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Listening with All the Senses. Multisensory Perception in Interdisciplinary Artistic Education

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Introduction

Our role as artist-educators often invites us to explore our world through the interaction of different artistic languages. Curiosity and inquiring artistic practice provide us with inspiration for the development of our educational work. It was in this field of investigation that the online course *Active Music Listening for Music Educators* was born in 2022 together with Soili Perkiö, Elisa Seppänen, and Polo Vallejo, which is now planning its third edition.

It is appropriate to note that this article is not based on scientific research but rather on the author's collection of pedagogical experiences and possibilities, using an artistic approach to the didactics of music that can be intended for a wide variety of audiences and which are congruent with the pedagogical principles of the Orff-Schulwerk.

Therefore, the aim of this article is to share some of the ideas and reflections about how we can cultivate the artistic imagination of students from the ideas of *synaesthesia* and *abstraction*. Paths will then be proposed towards poetic creation, dance improvisation, active music listening, performative creation and also the integration of digital skills, some of them based on the characteristics of the inspirational work of artists, and always with a clear educational approach.

Wolfgang Köhler's psychological test will be connected with Wassily Kandinsky's colours and shapes, Richard Wagner's leitmotifs, or Rudolf Laban's eight efforts, links that will act as a trigger for developing specific pedagogical applications that pursue a playful sensory involvement of the students. It is the hope of this author that this document can inspire the development of new didactic proposals and broader pedagogical reflections about interdisciplinary artistic education.

The starting point. The Kiki Boubá Effect.

I propose to the reader to answer this question: Of these two forms, which one do you think is called *Boubá* and which one *Kiki* (Figure 1)?

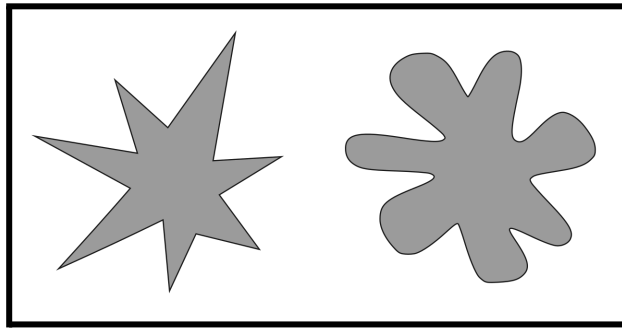


Figure 1: Test used to demonstrate the Kiki Bouba Effect.

Andrew Dunn, <https://commons.wikimedia.org/w/index.php?curid=19653163>

The *Kiki Bouba Effect* has its origin in psychological studies carried out by Dimitri Uznadzne (1924) and Wolfgang Köhler (1929). In these studies, which were carried out with people with diverse cultures and languages, the participants were asked to associate words with shapes. Later, these studies were repeated by V. S. Ramachandran and Edward Hubbard, who in 2001 quantified that between 95% and 98% of those surveyed (two groups of participants from the US and Tamil Nadu in India) associated *kiki* with the jagged form and *bouba* with the curvy form. The discovery of this phenomenon allowed them to affirm that there exist connections between language and shape, and that these connections influence the development of the language itself, i.e., *each word has an inner form* and that the name that we give to things is not arbitrary.

Words and shapes

With the aim of expanding and enriching the experience generated by the *Kiki Bouba effect* with examples, I created a whiteboard and shared it with students from different countries around the world, in order to collect and configure a *dictionary* of *Kiki words* and *Bouba words* in a great diversity of languages (Table 1). This *World Synaesthetic Dictionary* was developed as a collaborative board where participants could introduce words from their own language that are more "Kiki" or more "Bouba", focusing on the connection of the word with the shape of the object or concept (Figure 2).

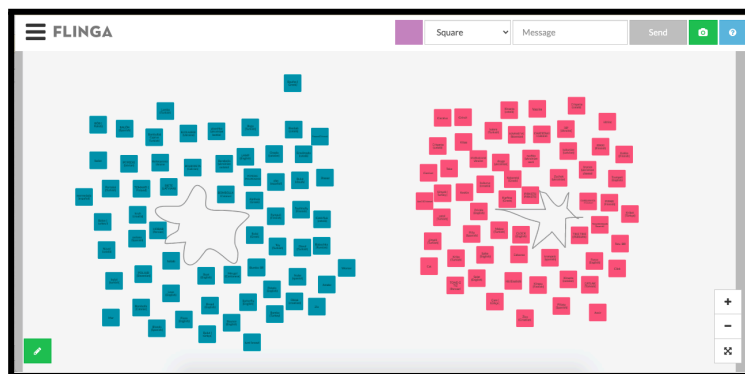


Figure 2: The World Synaesthetic Dictionary (Xavi M. Rocamora)

