

The BAPNE Method as a School Intervention and Support Strategy to Improve the School Environment and Contribute to Socioemotional Learning (SEL)

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Abstract – This investigation studies the capacity of the BAPNE (Biomechanics, Anthropology, Psychology, Neurology and Ethnomusicology.) method to develop socioemotional learning (SEL) in terms of all its socioemotional and cognitive aspects, as well as its influence on a positive school environment for all-round and academic development. We first look over the need for the implementation of SEL programmes, proving how socioemotional processes can have a profound effect on one's ability to learn, at both an academic and personal/social level. We go on to look at the lack of SEL programmes that use music in their work, and concretely body percussion. We review all the components needed in a well-designed SEL programme and link these components to those of the BAPNE Method so as to show how activities based on the BAPNE Method can lead to development of SEL abilities and a positive school environment. Lastly, we look back over results, set out some essential factors for its correct implementation and we propose research aims to evaluate the results of interventions.

Keywords – Body Percussion, Movement, Music, SEL, School Environment.

I. INTRODUCTION

Nowadays, we know that both our relationships and emotional processes affect how and what we learn. This is a topic under investigation, and projects are currently being designed to address the social and emotional educational needs of students. "Real training needs to address intellectual development, but also emotional, affective and social potential by means of a comprehensive and realistic curriculum which meets the needs of our changing world." [1].

For us to achieve good socioemotional development, it is essential for us to have close relationships and support. It is thus very important that these relationships are fostered in schools so that children and young people feel looked after and safe. In this way, a positive relationship with the school is encouraged, and a positive school environment can be built. School environment "is the aggregate of individual actors' perceptions of the environment's impact on well-being and is influenced by individual's perceptions of the psychological environment" [2], and it "is associated with a range of positive student outcomes, from academic achievement to mental health and well-being" [2]. In itself, fostering a good school environment will help all students' academic, personal and social development, but will also be essential in helping students in potentially unfortunate situations or even particularly sensitive students, as these could

influence their optimum development and have a negative impact on the all-round development of an individual. If such situations continue for a long period of time, they can be very damaging. This is due to the fact that the brain produces too many stress hormones and the results of feeling constantly overwhelmed can damage the hippocampus, which influences our learning as it has a very large number of cortisol receptors [3]. If we think of a school as a space to counteract all of these experiences and help them to be controlled, it is essential to foster all the functions involved in learning. "Environments which offer security and comfort are closely related to an increase in creativity and exploratory behaviour, cooperation and friendships which facilitate personal maturity, the organisation of psychological abilities and functions to do with learning and motivation." [4].

On the other hand, many students show different kinds of problems in the social, emotional and behavioral areas (bullying, conflicts with peers or other issues involved in mental health as anxiety or eating disorders, drugs, etc). Furthermore, social isolation is frequent, given that in the technological society in which we live facilitates contact, but not necessarily in real contexts, which is where social skills are truly learnt.

Therefore, intervention programmes for socioemotional learning (SEL) aim to cover the basic psychological and social needs of students. After years of research, it is widely known that it is fundamental for their personal development, to maximise learning, reduce stress, foster positive behaviour and attitudes towards oneself and others, etc. [5].

There is also a wide range of literature and research into SEL programmes which evaluate their efficacy. A meta-analysis of 213 socioemotional learning programmes, carried out across three decades of research, shows that the academic achievement of students is 11% higher in comparison with those who have not followed SEL programmes, as well as being linked to other positive results in terms of personal and social skills [5]. These programmes cover a wide range of different competencies at an emotional, social, behavioural and academic level. Personal and social wellbeing are generally the main aims or goals, and creating and experiencing positive emotions in schools contributes to its effectiveness. "Happiness, excitement, satisfaction and enthusiasm foster all of the brain's functions, are able to improve mental faculties as they cause neural connections to multiply. Thus optimism is essential as a spring board for any effort, as optimism leads to effective and creative behaviour." [6].

