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**INTERNASIONAL  
PENDIDIKAN  
SERANTAU Ke-6**

*Kualiti dan Kecemerlangan Dalam Pendidikan*

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**22 & 23 Mei 2013 Rabu & Khamis**  
**Rafflesia Hall NIOSH, Bangi**

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**Anjuran:**

Fakulti Pendidikan, Universiti Kebangsaan Malaysia &  
Fakultas Keguruan dan Ilmu Pendidikan, Universitas Riau

**Dengan Kerjasama:**

Universiti Malaya

Universitas Negeri Yogyakarta

Universitas Pendidikan Indonesia

Universitas Negeri Padang

Universitas Ekasakti Padang

Kolej Universiti Perguruan Ugama Seri Begawan



**Seminar Internasional Pendidikan Serantau Ke-6**  
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**Dewan Rafflesia, NIOSH,  
Bandar Baru Bangi, Selangor**

**Tema:**  
**Kualiti dan Kecemerlangan dalam Pendidikan**

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## **LATAR BELAKANG**

### **SEMINAR INTERNASIONAL PENDIDIKAN SERANTAU KE-6 2013**

#### **LATAR BELAKANG**

Seminar Internasional Pendidikan Serantau telah bermula pada tahun 2003 ianya diteruskan ke hari ini. Sebelumnya, seminar ini dianjurkan secara dwitahunan oleh Fakulti Pendidikan Universiti Kebangsaan Malaysia dan Fakultas Ilmu Pendidikan Universitas Riau. Pada tahun ini, Seminar Internasional Pendidikan Serantau ke-6 2013 yang bertemakan “Kualiti dan Kecemerlangan dalam Pendidikan” telah dikembangkan dengan melibatkan kerjasama daripada Universiti Malaya, Universitas Negeri Yogyakarta, Universitas Pendidikan Indonesia, Universitas Negeri Padang, Universitas Ekasakti Padang dan Kolej Universiti Perguruan Ugama Seri Begawan, Brunei. Gabungan universiti daripada Malaysia, Indonesia dan Brunei ini diharapkan dapat meningkatkan lagi kerjasama penyelidikan, jaringan akademik dan penerbitan dalam membudayakan kecemerlangan pendidikan serantau. Sebanyak hampir 350 kertas kerja dibentangkan dalam seminar ini yang kebanyakannya berasaskan penyelidikan. Kertas kerja yang berkualiti akan dibuat saringan untuk diterbitkan dalam penerbitan berindeks iaitu procedia SCOPUS dan jurnal SCOPUS. Kompilasi artikel penyelidikan dari seminar juga akan diterbitkan dalam bentuk buku. Sebuah buku yang mengumpulkan hasil penyelidikan serantau daripada seminar yang lalu turut dilancarkan pada seminar kali ini.

#### **OBJEKTIF**

Objektif seminar ini adalah seperti berikut:

- I. Menyediakan platform untuk pendidik dari negara serantau bagi membincangkan pendekatan, amalan dan isu-isu penyelidikan dalam pendidikan
- II. Bertukar-tukar pengalaman dalam melaksana dan mengurus penyelidikan pendidikan di institusi pendidikan
- III. Mewujudkan dan memantapkan jaringan serta kolaborasi penyelidikan dalam kalangan penyelidik di peringkat serantau dan antarabangsa
- IV. Bertukar-tukar pengalaman berkaitan dengan kaedah efektif bagi penyelidikan pendidikan sejajar dengan perkembangan teknologi maklumat dan komunikasi
- V. Menyebarluas konsep dan teori baru mengenai hasil penyelidikan terkini dalam bidang pendidikan di institusi pengajian serantau
- VI. Mengadakan pengkalan data hasil penyelidikan pendidikan di nusantara
- VII. Menerbitkan artikel dalam jurnal berindeks