<https://flinga.fi/s/F9Z38J9>

Bouba words		Kiki words	
Balón (Spanish)	Lamp (English)	Brynza (Ukrainian)	Pipari (Finnish)
Bambulla (Cyprus Turkish)	Mermelada (Spanish)	Çam (Turkish)	Pirksts (Latvian)
Barabolia (Ukrainian)	Mm goi (Cantonese)	Carquinyoli (Catalan)	Prickle (English)
Biete (Latvian)	Núvol (Catalan)	Chatrtaki (Greek)	Ruchka (Ukrainian)
Bolboreta (Galician)	Plyashka (Ukrainian)	Clock (English)	Şimşek (Turkish)
Bomba (Turkish)	Poljub (Slovenian)	Dzyga (Ukrainian)	Sovraštvo (Slovenian)
Bombolla (Catalan)	Portakal (Turkish)	Kalem (Turkish)	Tatu (Portuguese)
Boukala (Greek)	Pumpuli (Finnish)	Kukka (Finnish)	Tike Tike (Persian)
Bubble (English)	PŪPĒDIS (Latvian)	Kukuruz (Croatian)	Tiquismiquis (Spanish)
Bumbo (Portuguese)	Roloi (Greek)	Kukurúza (Latvian)	Tond O Tiz (Persian)
Hobab (Persian)	Tomaati (Finnish)	Piña (Spanish)	Xinxeta (Catalan)
Kruh (Croatian)			

Table 1: Some of the participants' contributions (Rocamora, 2024).

Adding colour

Although the original *Kiki-Bouba* test did not include colours and only focused on the shape-language association, I considered it interesting to expand the exercise in this direction. It is revealing to point out Wassily Kandinsky's thoughts regarding the relationship between form and colour, summarised in a wonderful way in the book *On the Spiritual in Art* (1912):

The value of certain colours is emphasised by certain forms and dulled by others. In any event, sharp colours sound stronger in sharp forms (for example, yellow in a triangle). Those inclined to be deep are intensified by round forms (for example blue in a circle). (Kandinsky, 1912, p. 42)

Kandinsky also used some questionnaires in 1923 to demonstrate his ideas during his time as a professor at the *Bauhaus*², asking to associate a colour with each of these three shapes: triangle, circle, and square. Although he did not end up concluding anything with his questionnaires, Kandinsky defended a clear association of the triangle with yellow, the circle with blue and the square with red (Figure 3). Do you agree?

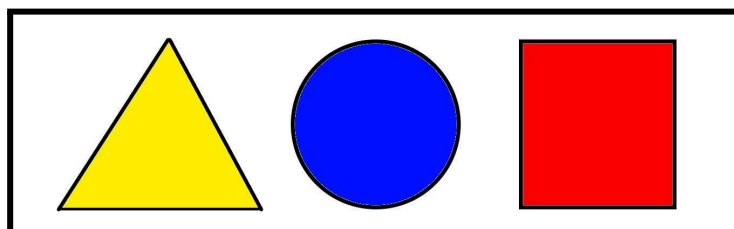


Figure 3. Kandinsky's colour and shape associations.

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² The *Staatliches Bauhaus*, commonly known as the *Bauhaus* (German for 'building house'), was a German art school operational from 1919 to 1933 that combined crafts and the fine arts.

And what about when we ask openly what colours people think *Kiki* and *Bouba* are? Most people will associate *Kiki* with a warm colour (yellow, orange, red) and *Bouba* with a cold colour (blue, purple, green). If the options are reduced to "red" and "blue", the overwhelming majority gives a matching answer. *Bouba* is blue and *Kiki* is red!

Adding music

On the Spiritual in Art also develops Kandinsky's theory about the relationship between painting and music. He explains his revealing experience when he attended the performance of Richard Wagner's opera *Lohengrin* in Moscow in 1896. While listening to the music, he started to see colours and images, and that experience would lead him to define the colours directly related to the timbres of the orchestra.

Kandinsky describes the colours in a very interdisciplinary way:

Red [...] creates a strong note of almost tenacious immense power. In music, it sounds like a trumpet accompanied by the tuba, a persistent imposing, strong tone. (p. 69)

In music, light blue is like a flute, dark blue like a cello, and when still darker, it becomes a wonderful double bass. The deepest and most serene form of blue may be compared to the deep notes of an organ. (p.65)

To bring together Kandinsky's interdisciplinary approach with the composer who awakened his synaesthetic experience, Richard Wagner, we could listen to one of his most famous operas: *Tannhäuser*. In its outstanding *Overture* we can find beautiful examples of rich dialogues of timbres and leitmotifs. I suggest listening actively with your students to try to identify the *Bouba* or *Kiki* passages.