Currently, however, SEL programmes are being included in much wider schemes of intervention. SEL abilities of students, as well as factors to do with school context (culture and environment) are directly influenced by the emotional and social competence of teachers, as well as their pedagogical skill and knowledge, in addition as the political and community context, and the quality and accuracy of their implementation. Therefore, in order for an SEL programme to be effective, all of these factors need to be borne in mind when planning [2].

BAPNE is a method of cognitive, socioemotional, psychomotor and rehabilitative stimulation, based on the framework of Howard Gardner's multiple intelligences. It focusses on the development of each and every one of these potential intelligences or skills through teaching body percussion, movement and song, within a group, led by a teacher, and is inclusive and driven by participation.

II. CURRENT STATE OF THE FIELD

This investigation sets out how, by using the BAPNE Method – which has at its core movement and body percussion combined with speaking, time and song – an SEL programme can be designed. In its broadest sense, it will develop emotional, social and cognitive skills whilst also improving school environment.

Various different disciplines are involved in the BAPNE Method: Biomechanics, Anthropology, Psychology, Neurology and Ethnomusicology. These disciplines provide the basis of the theory and the activities designed for various different fields (education, learning difficulties, rehabilitation, cognitive deficit, etc.) and are used for cognitive, socioemotional and psychomotor stimulation, and also for rehabilitation for neurological trauma of various types, such as ictus.

We have carried out exhaustive research using online archives such as JSTOR, ERIC, RILM and DIALNET and looked at publications in the field of SEL. We have searched for the possible existence of SEL programmes focussed on movement, dance and music, and even body percussion. We have found investigations in the field of education which, although they suggest and support the value of musical education and movement for the all-round development of the individual, and link it to the development of other skills, do not set out an SEL programme, which is what this investigation intends to do. All these pieces of research agree that music (both listening to it and learning it) has academic, emotional, cognitive and social effects, and some results are significant [7]-[8]-[9]-[10]-[11]-[12]. These researches either set out non-musical abilities which can be reinforced in music classes – e.g. strategies to direct a class, rules, how to deal with classwork, support the achievement of others, to know how to control impulses, etc. – moving towards the possibility of designing strategies for the instruction of non-musical skills which would improve not just music results but also other results. They detail how the music classroom has unique characteristics which make it useful for the practice of socioemotional skills as non-musical skills [13]-[14]-[15].

However, we have not found studies which use movement to develop a programme of sequenced activities designed for SEL.

Nor have we found investigations into dance which set out an SEL programme.

Nor have we found an investigation which sets out and structures a programme on the back of musical activities with explicit objectives to develop SEL.

Finally, not have we found research which uses body percussion to develop a programme of sequenced activities designed for SEL.

Therefore, given the context, we can conclude that there has not been, until now, published research which sets out an SEL programme which has at its core movement and body percussion combined with speaking, time, and song where a series of sequenced activities lead towards and are linked to the basic abilities that need to be developed in an SEL programme.

Our hypothesis is that it is possible to design activities whose core focus is the aforementioned components and to combine them with developing SEL skills, so as to be able to consolidate socioemotional and cognitive skills through continued consistent work. We also hypothesise that this programme can be used within an intervention framework in a school, thus generating a social and emotional climate in the classroom, and the school in general, which is appropriate for the all-round development of pupils in all areas of learning.

III. METHOD

For this research, we have looked over all the components which together form a well-designed SEL programme, and we have linked them to the components of the BAPNE method. In this way, we explain how the activities based on the BAPNE method can lead to the development of SEL skills.

