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## Perceived sensations related to the state of flowing factors produced during the performance of cognitive stimulation: Exercises through the didactics of the body percussion BAPNE method

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### Abstract

Nowadays, the population is growing in their age range, and it is getting old. Furthermore, it is known that these people often present diseases and they cannot do their normal tasks or their daily lives. Sometimes, that can be a compounded problem (this problem gets worse or can grow) and they are not able to develop their basic and vital functions like other people. These are diseases such as cognitive deficits, Alzheimer's, Parkinson's, brain damage and others. It is a hard work to offer and provide these people a quality life with a minimum wellness which contributes to their health in a positive way. This is one of the main aims in our research group through teaching body percussion - BAPNE method. This is intended primarily to cognitive stimulation, and to develop kinetic and motor skills, as well as multiple intelligences. Although this is not the cure or the solution to their disease, that can stop its growth or at least do it slower. After an academic year (2013-2014) working in this program with these subjects, we have carried out a research about the personal perceptions of these people within the development of these activities. Seven different aspects were measured. They are directly related with the factors which make Flow test made by Csikszentmihalyi, in order not only to obtain objective data but also to have more personal information about people. A semi structured survey was created and the questions have been validated by experts. The final aim is to go deep in the emotions and sensations which arise when these activities are done, so that we can conclude if our objective of offering a mental and physical welfare is achieved. Consequently, this research is complementary to the neurological data which belongs to a wider study that confirms the benefits obtained when these activities are implemented.

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## 1. Introduction

Population is increasing progressively in an older age rate (Shu-Ling, Hui-Chuan, & Sui-Whi, 2009) due to the birth rate decrease during the last decades; and it is still, above all in the most developed countries, what means a continuous situation. According to the United Nations' statement in 2001, predictions estimate that population's age will be over sixty or more by 2050 (Hulme, Wright, Crocker, Oluboyede, & House, 2010). Therefore, there is a large part of old-aged population, which has a longer life expectancy thanks to medical development. However, these people do not live in optimal conditions and they need us to pay more attention on improving their quality of life and increased the service provided to them. Thus, there are more resources and programmes dedicated to this sector of population and, these are not only used for their health but also for offering constant education, what allows them to be mentally active and so their learning; and this has an affects their well-being (Ruokonena&Ruismäkia, 2011).

This sort of situation can bring really serious problems, as dementia prevalence, which is present in a large percentage of over-sixty-aged people; being the most common illness within this population. Experts advocate that, in 2020, 42 million people will be affected by this deficiency and it could duplicate if there are not either preventing cures or treatments or changes in mortality (Ferri et al, 2005). For this reason, and even more now, experts have focused on, and will go on, offering palliative cares for this population sector. This means huge increase of research in the last years and it is going further with alternative therapies as music-based ones, due to the benefits that can be derived from them.

Results show that there is a favourable procedure (Aigen, 2005; Bernatzkya, Prescha, Anderson, &Panksepp, 2011; Chan, Chan, &Mok, 2010; Ruokonena&Ruismäkia, 2011; Shu-Ling, Hui-Chuan, & Sui-Whi, 2009). All this research evidences that music is a powerful factor that increases welfare and decreases pain, such as stress, anxiety and depression, because of the socio-emotional effect it has. There are also repercussions at a physiological level, as increased blood pressure and heart rate (Bernatzkya, Prescha, Anderson, &Panksepp, 2011); and it is helpful for patients with sleeping problems (Chan, Chan, &Mok, 2010).

The importance of these therapies resides in the non-pharmacological treatment and, therefore, there are not side effects and other interventions' incompatibilities (Hulme, Wright, Crocker, Oluboyede, & House, 2010).

The updated and interesting study performed by Jiménez-Palomares, Rodríguez-Mansilla, González-López-Arza, Rodríguez-Domínguez, y Prieto-Tato (2013) reviews and highlights literature where the efficiency of these programmes of music-based therapies at a brain fuction, social integration and behaviouring alterations. These authors propose the need to approach these multidimensional therapies which would be included in non-pharmacological methods, which may be performed by carers, and optimize, therefore, these funnctions because there is no curative treatment to this kind of illnesses.

Moreover, in this article by Lojo-Seoane, Facala, and Juncos-Rabadán, there are got together different works investigating the relationship between different variables (education, cognitive stimulation, physical activity, leisure activities) coined by the term "cognitive reserve", with the prevention of cognitive damage (which can definitely end in dementia). Cognitive reserve is considered as a way for brain adaptation towards injury or the compensation of this section with new synaptic routes, or appeal to the previously existing processes. Results are positive, and it is considered an indicator that delays the appearance of this kind of dementia; in further research, still to be determined more exactly the influence of these factors in the already acquired dementia progression.

This study remarks, as the previous one, that "an enriched atmosphere with cognitive stimulation and physical activities can have effect at molecular, cellular and behavioural level, becoming providers of brain and cognitive reserve mechanisms".