From my point of view, the strings start proposing a deeply expressive *Bouba*-style legato motif (Figure 4). Later, the appearance of brass instruments generates a spectacular *Kiki* explosion, while the strings switch to a jumpy style (Figure 5). Afterwards, both motives appear in a call-and-response form.



Figure 4: Transcription of Bouba strings' motif (Rocamora)

Figure 5: Transcription of Kiki strings' motif (Rocamora)

Synaesthesia

Kandinsky and Wagner were considered synaesthetic artists, as they had the capacity to receive a given stimulus through sensory multi perception. While Kandinsky claimed to see colours in the music, Wagner also assumed that each section of the orchestra corresponded to a specific colour range.

Synaesthesia is a perceptual phenomenon in which stimulation of one sensory or cognitive pathway leads to involuntary experiences in a second sensory or cognitive pathway. For instance, people with synaesthesia may experience colours when listening to music, see shapes when smelling certain scents, or perceive tastes when looking at words... Because it is a rare neurological feature, most people are not synaesthetes. However, some studies show that a large proportion of people with this characteristic are artists or art students (Domino, 1989; Mulvenna, 2007; Rothen & Meyer, 2010).

It is not my intention to rigorously study the characteristics of synaesthesia, but to be inspired by the idea of multisensory perception in order to try to provoke 'experiences close to synaesthesia'. These experiences should be understood as putting ourselves in the shoes of synaesthetes and trying to predispose our senses to generate new connections through artistic and embodied imagination.

At this point we can summarise from the contributions of these artists and psychologists that "every word includes a certain idea of shape", that "every form fits essentially with a colour", and that "every colour suggests an internal sound, or vice versa".

And it goes without saying that if there is one thing we Orff-Schulwerk music educators know, it is that all of them (words, shapes, colours, and sounds) have an inner **movement**.

Adding movement

It does not take much effort to link movement to the fields that have appeared above. The fundamental unity of spoken word, music, and movement of the Schulwerk principles is extended here to integrate the ideas of colour and form, which in turn have always been part of it. Thus, the connection between all these aspects is not generated in a linear but in an interconnected way, where the crossings are multiple and multi-directional (Figure 6).

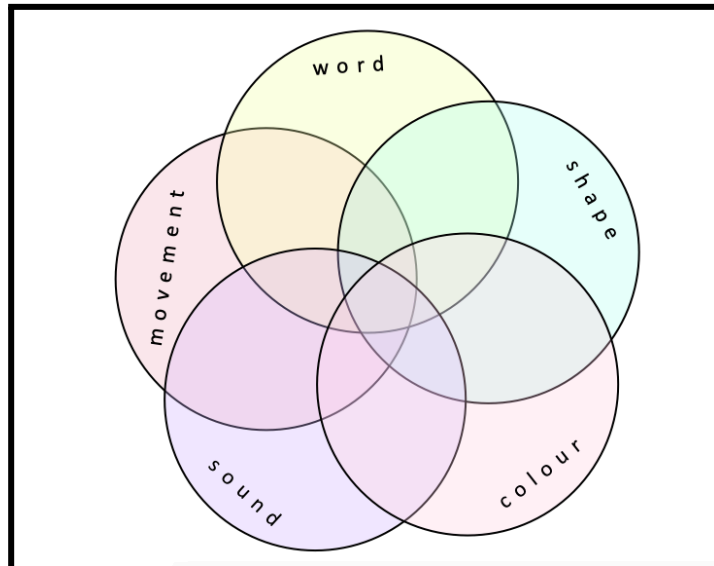


Figure 6: Interconnections between word, shape, colour, sound, and movement (Rocamora)

It is almost an obligation to refer to a personality who made some of the most relevant contributions to the world of Educational Dance: Rudolf von Laban. I will focus on his idea of the eight efforts listed below with the intention of linking them with Kiki or Bouba. If we pay attention to the nature of each of these eight efforts and experience them with our body in a free way, we can easily associate them to a *kiki*-style or a *bouba*-style movement (Table 2).

Efforts	Character
Punch (heavy weight, fast time and direct space)	Kiki
Press (heavy weight, slow time, direct space)	Bouba
Glide (light weight, slow time, direct space)	Bouba
Float (light weight, slow time, indirect space)	Bouba
Wring (heavy weight, slow time, indirect space)	Bouba
Flick (light weight, fast time, indirect space)	Kiki
Dab (light weight, fast time, direct space)	Kiki
Slash (heavy weight, fast time, indirect space)	Kiki

Table 2: Classification of Laban’s eight efforts related to the Kiki or Bouba concepts.