<b>Sesi 3 : Rajawali 2</b>	
<b>Tema: Kurikulum dan Pedagogi</b>	
<b>Bil</b>	<b>Tajuk Kertas Kerja</b>
1.	Teknik Pengajaran Guru Bahasa Arab Dalam Kurikulum Bu'uth Al-Azhar Di Sekolah Menengah Agama Bantuan Kerajaan (SABK) <i>Maimun Aqsha Lubis &amp; Mohd Zaffi Alias, UKM</i>
2.	Foster Parenting Based on Religion Values and Local Wisdom (Studies in Rumbela Muthmainnah) <i>Viena Rusmiati Hasanah, UPI</i>
3.	The Effects of BMB3 Learning Strategies on Tarung Derajat Training Outcome (A Study in Tarung Derajat Training Centers in West Sumatra) <i>Alnedral, UNP</i>
4.	The Implementation of Dynamic System Theory and the Principles of Growth in Physical Education of Elementary School <i>Syahrial Bakhtiar, UNP</i>
5.	Keberkesanan Pembelajaran Berasaskan Projek Di Peringkat Prasekolah <i>Shamsinarhaliah bt Mohd Shamsuri &amp; Sharifah Nor Puteh, UKM</i>
6.	Keberkesanan Amalan Teori Konstruktivisme Dalam Pengajaran Dan Pembelajaran Matematik <i>Yong Choy Yee, UKM</i>
7.	Applying Theory of Mental Practice (MP) in the Teaching Learning Process of the Physical Education Subject Matter <i>Chalid Marzuki, UNP</i>
8.	Physical and Health Education Lesson Study Based as an Innovation to Improve Students' Learning Outcomes in Junior High School <i>Giri Verianti, UPI</i>
9.	Gaya Pembelajaran Pelajar Di IPT <i>Puteri Aini bt Megat Yusop, Abdul Razaq Ahmad &amp; Mohd Jasmy Abd Rahman, UKM</i>

<b>Sesi 3 : Rajawali 3</b>	
<b>Tema: Inovasi dalam Pengajaran dan Pembelajaran</b>	
<b>Bil</b>	<b>Tajuk Kertas Kerja</b>
1.	The Use of "Pintar Jawi" Method for Low Achievers in Year 4 <i>Muselyahariana Mokhtar &amp; Zahara Aziz, UKM</i>
2.	Penggunaan CBAM Untuk Menilai Pengajaran Guru Dalam Inovasi Kurikulum Prasekolah <i>Kamarul Azman Abd. Salam, Sharifah Nor Puteh &amp; Jamil Ahmad, UKM</i>

# **Applying Theory of Mental Practice (MP) in the Teaching Learning Process of the Physical Education Subject Matter**

**By: Chalid Marzuki**

**Faculty of Sports Science-Padang State University, Indonesia**

**Abstract:** Physical activities, many forms of movement, and various sport skills are the primary activities done by physical educators in their teaching learning process. In order to acquire those activities or skills the students should physically practice them in many times. There are many methods introduced and used which are based on the researches (in the labs or fields) in the literatures of motor learning that can be applied by physical educators to achieve the objective of their teaching learning process. One of these methods is mental practice. The objective of this article is to explore the concept of mental practice and try to apply it in the teaching learning process.

**Keywords:** mental practice, motor skills, physical education, sport, and health subject matter.

## **I. Introduction**

All of the teaching learning processes in the school have to be directed to the achievement of the educational objectives. There are the national education objective (in general) and specifically the subject matter objectives (Physical education, sport, and health subject matter).

The primary task of the physical educators to achieve those objectives is to fill in their teaching learning processes in the various forms of physical activities or movements. These movements or activities can be learned in the form of plays, games, dances, or sport skills. As a result, the physical educators are hoped and demanded to get involve and have capacity in helping their students to acquire and master those forms of movements or activities.

Some factors such as the availability of the infrastructures, learning tools/aids, equipments, the availability of the teachers' comprehension about concept and philosophy of the physical education, sport, and health subject matter, the time consumed, capability of the teachers to demonstrate and explain the various sport skills, teaching learning methods, and the number of students in the class have the potency to disturb or obscure not only the success of teacher in the teaching learning process but also the success of students in the learning of the skills being taught.

Literature in the motor learning has explained that many methods used in the research and field to help practitioners to improve the learning of motor skills. One of the methods which wants to be explored, in order to help and find solution for physical educators to overcome their problems in the teaching learning process, is mental practice (MP).

## **II. Overview of Related Literatures**

### **A. Physical Education, Sport, and Health Subject Matter**

Physical Education, Sport, and Health subject matter is one of the important elements taught in the Indonesia school curriculum that can be used to attain the objective of the national education (UU-RI no. 20 tahun 2003, Bab X pasal 37 poin (1) h). Physical activities in various forms are used as medium to achieve the objective of national education. The achievement of the national education objective can not be reached if the physical education, sport, and health subject matter objective is forgotten or ignored. Both the objectives are interrelated or integrated and they can not be separated.

The philosophy behind this subject matter is that the student must be treated equally in the democratic atmosphere and be regarded as totality person. It means that the physical educators in their teaching learning process have to plan and fill in the whole domains of the students. These domains are known or called as psychomotor (physical), cognitive (intellectual), affective (emotional and social).

