BODY PERCUSSION TECHNIQUE AS AN INTEGRATIVE METHOD IN RHYTHMIC EDUCATION

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ABSTRACT

The diversification of interactive methods from pedagogical perspectives is a necessity. This study presents the body percussion method from the perspective of researchers and its usefulness in various fields. Being in direct connection with the musical rhythm, body percussion, as a didactic method can bring significant benefits in the teaching-learning process intended for high school students with a musical or artistic profile.

Keywords:

Body percussion; rhythm; education; methods.

1. *Body percussion*: brief history and description

Body percussion is the art of making percussive sounds with the help of the body, instead of a musical instrument. By clapping your hands, snapping your fingers, or tapping your feet, you can create various rhythms and their combinations, creating creative, spectacular activities. This type of activity involves creating rhythms with the help of the human body, there are actually several ways to do body percussion, but the most used are: clapping, snapping fingers, tapping feet, hitting knees or chest, or hitting any part of the body.

It is known that since prehistoric times, man created cave art in the same way he created the first tools, the evidence being found in some archaeological sites in Spain (Atapuerca) and Germany (Suabia) (Romero, Naranjo , Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise, 2013).

So, it's somewhat natural to think that ever since, people have been using clapping and stomping, so *body percussion* has an anthropological, sociological and biological basis since those times. (Romero, Naranjo, Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise, 2013)

Since ancient times, man has created music through his own body. If by the use of the voice, whistling or shouting he emitted melodious sounds, by clapping his hands or feet certain rhythms emerged. Usually, the so-called melody was accompanied by the rhythmic movements resulting from the beating of the feet and hands. (Romero,

Naranjo, Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise, 2013).

In 2006, the author Romero Naranjo Francisco Javier wrote the first review article on *body percussion* in which he included the most prominent representatives of this method and the areas in which each used it. (Romero, Naranjo, Francisco, Javier, Body music! Body percussion! Didáctica de la percusión corporal. Música y Educación. Año XIX, 4, nº 68, 2006)

Body percussion can be defined as the art of striking body parts to produce sounds for didactic, therapeutic, anthropological and social purposes. (Romero, Naranjo, Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise, 2013). This type of activity is used not only in the musical field, but also in other artistic fields (performance art). Thanks to social networks and the media, *body percussion* is massively spread because it has rich visual, auditory and aesthetic material. *Body percussion* can be applied in various fields and can have different purposes.

Also in Romero's opinion, the sources attesting to this activity can be classified into two broad categories: general and specific. The general source includes travelers and chroniclers who collected information from their travels and from what they saw of the natives. Their descriptions detail how people used their bodies, how they danced, their various customs, and how they struck each other to make rhythms. These publications, known at the time, were signed by authors such as: Lander Richard and John (1833), Leonargo Torriani (1588), Richard Jobson (1623), Jane Park (1795), Isabel Abreu (1595), David Livingston (1857), Gaspar Frutuoso (1522) and others. (Romero, Naranjo, Francisco, Javier, Percusión corporal en differentes culturas. Música y Educación. Año XXI, 4, nº 76, 2008)

The source mentioned refers to the categories that possess various publications, in this sense, some of them having a major consistency. Among those that must be mentioned is the distinct chapter dedicated to *Body percussion* and Voice, Time and Pitch, published by Warner and Babatunde in 1965 (Warner, Dietz, Betty, Babatunde Olatunji. Musical instruments, John Day Company, 1965) which deals with percussion body as a discipline. The first chapter of the book explains the importance of *body percussion* as a form of learning in tribal areas. (Romero, Naranjo, Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise, 2013).