We are first going to focus on the skills that pupils need to develop:

A. *Socioemotional skills*

For Gardner, socioemotional intelligence forms part of personal intelligence, where intrapersonal and interpersonal intelligence come together, given that it forms what he calls “the sense of self”, the balance that each individual has to find between the impulse of “internal feelings” and the pressures of “other people”. It is best to see this “sense” as an amalgam, due to the overwhelming differences between senses of self in different parts of the world in different cultures. This form of personal intelligence, just like the other intelligences, is used to process information, looking both inwardly and outwardly. All children, from birth, have these skills. And, like all forms of intelligence, it needs to be learnt. This means that a child, supposedly, does not have to tackle the disorganised elemental distinction alone, but is offered by his or her culture a code and means of interpretation, so that he or she can determine the meaning of a range of all the experiences that he or she, and other members of the community, could come across. And, like in other intelligences, sometimes, one can fail in terms of the

results and/or aims; as Gardner stresses “knowing what” does not always reliably turn into “knowing how” [16].

Personal intelligence skills we need to develop include the internal aspects of a person (intrapersonal) where we aim to access sentimentality, as well as the ability to experience the full range of affects and emotions, discriminate between them, label them and use them as a way of understanding and guiding our own behaviour [16]. Furthermore, for an effective SEL programme, we will aim to stimulate positive emotional states to improve the feeling of well-being and to contribute to the school environment.

The personal intelligence skills we need to develop that are external (interpersonal) include the ability to notice and establish distinctions between other individuals and, in particular, between their moods, temperaments, motivation and intention [16], and potentially take action based on this knowledge. This skill includes understanding social signals (such as body language and tone of voice) and, therefore, is developed by means of real interaction within social contexts. For an effective SEL programme, we will therefore furthermore use this knowledge also try to interact positively with others, show socially favourable behaviour, and resolve conflict amongst other things.

B. Executive functions

The cognitive regulation skills we need to develop are: maintaining attention and concentration, managing working memory, planning and sequencing, inhibiting impulses when they are not appropriate in the situation, decision making, flexibility to change approach as and when necessary.

Cognitive regulation can be seen as what the philosopher J.A. Marina has called Executive Intelligence [17]. Executive functions are investigated in the field of neurology and psychology, and although the original concept has changed somewhat, in general, it refers to “the control of cognition and the regulation of behaviour by means of different inter-related cognitive processes” [18].

The executive functions are also related to emotions and the body, since from the perspective of Damasio and his hypothesis of the “somatic marker” [19]. For a more useful approach to the study of the executive functions, it is essential to bear in mind that there is a very close relationship between reason and emotion. The term “somatic marker” can be understood as a bodily change which reflects an emotional change, be one that is positive or negative, which is caused by a representation. It serves not just as a marker of the importance of what it represents, but also as a way of heightening continual attention and functional memory, in such a way that these events are “energised”. Damasio thus suggests that somatic markers which operate in the bioregulatory and social areas, aligned with the ventromedial sector of the prefrontal cortex influence attention and working memory within the dorsolateral sector, one which depends on other areas of knowledge, and also influences attention and working memory within the bioregulatory area itself, heightening attention and memory throughout the cognitive system [19].

C. Knowledge of the body, the use of the body as a means of understanding, communication and understanding

For Gardner, there has recently been a radical separation in our cultural tradition between activities involving reason, on the one hand, and on the other, activities which are on the physical side of our nature, and which are processed by our bodies. This separation between the “mental” and the “physical” has been associated on many an occasion with the idea that what we do with our bodies is in some way or another less valuable, or less special, than the routines of problem solving which are carried out mainly through language, logic or another symbolic, perhaps somewhat abstract, system. When, in fact, this marked distinction between the “reflexive” and the “active” does not exist in many other cultures. What is more, it has been shown that there is a close link between the use of the body and the use of other cognitive abilities [16].

Therefore, just like many abilities, those involved in perception, comprehension, emotional self-regulation and cognitive self-regulation pass through the body and bodily awareness, this skill will be developed in different ways. The vestibular and proprioceptive system will be developed, as well as coordination, agility, laterality, balance, alongside the mechanisms which are involved in psychophysiological self-regulation, such as breathing, relaxation and the awareness of the synchrony of the body with emotion and thought.