Specifically, the objective of the physical education, sport, and health subject matter can be explained that the physical education, sport, and health subject matter objective is regarded as an integral part of the national education objective and which is directed to the growth and development of totality person comprising aspects of psychomotor (physical), cognitive (cognitive), social, emotional, and spiritual (in Indonesia) by means of physical activities and various forms of sport skills as its media.

It is hoped that with these activities and the capability of the physical educator in her or his planning, doing, and evaluating or giving feedback in the teaching learning process so that all of the domains can be filled in and furthermore, it can be brought about in the daily life and till advanced ages.

### **B. Motor Skills**

Motor skills as forms of various physical activities are the activities that have to be introduced or learned in the physical education, sport, and health teaching learning process. Wust and Bucher (2006) stated that all of these forms can be categorized or known as: 1) locomotor skills - move the body from one point to another such as walking, running, jumping with one leg or both, 2) non locomotor skills - movement of the body which is just used one space or area such as: standing, lying, kneeling, bending, stretching, turning, arm/leg, and c) manipulative skills-using part of the body to move the object such as: throwing, catching, and punching.

Motor skills also can be seen in the form of plays, games, dances, and various activities of sport skills. Magill (1985); Sage (1984); Schmidt and Wrisberg (2000) had

explained that physical activities such as playing piano, piloting, dancing, swimming, throwing and catching, kicking the ball, operating the machine, walking are motor skills. Even though all these activities are not the same but the researchers agree that all of them are classified as motor skills. Furthermore, it is concluded that all the skills can be characterized into: 1) motor skills as a tasks and 2) motor skills as a quality indicator of the performance.

## **1. Motor Skill as A Task**

All of motor skills have to be learned if someone can execute correctly and properly. Walking, even though it is just a basic movement and relatively a simple movement, has to be learned by the infant trying to move his/her body or change position. Walking is also the skill that has to be learned by the invalid person who is trying to walk with his/her imitation leg

## **2. Motor Skills as A Quality Indicator of the Performance**

In this light, a motor skill is evaluated as qualitative explanation based on the result of a performance. The purpose of this explanation is to differentiate a good quality performance with an awkward movement or unskilled performance. Those explanation can be expressed with some information concerning with the productivity and specific performance of the performer. For instance, it is considered that a best archer is someone who can shoot his/her 8 from 10 arrows given to the target area (point 10). What a good quality of performance means is judged specifically based on how a person can best execute the task done or given. This activity can be done by measuring and evaluating the result of the performance or to observe the specific characteristics aiming to the best or successful performance

## **C. Mental Practice (MP)**

Physical educators will have much more experiences if they have a good understanding and comprehension about teaching learning process covering motor skill practices or motor learning. Schmidt (1991:152) explained that motor learning is..." a set of processes associated with practice or experience leading to relatively permanent change in the capability for skilled performance". This explanation can be revealed that to be a good performer or a skilled person, someone must take prolong and continuous practices so that this skill will permanently retain and if needed it suddenly someone can do it.

Literatures of motor learning show that there are many methods and strategies used to improve and acquire performance of skills. Mental practice (MP) is one of the methods that can be used to help beginner acquire the skill being learned (Grouious, 1992; Hinshaw, 1991; Murphy, 1990). This term is often connected with other terms such as mental activity, mental training, ideomotor training, mental rehearsal, cognitive rehearsal, imaginary or imagery practice, symbolic rehearsal, and simulation of motor behavior.

Winberg (1982) found from the literatures searching that there were not any differences among those terms. Furthermore, it was stated that mental practice (MP) was the term that more likely to be used by the American researchers (Weinberg, 1982) in the other side, (Zervas, 1986) revealed that the term mental training and ideo motor training were most used by the European researchers.

Generally, these terms are connected with someone mental activity without any observable movement. Hecker and Kaczor (1988) explained that imagination of the activity in the mind can be understood or represented as brain's capacity in processing information.

Mental practice can be defined as hidden or covert repetitions of a skill in someone's mind without any observable movement of the muscles (Hecker and Kaczor, 1988; Wulf, Gernost, and Choi, 1995). It means that someone imagines the whole or part of a skill learned repeatedly before physically practicing it. In this regard, Smith (1991) concluded that performance of the skill being imagined mentally joined together in the person's mind and this mind process was considered as the same as physically practice. For instance, a person imagines that she/he is doing a service in tennis or shooting a ball to the basketball ring without any observable bodily movement.