In ancient African tribes, music and rhythm were considered inseparable. Even in Europe during the Middle Ages, the Renaissance and even the Baroque, music and dance were inseparable, as they were considered noble and refined gestures, due to this fact, the nobles placed great value on dance, being an important activity in their

education. (Romero, Naranjo, Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise, 2013)

From the perspective of musical pedagogy, the one who introduced this method as a basis for the development of musicians was J. Dalcroze. Living for several years in North Africa and especially in Algeria, he studied from an ethnomusicological perspective the rhythm and movements of other countries, with applicability in education. It should be noted, however, that this was not his primary interest, because his method is based on the creation of physical exercises that, by their nature, allow the perception of rhythm, sound and form, which in turn facilitate the correction and development of hearing and rhythmic sense. (Jaques-Dalcroze, Émile, Le Rythme, la musique et l'éducation, Paris, 1920)

Carl Orff, one of Jaques-Dalcroze's direct disciples, took over and developed the *body percussion* method, by creating specific activities in which he correlated speaking with body percussion. The basis of his method required the synchronization of three spheres of activity: music, movement and language. (Orff, Carl, Keetman, Gunild, Orff Schulwerk: Music for Children, Mainz: Schoot Music International, 1963)

Moreover, several authors have investigated the *body percussion* method and established the fields in which the ancient activity of *body percussion* is researched:

- **Ethnomusicological studies**, which aim to analyze the musical material, the origins of the method of combining speaking with singing and movement, both in rural and urban environments;
- **Compilation studies**, which aim to collect and transcribe children's games, which are based on body percussion, and which can be used in coordination games;
- **Didactic studies**, which focused on the study of games that involve clapping and that can be used, at the initiative of the children, both within the school and outside it;
- **Scientific neurological studies**, focused on demonstrating the effectiveness of the *body percussion* method, in stimulating physical, cognitive and mental abilities in children;
- **Therapeutic studies**, which included analyses of the effects that the use of *body percussion* can have in various conditions such as: Parkinson's, Down's syndrome, Alzheimer's, autism, dyscalculia and others. (Romero, Naranjo, Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise, 2013)

During the period in which musical education achieved with the help of movement experienced a considerable development, *body percussion* represented an area of interest.

It is necessary, therefore, to name authors who designed didactic materials such as: video recordings (DVD) released in 1998, 2002, 2008, called STOMP (to stomp), but also films with music bands ("Mayumana", "Camut Band", "Barbatuques") who dedicated their activity to creations that include *body percussion* activities.

Renowned composers are also interested in creating works that include body percussion, and here we recall Steve Reich with the work Clapping, Oscar Navaro (Libertadores) and Vinko Globokar (Corporel).

Many authors have been concerned with body percussion, one of the authors taken over in American education is Keith Terry, who through a personal style presented the ideas regarding body percussion, held numerous courses and seminars at the international level considering the activity of *body percussion* a pedagogical method. Born in 1951 in the USA, Terry Keith is a percussionist, dancer and educator. He stood out as a trailblazer in a new art direction, Body Music. He is the founder of the International Body Music Festival and has numerous awards for his *body percussion* creations. The author has structured his own course in five chapters (Technique, Rhythm Blocks, Polymetry, Time Step, Phrasing and Polyrhythm), it is sold in electronic format, recorded on DVD, like most of his works. (Terry, Keith, Rhythm of Math: Teaching Mathematics with Body Music Book/DVD with Linda Akiyama, 2015).

Current research has demonstrated, at an academic level, the development and effectiveness of using the *body percussion* method. However, it is considered that, even if the method, through the choreography used, is attractive, it is necessary to deepen the studies in this method which involves not only the body, but also the musical and psychomotor skills of the practitioner.

As it was highlighted, *body percussion* is applied in several fields, and from the anthropological and ethnomusicological perspective, in addition to the classroom presentation of the method, studies are needed that demand a deepening of its perception, the way of transmission, the discovery of other versions and applications. It would be preferable for coordination games and those involving *body percussion* to be introduced as pedagogical methods in schools, as it is happening in countries such as Indonesia, Cuba. (Romero, Naranjo, Francisco, Javier, Science&art of body percussion, Jurnal of Human Sport and Exercise, 2013).