“Neurobiology shows the association between thought, emotion and the body, and how they are interconnected by means of biochemical and neural circuits in such a way that what happens in one aspect affects the others. Our feelings are shown on our organism, and are perceived by means of how we view bodily change. Education can have an effect on our feelings by changing these views, with specific action on the body. By changing the attitude towards the body, one can change the state of the mind without there being any other reason than self-will (by means of careful breathing, relaxation and visualisation). Thus, bodily awareness can be seen as one of the human aspects that we need to foster in schools. The practice of these resources improves concentration.” [6].

Secondly, we are going to focus in the activities:

BAPNE contributes to the development of the aforementioned abilities through its activities, which lead to visible results and potentially consolidate habits of socioemotional and cognitive function, depending on how long the intervention is and how well it is delivered.

As an intervention strategy for SEL and improving school environment, we are going to focus on these skills, despite the fact that BAPNE stimulates abilities in all of the intelligences described by Gardner, as it activates all the brain lobes and association areas possible.

Through use of the activities set out, BAPNE stimulates and encourages us to think or organise in the pre-conceptual phases in these areas: musical, linguistic, mathematic, spatial, and the organisation and planning of bodily movement through a means of ‘living’ learning which will stimulate emotion and sociability through

interactive group work through song, movement, body percussion and games and rapport activities. Understanding emotions involves making contact with them i.e. understanding of emotional experience, in such a way that regulation of emotions starts with their perception and observation of their internal changes, in the individual, and externally, in an interpersonal context [20].

These activities will normally generate positive emotional states and flux. “The characteristics of flux are intense and unfaltering concentration, flexibility to quickly react in the face of new problems, achievement to the maximum of our ability, a sense of pleasure, of great happiness, all coming from the task at hand. It is an area where maximum performance is achieved, and is defined as a state of neural harmony where different areas of the brain are in synchrony and collaborate. It has also been considered a state of maximum cognitive efficiency. One way of entering into this state is to regularly practise methods of improving attention and concentration, as well as physiological relaxation, and to use these methods them as often as possible.” [3].

Through reflecting on the activities carried out, we can become aware of the emotions experienced and the mechanisms involved in the production of different feelings and emotional states, as well as the components of non-verbal communication expressed through body language. The conceptual approach is based on neuroscientific awareness of the structure and functionality of the brain, on its psychobiological function (in terms of neuromodulators such as oxytocin or cortisol, dopamine, serotonin etc.) and their effects on behaviour (stress, well-being, social behaviour, cohesion, etc.). This part is very important in order to develop of an understanding of what will be a locus of internal control. It will guide us towards self-regulation itself, which can be improved through work with the body focussed on breathing, relaxation and stretching. This work with the body is a key tool to calm us down, which encourages thought, behaviour and learning.

Through reflecting and conceptualization, in terms of the social aspect, it will promote attention and interest for others, empathy.

Movement and body percussion are at the core of the BAPNE method [21], as the method focusses on rhythm experienced through movement and body percussion in a systematic way [22]. Group work is inclusive and encourages integration: by interaction, and everyone working with everyone, we create a group environment and a community with no hierarchy. Values such as tolerance, respect and responsibility can be transmitted. The ethnomusicological approach also plays a key role, as in BAPNE, body percussion is used to show how the body is moved in each different culture and show us that the meaning of it, the sounds made, and the way group work is carried out are very different in each culture, as each culture has a very different identity. BAPNE studies each culture carefully to understand how each rhythm can be brought to the classroom effectively. Teaching resources are used which are attractive to pupils for different reasons, and which focus on the ability to use movement

to communicate with others as a form of language using body percussion [23]-[24]-[25]. This ethnomusicological aspect, within schools, is a space to come across others. Given the increasing cultural diversity within schools, it stimulates interest in meeting and coming closer to other forms of expression and experiencing them through activities. This can represent a very powerful way in which to include pupils from ethnic minorities, and less well-off pupils, as it encourages their integration and a feeling of belonging. It can also contribute towards their psychological adjustment to improve their academic skills. This combats what tends to happen, the “ability paradox”: due to a lack of cultural integration, these types of pupils show high levels of ability in solving problems related to their day to day life, but have low academic achievement [26].