Therefore, our proposal is to apply a programme in which all these elements are combined, and can appear, then, an important cognitive stimulation which may go through their skills' development, not only psychologically, socially, or physiologically but also neurologically with a compensatory function and with cognitive reserve; in order to delay cognitive deficiency or dementia openness. It is important for our brain to be exposed to a higher stimulation, bringing in the largest number of brain areas to ease the process. Due to this, the BAPNE method goes beyond the effect of music, and it mainly based on body movement combined with different stimuli (language, singing, rhythm) dedicated to develop aspect as concentration, memory, different types of attention (selective, divided, alternating and maintaining) that permit a total stimulation of all brain lobe. Everything is articulated from three bio-mechanic phases, highlighting strongly laterality. In this sense, lareality is essential for cognitive

stimulation, inasmuch as it makes easier activation between hemispheres and the subsequent interconnection. Thus, there is a bigger motor integration that permits more complex cognitive processes and extra-somatic information (Crespo-Colomino & Romero-Naranjo, 2014; Crespo-Colomino, Romero-Naranjo, Pons-Terrés, Carretero-Martínez, Pérez-Bravo, & TrivesMartínez, en prensa; Romero-Naranjo, 2012).

Music has a straight effect on the limbic system and, for this reason, it affects directly on emotions, providing a state of welfare and emotional satisfaction, what has physiological and psychological effects too (Bernatzkya, Prescha, Anderson, & Panksepp, 2011). Concretely, there is one of the most positive experiences at a psychological level which is common among athletes in their flow state. Nevertheless, it does not appear only in athletes, it can also appear in other situations (Bakker, 2005; Armstrong, 2008; Ainley, Enger, & Kennedy, 2008) and may vary its grade of incidence, fluctuating between joy and high-performance levels and episodes in which there are only some of the state determining dimensions or factors (Privette, 1983).

The Flow phenomenon can be defined as “an inside enjoyable state that occurs when there is balance between personal skills or competences and the task’s demand (Jackson & Roberts, 1992).

When this balance happens, “people experiment one or some of the characteristics of Flow, which include focusing attention, perception of control over actions and atmosphere, there is straight action feedback and without ambiguities, loss of auto-conscience, and time distortion” (Stein, Kimiecik, & Jackson, 1995).

### *1.1. Importance of a qualitative sight*

However, when we talk about psychological and physiological states that affect welfare of this type of population, we have to bear in mind their perceptions, feelings and sensations that this sort of activities provides; in order to last determine whether they have to be developed or not regarding favourable results.

Literature about music therapy, in qualitative terms, has increased during the last years and review studies as (Aigen, 2005) (Chan, Chan, & Mok, 2010) clearly show contrary data. Although these remark certain lack of methodological rigour, it can be solved in further research.

### *1.2. Purpose*

Our purpose is, through BAPNE’s Method application, seek in perception and the effects that these activities have when they are carried out; related to specific factors which connect to Czicentmihaly’s ideas (Jackson & Ecklund, 2004). Therefore, to do so, we will concentrate in a series of factors to deepen in them and go beyond numeric data. Our decision to investigate these factors and not others is based on the need to determine concretely the grade of balance between skill and challenge in which the purposed activities are; because, according to Czicentmihaly (Jackson & Ecklund, 2004), this provides a high grade of satisfaction and well-being to the subjects of investigation. For this reason, it is necessary to be aware of the individual perception of the tasks which may be not totally clear. Flow’s model includes Privette’s top experience (1983) that goes further than activities in which there are challenges, goals or objectives that imply high-performance and profound joy, what can make them intrinsically awarding. This explains the election of this model. Moreover, for the present investigation, it is truly relevant to determine if the cognitive stimulation required is adequate; that is to say, if it is present at all times and its growing is constant without going over the complexity limit that provokes the participant’s quitting†.

To do so, an academic year’s programme was carried out. The first eight weeks with two sessions of an hour per week, and the following with an hour’s session per week.

The measure device was a semi-structured interview, checked by experts, in which the following aspects were asked about, distinguishing between two activities typologies that can be performed (one of them requires straight interaction with a partner, the other does not, though it can be done in groups).

The sample was a group of 20 old-aged people, who were involved in the programme. Between 60 and 80 years old, the previously chosen by a neurology specialist who provided an homogeneous group, with similar

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† See (Jackson & Ecklund, The Flow Scales Manual, 2004) for checking Flow’s dimensions

psychological characteristics. Moreover, they also were challenged in physical samples in order to determine whether their physical qualities were also homogeneous and were in disposition to do exercise, or, on the other hand, some of them were physically impaired.

The interview was carried out in a quiet place and in person, in a trustworthy situation, because the researchers' condition was the same to the participants.