2. The benefits of *body percussion* activity

In addition to the attraction of the activity itself (it is engaging, creative), *body percussion* improves the coordination and correlation of parts of the body with sight and hearing. As a group activity where hands and feet are used to create sounds, the individual is forced to improve their hand-eye coordination, which can help them develop manual dexterity and multi-tasking, skills needed in other areas such as sports,

or even playing an instrument. In addition, this type of activity is a way to engage children in music-making activities in a way that is inexpensive and does not require complicated instruments. Children can learn simple rhythms and measures using their bodies and also accumulate other musical concepts. *Body percussion* is an activity where you use your own body to create rhythm and is an exciting way to make music without instruments.

We consider it necessary to detail the beneficial advantage of using body percussion, in different fields, from the perspective of the researcher Romero Naranjo, who in the work Science & art of *body percussion* describes a method related to *body percussion* called BAPNE, an acronym for the fields in which body movement can be applied (**b**iomechanics, **a**natomy, **p**sychology, **n**euroscience, **e**thnomusicology).

The aim of the method is to develop multiple intelligences through the practice of *body percussion* supported by the areas mentioned above. Biomechanics has the role of showing us how the human body moves in space through the prism of biomechanical axes and planes; anatomy reveals to us the configuration of specific bones and muscles at the time of movement; the psychological field uses movement for therapeutic purposes; neuroscience shows us how rhythm works in the brain; and the ethnomusicological field reveals to us different cultures in which movement is used, but also the way in which it is performed. At the methodological level, these fields provide us with a coherent configuration. (Romero, Naranjo, Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise, 2013)

Howard Gardner believes that one intellectual trait that provides the tools, goals, and techniques needed in each field is multiple intelligences. He delineated the existence of eight types of intelligence, as follows: musical/rhythmic, kinesthetic, visual-spatial, interpersonal, intrapersonal, verbal-linguistic, naturalistic and logical-mathematical intelligence. (Gardner, Howard, Multiple Intelligences. New Horizons, 2006).

- Musical/rhythmic intelligence is characteristic of those who have a sensitivity to sounds, artists (musicians, dancers, choreographers). It is mainly used for creating "flowcharts" for listening to music, recognizing and reproducing works of a musical or rhythmic nature as well as creating music.
- Kinesthetic intelligence embodies the skills of imitation, the connection between mind and body, thus becoming the tool of expression in order to achieve an action.
- Visual-spatial intelligence is specific to those who are able to think about an activity in space, painters, architects, those who design spatial constructions.

- Interpersonal intelligence refers to empathy, the ability to observe and perceive the emotional-affective states of those around, but also the way to react to requests.
- Intrapersonal intelligence is characterized by the individual's ability to relate to his own person, and everything related to the psychological universe.
- Verbal-linguistic intelligence is specific to people who possess the ability to express themselves in a certain cultural context. Writers or those who easily learn a foreign language can belong to this category.
- Naturalistic/environmental intelligence relates to those who work in an environment that requires skills that can differentiate between certain species of plants or animals.
- Logical-mathematical intelligence is specific to those who are gifted in fields such as mathematics, logic, physics, chemistry and everything that involves the exact sciences or engineering.

These types of intelligence contribute significantly to the development of the BAPNE method due to the fields in which it is carried out, each type of intelligence being an integrated part of one or more fields.

The BAPNE method is based on the interconnection of five distinct fields (biomechanics, anatomy, psychology, neuroscience and ethnomusicology) and the use of body expression as a fundamental resource. (Romero, Naranjo, Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise, 2013).

The human body is considered a musical instrument that has a varied range of its own resources (body movements that emit sounds, speaking, singing), these allowing man to channel his resources to develop various other skills, such as organizational ones.

Applied in education, the BAPNE method provides facilities to the student so that he is encouraged to perceive the movements of his own body, which emits movements and sounds in relation to different rhythmic patterns. The correct activation of the receptive stimuli in which the body senses and perceives is essential in sensing rhythmic possibilities and movements in time and space. Visual, auditory and kinesthetic stimuli lead the individual's perception to believe that sound and movement are inseparable. (Romero, Naranjo, Francisco, Javier, *Body percussion* and Voice, Time and Pitch: an Exercise in "Singing BAPNE®" Methodologically Analyzed, Procedia- Social and Behavioral Sciences, 2017)

Perception and knowledge of the principles that underlie *body percussion* gives the availability to create your own materials that apply *body percussion* through which man can acquire coordination and non-verbal communication valences, through his own body.