Mental practice is a kind of technique in someone's mind that creates presence involvement thinking from the previous idea or illustration in order to improve performance or behavior relating to the realization of that idea or illustration. The first process is started from the establishment of an idea or illustration. Next, mental is functioned as a training place or training ground which can manipulate overtly the influence of idea or illustration and change it to be a tangible behavior (Hinshaw, 1991).

## **D. Theories of Mental Practice**

Some theories as follows will explain why Mental Practice is effective in both of learning a motor skill and improving the performance. Magill (1985) explained that the most plausible explanation are neuromuscular, cognitive, and brain activity theories (Magill, 2007).

### **1. Neuromuscular Theory**

Magill (1985) stated that the explanation of this theory can be traced to the work of Jacobson (1931) which he found that when the experimental group was asked to imagine that they were bending their right arms, Jacobson observed that there was an activity in the electromyography (EMG) of the biceps brachii muscle. Moreover, Magill (1985) and Hinshaw (1991) concluded that there were collective activities of neuromuscular being imagined when someone imagined the task. Decety and Ingvar (1990) found that mental practice activated the certain structure of the brain which was showed by measuring device of blood current in the brain. From this experiment, Decety and Ingvar concluded that the activity found was assumed to improve the next restraint for the actual movement.



Other researchers also had revealed that when the experiment groups were doing mentally practice there were significant improvement in the muscles used which was shown by the EMG (Harris and Robinson, 1986; Jowdy and Harris, 1990; Lejeune, Decker, dan Sanchez (1994). In the light of this, it can be revealed that mental practice can activate many components of neuromuscular systems in the brain resulting or having the responsibility to direct the task (movement) (Grouios, 1992b).

## **2. Cognitive Theory**

Decety and Ingvar (1990) have considered that mental practice is a pure a cognitive activity. Furthermore, Murphy (1990) clarified that many researchers had explained mental practice was not only as a basic cognitive function in human and an important point to make ones skillful and implement movement but also as a pure cognitive activity which significantly improved performances. Magill (1985) revealed that when someone in the beginning of learning a skill, the learner is always involved with many cognitive activities relating to the questions about “*what to do*”. This first phase in learning a skill is known as cognitive phase. As a result, it is concluded that mental practice is effective in this phase.

## **3. Brain Activity Theory**

Magill (2007) proposed that mental practice, especially in the form of imagery, was effective because of neurophysiologic similarities between the imagined and the actual movements. Furthermore, he explained that when someone imagines moving his/her limb, brain activity is similar to when this person physically moves the same limb. This Brain Activity Theory was concluded by Magill (2007) as a result of the research done by Lafleur et al (2002). Lafleur, et al (2002) found similar patterns of brain activity when participants imagined the sequence of foot movements.

Generally, it was found that the research designs of the mental practice were done in the similar patterns. These patterns are a) a physical practice, b) mental practice, c) control group (non practice), d) Combination of Physical and mental practices. Zervas (1986) categorized the experimental skills or tasks as “*cognitive tasks*” and “*motor tasks*”. The Cognitive tasks experimenting were such as maze tracing, card sorting, pegboard, and block test. The motor tasks were categorized into: a) sport skills (tennis service, basketball shooting, volleyball, b) field skills (high jump, long jump), and c) physical fitness (strength, power, accuracy, speed)

From literatures searching, it was found that the results showed significant and un- significant correlation. The following will show some of those researches.

### **a. Significant Finding**

Mendoza and Wickman (1978) found that mental practice and physical practice groups improved significantly in the dart throwing, whereas control group was in the low level. Physical practice group showed higher improvement. They concluded that physical practice was more effective than mental practice or control group whereas mental practice was more effective than no practice

Zervas (1984) had found in the research about the influence of mental practice in balance which was measured by a stabilometer. The research found that physical practice improved as much as 86%, mental practice improved 60%, and control improved 53%

## **b. Un-significant Finding**

Stebbin (1968) showed the influence of physical practice and mental practice in learning a closed skill (throwing a rubber ball to a target). It was found, firstly that mental practice group did not show an improvement but the best improvement was done by the combination group. Secondly, it was found that in the half of the experiment, both groups showed the same effective influence

The result of Hird, et al (1991) research stated that physical practice was more effective than mental practice or combination of physical and mental practice. Mental practice was more effective than no practice in improving performance.

## **4. Summary about Mental Practice**

It can be seen that the researches done about mental practice showed an inconsistency result. In the one hand, it was shown a significant result and the other hand it was shown an un-significant result.