It is especially interesting to observe how the use of the "characters" Kiki and Bouba to explore the connections between disciplines generate a great breadth that, despite being less concrete, is much richer when it comes to generating creative proposals or improvisation. We can, from this perspective, assign tasks such as "create a Kiki melody", "improvise with your body with Bouba" or "generate a performance that begins with Bouba and ends with Kiki", thus opening the possibility of taking into account aspects such as colour, light, material, or texture in a more holistic way. The "synaesthetic approach" distances us from rational conceptualisation, and invites us to perceive the environment and make creative decisions in a much more sensory and intuitive way.

In this sense it is revealing to realise how undoubtedly *Kiki* the Joffrey Ballet is in Stravinsky's *Rite of Spring*, or how *Bouba* Natalia Osipova is performing in Camille Saint-Saëns's *The Swan*.

Going further

The trip that the *Kiki and Bouba Effect* offers us can go, of course, much further. Concepts of different kinds can emerge, suggesting new possibilities of connection, e.g., flavours, smells, emotions, nature elements, and even human personalities.

One of the ways in which I applied this work was in an *emotional* dimension. After asking *Which figure do you identify with the most?*, several students responded that depending on the moment, they feel more like Kiki or more like Bouba. Together we came to the conclusion that all human beings have part of Kiki and part of Bouba, and that sometimes the difficult thing is to identify and control them. The balance of these two physical-emotional energies is a key purpose for our personal growth and wellbeing, which is why we can look for tools that help us to find it.

Another process to integrate new technologies was done with 3rd grade students. We began by representing our Kiki and Bouba part with our body and captured it in a photograph (Figure 7).



Figure 7: Neus, 9 years old, representing her Bouba and Kiki shapes.
Photo by Rocamora.

Afterwards, we got some *Kiki and Bouba glasses* (Figure 8) with which we could explore our images in a magical and stimulating way. Using an image edition software, we created the anaglyph of the student's images and the separated layers in colours Blue/Green and Red. In the end, we were able to observe the colour codifying effects as well as 3D effects (Figure 9).

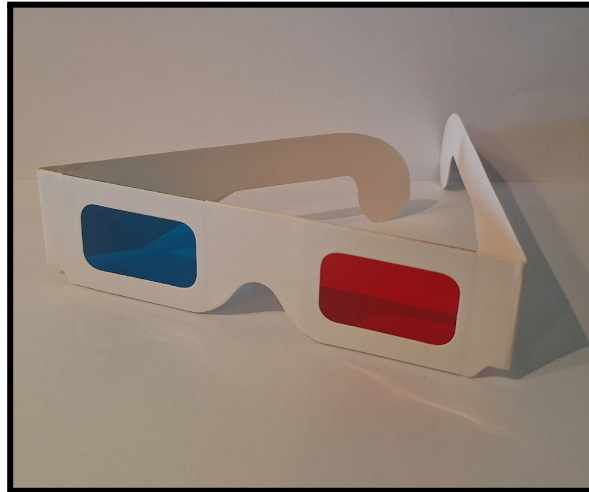


Figure 8: 3D glasses. Photo by Rocamora



Figure 9: Anaglyph of Neus' *Kiki* shape.
Photo by Rocamora

Observing these images with the glasses generates volume and movement, and a new starting point for exploring didactic paths involving the visual arts.

Conclusions

Of course, perception is a subjective matter and not all readers will agree with the associations presented here. My aim is not to conceptually enclose but to open windows of imagination, so this reading should be taken as an example from which one can extract ideas or concepts and adapt them according to one's preferences.

The *Kiki Bouba effect* has undoubtedly inspired me in many ways. I have made an artistic and pedagogical journey that still continues to evolve today with new connecting ideas. Somehow, I know that after *meeting them* I won't be able to see the world the same way I did before. From my point of view, this transformation of the gaze is precisely what art means for humanity. Being able to transcend literal forms of cognition to perceive, understand, and express the reality that surrounds us, by using codes and languages that are rich, diverse, flexible and emotional is the learning that many of us want to provide to our music and movement students.

These two apparently simple shapes are good examples of what can inspire us for sensory and creative work through the arts. Once they become characters that we can animate, embody, imagine, dramatise, and represent in multiple ways, they give us a unique opportunity to stimulate our minds and go deep into experience and reflection. Possible new activities that can come out of this seem endless and can stimulate the development of a wide range of competences. Doing this in a sensitive and creative way is in our hands!

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Wagner *Tannhäuser Overture* Karajan <https://www.youtube.com/watch?v=o-NI4WixVUg>

Rite of Spring - Joffrey Ballet 1987 <https://www.youtube.com/watch?v=jo4sf2wT0wU>

The Dying Swan – Natalia Osipova (The Royal Ballet)

<https://www.youtube.com/watch?v=kJ4uowripdw>

Anaglyph 3D Photo Effect - Photoshop Tutorial <https://www.youtube.com/watch?v=1xIz34PyQnc>



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