feedback and feed before from the trainers is an essential component of goal setting process

Players should set their goals alone, but it is important to receive suggestions from their trainers, regarding certain aspects that they have to keep in mind. Another important part of this

process is feedback from coaches regarding the progress in achieving goals (or reassessing goals) (Voight, M., 2005).

5.5.2. Tools used in the research

A. ***One kind of tool was a pulse oximeter, CMS 60 C or the one in the form of a wacth CMS 50 F.*** This is an instrument used in medicine, that allows to measure non invasive, the quantity of hemoglobin, so oxygen in the blood. It also allows to measure heart rate and pulse rate.

B. We also used a device called: System for evaluation in transport and work psychology, version 04/2007, made by Design Management SRL Iasi, by professor Hăvîrneanu C. (2007), at Psitest Cabinet. According to integrated functional blocks, the proposed methodologic nucleus allows to obtain indices of informational, execution and self regulation capacity, markers of behavior (according to the development of vigilance concept) (Hăvîrneanu, C. 2007, p.1).

This two applied tests give us information regarding the motor capacity for coordination – adequate and synchronic movement, speed, and accuracy of complex reactions, auto learning, emotional balance – self regulation, in activities with required rhythm and dynamic observation, that are specific for mountain ski. We applied this tests after the implementation of mental imagery in the experimental group and comparing the results with the control ones (can be found in part III).

5.6. Studies made to check the tests that will be used in the research

To verify the tests, they were applied for two subject categories, A and B.

A. **For M.A. student at FEFS in APS field** (training and sport performance), the tests of (Bandler, R,. & Thomson, G., (2011) & Jacobson, S., (2009). We also published an article, that was presented in WCDAE Congress, Dubrovnik 2014, called *The place od sensation in ideomotor representations in NLP*.

B. **For mountain ski skiers in both groups (experimental and control) as well to the judo lot from Olympic Center** (same age as participants from ski lot, 12-19) the following tests:

1. Testing to determine the main communication channel for each sportsman, with Bandler, R., & Thomson, G., (2011) & Jacobson, S., (2009) tests.
2. Attention tests: measure of focused attention (MA), measure of distributive attention (AD), and perceptive attention and observant spirit (AP2).
3. Tests that measure anxiety (EMAS) and emotional distress (PDE).

Instead of conclusions after the preliminary research: By applying this tests in the groups already mentioned, the instruments were validated and also the experimental conditions, as it can be seen in the preliminary results after the data analyses.

1. The ski groups, the experimental one that integrates skiers from CS Gheorgheni and CS Baia-Sprie, and the control one that integrates skiers from othe roumanian clubs: CS Predeal, CS Şoimii Sibiu, CS Petroşani, CS Topliţa were measured with attention, state anxiety and emotional distress tests.
2. For the Olympic Judo lot that was preparing in Cluj-Napoca, we applied the tests already mentioned and we made correlations between subject from ski and judo groups, keeping in mind that both disciplines are perceptive-motor and that are influenced by environmental and adversary factors. Also both disciplines are based on psychomotor capacity of balance that leads to performance. The most the sportsmen maintain balance they get better results.
3. We applied Bandler, R., & Thomson, G., (2012) & Jacobson, S., (2011) tests from NLP in the B.A and M.A students and in ski and judo groups.

CHAPTER 6
ELABORATION OF THE STRUCTURE IN THE PROPOSED EXPERIMENTAL MODELS OF RESEARCH

6.1 Elaboration of the content and structure of the experimental model for mental training

6.2 Proposed mental training plan in our research step by step

6.2.2. The first session of the research was in november 2012- april 2013. Learning mental training techniques with skiers in experimental group. (Phase I Setting goals)

In this session we did the initial testing of the experimental groups in ski and judo. The recordings for skiers were made during the Sports Scholar Clubs Championship, in Petrosani – Straja, march 2013. In the experimental group were the clubs: CSS Gheorgheni (HR), prof. Balasz Lehel, CSS Baia – Sprie (MM) Sebastian Sălăgean ans ski student from FEFS Cluj – Napoca, conf. dr.Ganea Virgil.

The judo group integrated participants from Roumanian Olympic lot, that was in preparations in Cluj, with prof. Simona Richter, coordinator prof. Florin Bercean.

By applying the tests we followed psychometric proprieties of the chosen scales to accurately measure the levels and evolution of the three phenomena in the intervention project, meant to increase performance in sport and adaptation of psychological preparation in mountain skiers. The three factors were attention with it's dimensions, anxiety and emotional distress, for performance sports in mountain ski and judo.

There are three essential factors – in order to have better performances:

Developing a specific program in the preparation, pre competition and competition periods;

1. Intensity level (you must stay calm under pressure)
2. Consciousness of your own attention and the way in which it can interfere with performance **(**Lefkowits, J., McDuff, M.M., Mullen, W., Joseph, D.O., (2010).
3. Setting goals of specific instruction for the training week, on steps or at the beginning of each training session. (Sportsmen filled goal instruction in the notebooks that we proposed and gave to each participant. ..

PART III PERSONAL CONTRIBUTIONS RESEARCH

CHAPTER 7 / 24

7.1. STUDY I objectifying the mental training through psychological tests / 24

7.2. STUDY II on objectifying mental training tests measuring psychomotor coordination by applying PSITEST tests by computerized system for evaluation in psychologytransporturilor **/ 24**

7.3. STUDIU III privind obiectivarea antrenamentului mental prin teste fiziologice / 24

CHAPTER 8 CONCLUSIONS AND RECOMMENDATIONS / 24

Bibliography / 24

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