In the same way, BAPNE also focusses on speaking, the voice and singing as a group. There is a wealth of literature about the benefits of music in general, and particularly of song. Additionally, there is an increasing amount of scientific evidence as to its effects on various aspects: from how it improves concentration and memory, to how it reinforces and offsets the activity of the parasympathetic nerves. The benefits are, however, not just psychophysiological, but also social. It has been shown that music is involved in a decrease in the levels of cortisol and an increase in oxytocin, which leads to increased confidence and team spirit, which contributes to better group relations [27].

BAPNE leads to these positive feelings, which in a school contributes to a social atmosphere, both through conscious and subconscious mechanisms. This could be, for example, rapport or the physiology of mutual understanding, a state which is characterised by three main components: full attention, non-verbal synchrony, and positivity [3]. Or, it could be done, by the layout of groups in space in rows or circles [28], as this encourages well-being, communication and learning. “It is essential to bear in mind that multisensory emotional integration is an automatic and subconscious process that is highly important in emotional processing. According to the hypothesis of facial feedback, people can be influenced by, and in turn can influence, the generation of emotional states. The existence of the two forms of perception means that we must consider that even if we are not aware of the processing taking place using one form, it does not mean that we cannot respond according to the information being subconsciously processed.” [20]. Then, “the hypothesis that states that it is possible to consciously influence subconscious mechanisms is an essential assumption for any training, education, self-help or psychotherapy programme.” [17].

The activities involved here include the memorisation of movement, establishing a beat, understanding and performing a rhythm which is hit or spoken out loud. These activities are combined with speaking, time, and singing and do not last more than three minutes. Participants follow the trainer’s instructions, as they are shown the activity they will perform in a sequenced way. In this way, they have to activate listening to others and

also follow instructions visually, firstly looking at the motor coordination, rhythmic and vocal patterns, before moving on to imitating and performing them, before finally carrying them out in a group and paying attention to possible changes in the activity (singing/silence/moving to the right/moving to the left, etc.) which the trainer will demand as and when.

With these activities, BAPNE works towards preparing us for the correct mental state for learning (where receptiveness, a feeling of competence and the locus of internal control are essential). This is because it increases and encourages the executive functions of:

- 1) Attention: focussed, sustained, divided, selective and alternating.
- 2) Working memory.
- 3) Planning and organization.
- 4) Inhibition of impulses.
- 5) Decision making.
- 6) Flexibility. BAPNE works constantly on divided attention or multitasking, which implies “the ability to move from one task to another, before then going back to the other (i.e. task-switching).” [29].

Finally, the work with the body that is carried out during these activities will contribute to increasing awareness of the body in terms of its different biomechanical planes and its relation with shape and how it interacts with others. It will improve coordination, balance, laterality, and both fine and gross motor skills. Considering the body will improve breathing, will promote relaxation, and all together will improve a feeling of psychophysical wellbeing.

All of the components explained above will contribute towards the creation of a school environment that is beneficial for the wellbeing and learning of pupils. This is because it is important to bear in mind that using BAPNE, relationships of different types are built, and are created depending on closely-linked components, such as the use of space in the classroom and the way the movement activity is designed: “Body percussion leads to kinaesthetic learning in which the body is made to move around in space. Therefore, it is made to move to spaces where the pupils or teachers would not autonomously and individually go, and to establish new social relationships between classmates and teachers. The result is a realisation of how moods can alter depending on the spatial distribution required (standing in a circle, standing in concentric circles, standing opposite a mirror, standing in groups of four, standing in two teams facing each other, sat in groups of four, sat in a circle, sat in a U shape). In circular layouts, all of the participants are protected, and the idea that error is part of learning is put across. Visual empathy, inclusive teaching and collaboration rather than competition are also fostered. This is contrast to layouts that involve mirror imaging, where the body-language tends to show latent tension and a hierarchy with the teacher who is standing opposite.” [28].