Many researchers agree that mental practice can not be used as replacement of physical practice. Feltz and Landers (1983) explored and observed 60 researches about mental practice, known as meta analysis research, and found that mental practice gave most influence than no practice in the performance of learning a skill. Driskell, Cooper, and Moran (1993) revealed that mental practice gave more positive and significant influence than no practice but was not more effective when compared to physical practice. Other researchers such as Grouios (1992a); Wulf, et al, (1995) had suggested that mental practice was more effective than no practice and was not effective than physical practice (Driskell, et al, 1993; Grouios, 1992a; Wulf, et al, 1995). Furthermore, some researches finding also revealed that the performance was more effective if mentally practice than no practice and when combined with physical practice would give more effective result (Grouios, 1992a; Marzuki, 1993; 2004; Romero and Silvestri, 1990)

## **a. Mental Practice as An Instructional Strategy**

One of the physical educators' roles in the school, which uses physical activities as the media in teaching learning process, is to facilitate and active directly to get involve in helping students. From previous explanations about mental practice, it can be concluded the benefits that could solve or lighten the problems faced by the most physical educators such as out numbering students in the class, unsupportive facilities, students who do not follow the instruction (sick).

At the time students stay in line in the teaching learning process, (students do not involve in the activity and this situation can be concluded that these students could do some misbehaviors or out off the tasks), students can be asked or directed to mentally practice the task. It means that this activity is running continuously (after doing mental practice, the students perform the task, go back to their places and do again mental

practice). It is hoped that with this strategy time consuming in the teaching learning process could run more effective. Siedentop (1991) found that 20%-30% of the time consumed in the teaching of physical education, sport, and health subject matter was to stay in line or to wait for the task given.

In this mental practice activity, the teachers' capability to organize the class are very much demanded. The following will explain step by step how to do mental practice in the teaching learning process:

- 1, Instruct the students to sit in the shaded place
2. Show picture or pieces of the picture of an activity or a task
3. Demonstrate this task from the beginning to the end. For instance, shooting a basketball using one handed set shot: Firstly, hold the ball with fingers spread in front of the chest and bend the elbow at the sides of the body, Secondly, bend the knees at once with raise the ball to the front of the face ( do not cover your view to the target (ring), Thirdly, extend the knees at once with pushing the ball with the hand and fingers at the front and over of the head which is helped by a whip of the wrist and fingers (the ball is released at over the head and at the tip fingers and the path of the ball is parabola). Fourthly, students see that the path of the ball is parabola and is going to enter the ring
4. Instruct the students to do the task mentally (it is started from the beginning to the end). This activity can be done without any observable physical movement
5. Instruct the students to do point no 4 about 3 – 5 activities
6. Instruct the students to do point no 4 about 3 – 5 activities (physically practice)
7. Continue the activities from point no 4, 5, and 6

## **b. Conclusion and Suggestion**

Physical activities in the form of plays, games, dances, and various sport skills are the media used by the physical educators in their teaching learning process In order to acquire those activities the students have to repeatedly and continuously physically practice. At this situation, the role of the teacher to facilitate and make easier the learning of the task is very much demanded. It is also hoped that the capability of the teacher to find out the solution of the problem faced by students in the teaching learning process is also very much regarded. One of the methods used in order to help and facilitate beginners in learning of motor skill or in the teaching learning process of the physical education, sport, and health subject matter is mental practice.

Mental Practice is one of the methods used in the literature of motor learning that can be applied effectively to help and improve performance of the task learned. Mental practice can be defined as hidden or covert repetitions of a skill in someone's mind without any observable movement of the muscles. The effectiveness of mental practice in the teaching learning process of the skills is based on the theories of neuromuscular,

cognitive, and brain hypothesis. However, it is not recommended to treat mental practice as the replacement of physical practice.

Mental practice can be used or applied into the teaching learning process of the physical education, sport, and health subject matter. How this method can be applied is very much depended on the capability of the teacher in the planning and executing and the benefit taken by the students.

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Sender : Dr. Chalid Marzuki. M.A

Title of the Text :ApplyingTheory of Mental Practice (MP) in the Teaching Learning Process of the Physical Education Subject Matter

Address :Fakultas Ilmu Keolahragaan –Universitas Negeri Padang (FIK-UNP)

Jl. Prof.Dr. Hamka Air Tawar, Padang

Sumatera Barat, Indonesia

Email : [chalid\\_marzuki@yahoo.com](mailto:chalid_marzuki@yahoo.com)

Telp : HP. 081535234523

:Home 0751- 4851053