## **2. Results**

All participants have remarked the utility and satisfaction that these activities provide them. In order to be more specific, results will be split from the discussion about the same factors:

### *2.1. Objectives*

All of them have achieved the main objective, which is to perform the activities appropriately and obtain a benefit, distinguishing between benefit (25%), cognitive (40%), or emotional (34,4%). Moreover, a 55,6% of the whole are sure that effects are achieved, and the 44,6% left are not sure, mainly because of coordination mistakes.

### *2.2. Stimuli management*

As far as stimuli are concerned, a 29,4% remarks that they need great activation, attention, and concentration on the tasks, feeling even quiver; meanwhile, a 44,4% of the whole lighten that sensation. However, the 100% remarks that none of them felt strained or anxiety.

### *2.3. Feedback*

A 63% remarks the well-being sensation derived from the activities, and a 22,7% and a 13,7% relax and activation respectively. Interaction with other partners is only uncomfortable for a 5,6%, because they are aware of the team-work and know that its execution can influence on their partners, and the other way round.

### *2.4. Challenge*

To answer the question about the effectiveness of the challenging attitude awake, all of the participants have replied "Yes", although it was not unachievable, at a physical level (14,2%) at the cognitive level, and the emotional level (51,4%), matching the question about the objectives.

### *2.5. Concentration*

The whole group feel capable of being focused on their movements at the same time they receive extra-somatic information, though the 31,3% are more concentrated on themselves, and a 68,7% is paying attention to interaction.

### *2.6. Control*

They assure that they feel control of their bodies, nevertheless, just a part of the whole considers that they have global control; on the other hand, another sector of the whole affirm that it depends on the occasion, remarking that it produces great satisfaction and confidence.

### 2.7. Time passing

The psychological sensation of time derived of this state is very quick generally; though a 23,5% remarks that, having a few exceptions, due to the execution of more mechanical activities, they require a longer and maintained attention on timing.

### 2.8. Conclusion

All the participants feel very motivated and complete while they are carrying out those activities, and affirm that they feel more confident on themselves and increases self-esteem. This happens due to physical, cognitive and emotional and psychological reasons. Motivation: physical 29%, cognitive 35,5%, emotional 35,5%. Self-esteem: physical 24,3%, cognitive 27%, emotional 48,7%.

## 3. Discussion

An interesting datum to be highlighted is that there is not straight relationship between the objectives to be achieved, the challenges derived from the activities and the conclusions obtained; therefore, participants are motivated to continue and get well-being sensations, what indicates a perfect adaptation of the activities to the participants' needs, and being rigorously articulated. Thus, the emotional part is remarked linked to a very huge cognitive factor by the participants and they also highlight the benefits of the programme in the cognitive and affective capacities, which have repercussion in their lives as a consequence. Psycho-social welfare is strongly significant, and the possibility of being integrated in a group interacting with other partners is beneficial too. This is due to the motor integration by the brains right hemisphere that brings in outer information and facilitates more elevated cognitive processes (Romero-Naranjo, 2012). These data, then, determine that brain activation is achieved when developing those activities, according to the manner in which they are designed. Therefore, they activate the circuits involved in such important functions as language, movement, melody, visual and oral stimuli reactions, coordination, laterality, different types of attention, etc (Romero-Naranjo, 2012; Crespo-Colomino, Romero-Naranjo, Pons-Terrés, Carretero-Martínez, Pérez-Bravo, & Trives Martínez, in press). These activities provoke a release sensation; lack of inhibition; great joy, as on the top experience; but, at the same time, attention; concentration and immersion in the task; goal pursuit; and also control and challenge sensation. It is the same that happens at Flow's, because it is integrated in the top experience inasmuch as it provides a great feeling of joy, but in reaction always with a challenge (Ainley, Enger, & Kennedy, 2008; Armstrong, 2008; Jackson & Ecklund, 2004; Jackson & Roberts, 1992).

## 4. Conclusion

These data evidence that, precisely, there has been a very positive application of the programme, what coincides with previous research. (Aigen, 2005) (Armstrong, 2008) (Hulme, Wright, Crocker, Oluboyede, & House, 2010) (Jiménez-Palomares, Rodríguez-Mansilla, González-López-Arza, Rodríguez-Domínguez, & Prieto-Tato, 2013) (Shu-Ling, Hui-Chuan, & Sui-Whi, 2009) (Shu-Ling, Hui-Chuan, & Sui-Whi, 2009) (Bernatzkya, Prescha, Anderson, & Panksepp, 2011).

For further studies, it would be interesting to determine the effect of the programme in bigger samples. In parallel, the present article is part of a broader investigation, in which data about this topic are indicated. However, before that, it would be more interesting, at first sight, to know deeply what these people perceive and which are their feelings and sensations during the programme. It is important to start from the point that there is a presupposed welfare state in their perceptions and a happiness feeling and motivation which allows them to do this kind of programmes. This is because, without this background (moreover the importance of psychological well-being state), it is not interesting keeping on these therapies. Furthermore, qualitative research lets us discover the answer of every question. This is to fit our programme better and know if we carry on this direction.

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