By means of the BAPNE method, we want to use *body percussion* in education by making the individual's motor and intellectual coordination more efficient, based on the five domains that form the basis of the perception of the substrates of body beating. (Romero, Naranjo, Francisco, Javier, Science&art of body percussion, Journal of Human Sport and Exercise).

The role of biomechanics in the perception of *body percussion* consists in the possibility of configuring exercises from a motor perspective, helping the individual to relate to the biomechanical plane and axis in relation to the difficulty of the activity. In this sense, following the analysis of the biomechanical plans, the coordinating teacher can carry out certain exercises according to the capabilities of each individual, so that they can be executed both individually and in groups, still allowing him to intervene when this is necessary.

From an anatomical perspective, the level of bone and muscle structures can be observed during activities involving body percussion. The contribution of the BAPNE method consists in the fact that it streamlines the creation of *body percussion* exercises for the development (strengthening) of the parts of the body. These are studied using evaluation techniques (electromyography) to observe muscle activity. In addition to the benefits brought in several sports, these activities can improve reflexes and attention to different stimuli.

In the field of psychology, the BAPNE method has a significant role through the therapeutic effects of *body percussion* in the improvement and regression of conditions such as: Parkinson's, Alzheimer's, ADHD, dyslexia, Down's syndrome, dyscalculia, autism, ophthalmological problems, and others. The design of exercises involving *body percussion* can be done according to the type of disease and to its stage so that the patient can develop at a psychomotor and cognitive level. In addition, the ability to participate in group activities, in which there are several individuals with various conditions, carrying out the same activity, can have a therapeutic purpose.

Researchers Michael Thaut (Thaut, Michael, Rhythm, Music and the Brain: Scientific Foundations and Clinical Applications, Routledge, New York, 2005), Takako Fujioka (Fujioka Takako, Trainor Laurel, Large Edward, Ross Bernhard, Beta and Gamma Rhythms in Human Auditory Cortex During Musical Beat Processing, The Neurosciences and Music III: Disorders and Plasticity), Eckart Altenmüller (Altenmüller Eckart, Neurologische Erkrankungen bei Musikern), demonstrated that bodily percussion has an elementary role in neuroscience. With the help of the BAPNE method, the activities that contribute to brain development are presented and justified. At the level of the limbic system, specifically the associative motor cortex and the cingulate motor cortex, have been recognized as areas attributed to rhythmic coordination. However, depending on the level of exercise, the activity may shift to other areas of the brain. As

a result, at the didactic level, it is very important to understand what happens in the human brain during the activity, as well as to observe the level of assimilation of knowledge in students.

Body percussion has its origins in the traditions of the peoples of the world, and the BAPNE method offers a detailed presentation of the use, importance and objectives of the *body percussion* activity, from an ethnomusicological perspective (Romero, Naranjo, Francisco, Javier, percusión corporal in diferentes culturas. Música y educación , año XXI, 4, n˚ 76, 2008). Considered a technique based on a multidisciplinary methodology, the BAPNE method finds its substrate of *body percussion* activities in archaic manifestations, today being studied by teachers of physical education, plastic arts, dance, musicians, neuropsychologists, therapists, psychologists.

3. Scenarios of *body percussion* exercises

The diversity and accessibility of the learning method through body percussion, the facilities for assimilation and consolidation of knowledge represented the basic principle of the activities proposed for the secondary school students of the "Sigismund Toduță" College of Music in Cluj-Napoca. Being a technique that requires collective interaction, attention and collaboration have a special role in performing the exercises.

The corporal percussion action aimed to improve the following factors:

- fitting into the measure and maintaining the tempo;
- the precise execution of the rhythmic formulas in the exercise;
- physical movement;
- socialization;
- attention;
- correlation of visual and auditory centers with movement;
- memory.

Participation in the *body percussion* act did not have a selection criterion, all students belonging to the theory - solfege - dictation group being allowed to participate in the activity. So, a number of 52 students benefited from this exercise organized in grades V-VIII. The proposed period for the exercise was one month, allocating 10-15 minutes for each hour of theory - solfege - dictation (twice a week).