IV. RESULTS

Having analysed all the components of the BAPNE

method in relation to SEL, we can see that it is an ideal framework for SEL as it works on this form of learning in an active way, using experience. It creates a positive experience in the classroom, generates psychophysical wellbeing and contributes to a positive school environment.

The method’s ability to lead participants to connect with themselves and others, to arouse emotions, means that it is an ideal way to learn in terms of personal intelligence (both intra- and interpersonal intelligence). We can see that the method will motivate participants through practice, reflection, the conceptualisation of observing oneself, autoregulation and empathy and sociability.

On the other hand, we can also see that the BAPNE method works with activities that are designed specifically for SEL, with specific sessions to work on this type of learning. This stimulation has an effect on all of those executive functions which are so important for effective learning, both in the academic as well as the personal and social spheres. We stress in particular its contribution to working on skills using movement, body percussion and song, which have wide-ranging impacts on the body due to the unbreakable link between emotional and cognitive components and corporal components.

V. DISCUSSION

In order to carry out complete work on developing these skills, specific aims will be necessary to determine what students need to learn in the field of personal intelligence. It is thus necessary to develop specific activities to put into practice (role plays, help with self-regulation, etc) and to make the most of the daily situations in the classroom or in the wider school (in the playground or the canteen, etc.) In this way, a more specific type of learning can be determined, one that is essential for SEL, that works on: awareness of oneself, empathy, decision making, organisation, conflict resolution, etc. We suggest that once these aims have been set out and sequenced into levels, they can be included as specific learning objectives to work on in different subjects. This could include: bodily expression (acting, active roles of learning, body language, mime), language and communication (stories, reading, practising writing), music (songs, listening and analysing pieces), arts (drawing, performing plays) etc.

On the other hand, the work on awareness of the body could be developed more widely using more specific training exercises (stemming from other techniques), because of the benefits of the feelings of well-being and the development of attention (as in the case of mindfulness, for example) and these activities could easily be included in the activities which have already been designed.

It is important to view socioemotional learning in schools as another form of intelligence that children and young people have a right to learn. It is thus important to design curriculums where SEL is imparted explicitly and also included in other subjects, therefore leading to deep and continued delivery. The implications of this line of thinking are very important. Our complex sociocultural

systems are increasingly unstable in all senses (due to the movement of people, migration, changing work environments, the pace of technological change, etc), and this affects children and young people more and more. Thus they require highly-developed personal intelligence in order to adapt and deal with home and work-life events in the short and long term. So, we stress the community and political responsibilities which drive change in schools, and which lead towards all-round and inclusive education.

BAPNE offers preparation and support to teacher sand to schools. Preparation for teachers is essential for a programme's quality and efficiency, because it is difficult for adults teaching students to build skills if they themselves do not have them [2]. And it is essential that this form of learning extends to contexts outside the school, such as the family and the community. This will involve designing an entire intervention strategy, planning possible information meetings, training meetings, and coordinating class work with these groups in order to practise these skills in real-life contexts.

Finally, it is essential, in order to promote the method's implementation, to be aware of the empirical results which support its use, and we thus suggest carrying out research to observe the suggested usefulness of BAPNE for SEL in the following areas: personal and social wellbeing of teachers (emotional stress, socioemotional skills, cooperative work); psychophysical wellbeing of student (anxiety, emotional stress, emotional skills, motivation, truancy); social wellbeing of students (isolation, empathy, fostering the sociocultural integration; disruptive behaviour, cooperative work, etc.); academic achievement; executive functions; body awareness (posture, movement, control, etc.); emotional environment in the classroom.

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