To begin with, three small musical works were chosen in different measures and contrasting characters, in moderate and fast tempos.

The difficulty of the pieces of music was irrelevant, as the rhythms created can be superimposed on any piece of music as long as the time frame is kept.

For each piece of music, the teacher previously created a rhythmic exercise with certain specific physical movements.

After listening to the songs and visualizing the rhythmic exercises through body percussion, it was time to learn the movements. In the fifth and sixth grades, the exercise was completely created by the teacher, the students just learned the predetermined movements. The slightly older students (seventh and eighth graders) were allowed, in the first week of activity, to intervene with their own rhythmic ideas in the development of body percussion, within the limit of one idea for each student, precisely in order not to create chaos. After the ideas and the order of the movements were stabilized, it was time to learn and execute them, working on one short fragment at a time, then adding other fragments to those studied and memorized. The physical movements included in the proposed exercises included clapping, arm and forearm slapping, finger snapping, knee slapping, chest slapping, foot tapping.

At the end of the activity, it was found that:

- all students performed the proposed exercises;
- all students have memorized the musical fragments;
- the tempo was maintained by all students;
- the inclusion in the measure was successfully achieved;
- the rhythmic formulas with high difficulties were met by the majority of students, except for students with special needs (CES).

In a summative evaluation of the level of assimilation of the rhythmic applications performed, evaluation carried out by two teachers of the Sigismund Toduță College of Music in Cluj-Napoca, it was concluded that due to contact with a friendly environment, the whole group later tried to express themselves personally and creatively, many students being interested in creating their own variations of the exercises already done.

4. Qualitative analysis of the results

Following the completion of the activities that included the *body percussion* method, the teacher conducted research aimed at carrying out a qualitative analysis of the results obtained, based on a semi-structured interview. The level of satisfaction of the students following the organized classes, their opinions related to the experiences during the activities carried out, their interest in such exercises was followed. For this purpose, an interview was created with predetermined questions, which were asked only to five students from each group of students (chosen randomly, according to their consent and interest) during a class specifically intended for this purpose. By means of this interview, the level of satisfaction and assimilation of the established knowledge was tracked, the interview questions being formulated as follows:

a. Did you find it difficult to blend clapping, footwork and various other movements with the musical text?

b. Do you consider this way of learning (consolidation) of rhythmic formulas effective?
c. What is the advantage of using *body percussion* exercise?
d. Do you find it effective to learn rhythmic formulas in group activity or do you prefer the exercise?
e. What were the shortcomings of using the *body percussion* method?
f. Do you consider it necessary to introduce this type of exercises in learning rhythmic formulas?

Following the analysis carried out at the end of the interview of 30 students, 15 were chosen (5 from each group) who agreed to provide personal feedback on the rhythmic exercises that were performed during the theory-solfeggio-dictation lessons, it was found that:

a. Correlating the percussive movements with the musical text was considered easy to execute, engaging and very attractive by all the participants in the discussions.
b. All the 15 students were satisfied with the way of consolidating the rhythmic formulas in the exercises that resorted to physical beatings, the accessible way of repeating some already assimilated notions being positively appreciated.
c. From the answers received from the students, the following were highlighted:

Table 1. What is the advantage of using *body percussion* exercise?

Advantages	Agreement	Disagreement
Fixation of metro-rhythmic structures	15 students	0 students
Correlation of rhythmic formulas with metric support	13 students	2 students
Easy memorization of the melodic fragment	14 students	1 student
Group activity	12 students	3 students
The attractive nature of the activity	15 students	0 students

a. To the question *Do you consider learning rhythmic formulas effective in group activity or do you prefer individual exercise?* 12 of the students interviewed reported that they prefer learning rhythmic formulas in activities that involve group work, offering as an argument the fact that even if some students have wrong tendencies in execution, they can influence each other through imitation, so those small mistakes go unnoticed (until they manage to learn the

exercise correctly). The other 3 students prefer individual work, being reluctant to express themselves in the group due to uncertainties related to rhythmic aspects.

b. Among the shortcomings of the application of the *body percussion* method was mentioned the short period of application of the method, the long time required for the simultaneous execution of the movements with the music, as well as the desire of the students to perform productions with an audience, not just simple exercises with a didactic purpose.

c. To the question *Do you consider it necessary to introduce this type of exercises in learning rhythmic formulas? t*here were different opinions as follows:

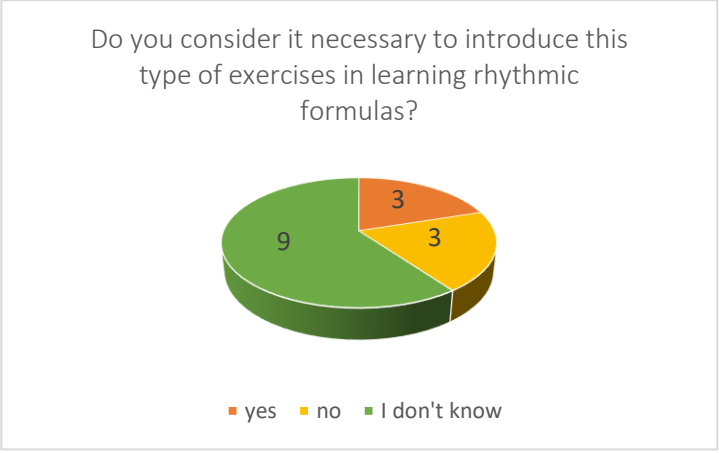

Figure 1. The need to introduce *body percussion* activity

5. Proposals for the integration of *body percussion* exercises in primary and secondary school

The research undertaken in the field of the *body percussion* method has demonstrated the fact that benefits are obtained not only in the application of the method in the pedagogical sphere, the effects brought by this type of exercises are multiple: from the development of the rhythmic sense, to the stimulation of physical, cognitive and mental abilities and to memory development. Combining music and movement creates benefits such as:

- it facilitates the implementation of syncretic activities that ensure the complex development of students;
- it stimulates the active manifestation of students in group activities;
- it combines musical audition with movement;

- it reduces the difference between the different levels of rhythmic training (the student is motivated by group activities, for learning different rhythmic fragments);
- it lays the foundations for learning musical concepts at an elementary level, in an intuitive, accessible manner.

The method represents a flexible way of creating applications, which allow the teaching staff to modify or complete the learning activities. Therefore, at primary and secondary education level, it would be beneficial to introduce activities that involve body percussion; this type of activity could be carried out both in specialized classes (theory-solfeggio-dictation) and in physical education classes, perhaps even in collaboration with a music teacher. The applied rhythmic exercises could be created by a teacher, but it is equally possible to suggest that students create their own examples on the same melodic basis.

We therefore consider it necessary to mention some repertoire proposals that can be accompanied by body movements, which we consider to be useful for developing children's interest in universal musical creation. These can be accompanied by movements created by the teacher, or they can be left to the students' free choice.

We remind you in this regard:

- *Body percussion* in the form of a question-answer, in which the students will be divided into two groups, each group getting a fragment of the exercise, and its execution will be carried out alternately by the two groups.
- *Body percussion*, in the form of a canon, an exercise that involves playing the same musical text by two or more groups, performed two or four measures apart.
- Integration of exceptional rhythmic formulas (duolet, triolet, quartet, quintolet) that can also be introduced in different movement combinations in *body percussion* exercises.
- The use of heterogeneous composite measures (5, 7) that can be suggested to 7th and 8th grade students. Moderate level exercises can be done to amplify the metrical and rhythmic accents of these types of measures.
- Integrating rhythmic formulas specific to different dances into body movements, overlapping songs that use these rhythms.

The diversity and accessibility of the learning method through body percussion, the facilities for assimilation and consolidation of knowledge represented the basic principle of the activities proposed for secondary school students within the institutions of the vocational sector, with a music profile. Being a technique that requires collective interaction, attention and collaboration have a special role in performing the exercises.

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