Theory in Practice

Analysing Music Theory

–

research report

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Introduction

Most conservatoire students would agree that music theory is a valuable element in their professional music education. However, in many conservatoires worldwide, both students and faculty alike often feel a long-lived desire to better align music theory subjects to the world of the instrumental and vocal students.

In 2012, the music theory curriculum for bachelor students in classical music was radically changed in our conservatoire in order to achieve just that. The changes were supported by experiences from within the theory department, discussions with students, and the influence of teachers specializing in Kodály-based musicianship training, or improvisation. This paper looks back at these changes to reflect on what happened, at what is still happening, and aims to explain the underlying principles of the new music theory curriculum. In order to do so in a structured way, we felt the need to use an effective model to discuss the content of subjects and lessons concerning the development of musical literacy, within and outside the context of higher music education. Such a model did not seem to exist.

The following questions needed to be answered: which elements should be part of a balanced model to clarify and discuss processes of developing musical literacy? How can these elements be defined and how do they interrelate with each other?

We have divided our project into three parts: 1) literature study, 2) practical examples or working with our model, and 3) a discussion of further possible use of the model.

The literature study, inspired by our own experiences within the conservatoire, focussed on two fields: music pedagogical literature, and literature from the realm of music theory and music theory pedagogy. With our own live-size case study as a starting point, would it be possible to find supporting data in existing literature? Or would we find mostly arguments that would invalidate our ideas?

Given the nature of our project, it was a logical step to include practical examples from the everyday life of the teachers at our department of Music Theory. The exercises that were tried out in classroom situations and were discussed with colleagues from the music theory department

provided useful information to critically challenge the model. In a few examples, we will show practical applications of our model in a classroom situation – as a tool for both teacher and student. Testing and evaluating exercises that were designed with the model in mind has to be continued to gather more information about how connections within the model are being performed and perceived.

Lastly, we will give our thoughts about the ways in which a model such as this could be used by conservatoire management, heads of departments, etc. Here, the model turns into a hopefully useful tool for assessing, evaluating and designing educational programmes and curricula.

Despite the somewhat ambitious targets described above, this paper does not mean to give a final solution for the position of music theory subjects in a music curriculum. It is also not meant to prescribe how or what to teach. Rather, it tries to analyse which connections between elements and aspects in the model are being used and learned.
What it provides is a model that can be used in several ways: as a framework for teachers to develop and evaluate lessons or the content of complete subjects; in communication with students explaining the relevance of certain 'theoretical' activities; by students, to keep track of their own development, and in communication with management and non-theory faculty, to be able to show the place of music theory in the big picture.

Background

In the major shift that took place in 2012, aural skills development has replaced analysis at the centre of music theory education. The compulsory theory subjects changed from Analysis, Harmony and Solfege, to Aural Skills & Analysis, Aural Skills & Improvisation, and Keyboard Skills & Harmony – deliberately putting an emphasis on the development of skills rather than approaching topics from a more theoretical starting point.

A few years into this new curriculum we felt the need to find a more thorough theoretical underpinning for this development. The main aim was to get a better understanding of which processes concerning the development of musical literacy actually take place in a music (theory) lesson.

Musical literacy

The concept of musical literacy or literacies is itself subject of a heated debate. It is beyond the scope of this paper to discuss this at length, but we mean for it to be the development of not only musical reading and writing, but to also include musical 'speaking and hearing' with understanding, as discussed in works by Janet Mills, Gary McPherson, and Philpott (in: The Child as Musician).

According to Gary Karpinksi "an important goal in the development of musical skills is the ability to think *in* music. […] Music listeners who understand what they hear are thinking in music. Music readers who understand and auralize what they read are thinking in music."[1] Edwin Gordon states that "[m]usic literacy involves more than being able to read and write music notation. Just as language literacy includes ability to listen, speak, read and write language with comprehension, music literacy includes ability to listen to and perform music in addition to reading and writing music notation with understanding." For Gordon this combination of skills and understanding is best expressed in his term *audiation*.[2]

Literature

As a starting point for our literature study, we looked at the two fields closest to our project: firstly, music theory, and secondly, (instrumental) music teaching.

The field of music theory covers a broad range of topics and methods. Many of them are musicological in nature, but other take a more practical approach. We zoom in on the literature on *teaching* music theory.

In this specific field of music theory, a useful and recent view comes from Roger Graybill[3]. In the Norton Guide to Teaching Music Theory, he distinguishes between six modalities through which students can deal with music in – in his situation – keyboard harmony lessons. These modalities – hearing, playing, singing, notating, reading, conceptualising – can all inter-relate depending on the nature of a particular lesson or exercise.

[1] Karpinski, G. (2000) *Aural Skills Acquisition, the Development of Listening, Reading, and Performing Skills in College-Level Musicians.* p .4
[2] Gordon, E. (2012) *Learning Sequences in Music.* p. 39.
[3] Graybill, R. (2018) "Activating Aural Imagery through Keyboard Harmony". In: *Norton Guide to Teaching Music Theory*. New York, NY: W.W. Norton & Company.

Graybill states that a typical theory curriculum is a composite of several disciplines, such as writing, analysis, ear training, etc. This diversity is the strength of music theory, as it "train[s] students to understand musical relationships through different modalities"[4]. As Graybill suggests, a good lesson consists of a great number of different connections between these modalities, resulting in a stronger understanding of the subject at hand. The situation in the model below could be said to represent an 'ideal end state of music-theoretical training', in which all modalities are equally developed for a student, and in which all connections are of equal importance[5]. Experience suggests that this is rarely the case. Even after finishing years of music-theoretical training, some connections and modalities might still be more developed than others. However, looking at the development and the specific needs for a (group of) student(s) could prove a useful exercise when designing lessons, subject contents, etc.

These modalities (hearing, playing, singing, reading, notating, and conceptualising) seem to be directly related to the activities that we recognize in regular music theory lessons. This raises the question how these activities are connected, and which musical elements are involved.

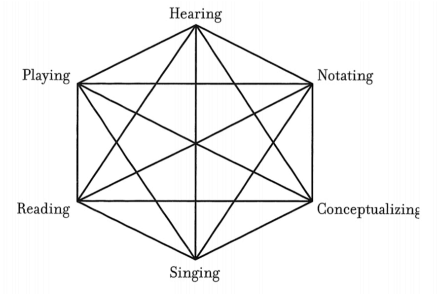

Figure 1. Six Modalities according to Graybill

In the literature from the realm of music pedagogy we find a related concept. Articles and method books on music pedagogy can advocate strong opinions about what should be taught and learned, and in what order. Examples are 'Psychological factors in the teaching of music' by Mainwaring[6], 'From Sound to Sign' by McPherson and Gabrielsson[7], 'De didaktiek van de instrumentale en vocale

[4] *Idem*. p. 188
[5] *Ibid*., p. 189
[6]. *Mainwaring, J. (1951) "Psychological factors in the teaching of music". British journal of educational psychology, vol. 21-3*
[7] McPherson and Gabrielsson in: Parncutt, Richard and McPherson, Gary E. (2002). "From Sound to Sign". In: *The Science and Psychology of Music Performance*. Oxford University Press.

muziekles' (Didactics of the instrumental and vocal music lesson) by De Vree[8], and Gordon's 'Musical Learning Theory'[9]. Many music-teaching philosophies (implicitly) base their approach on these ideas, such as the Kodály concept, the Suzuki method, Curwen or Colourstrings.

De Vree and McPherson (based on prior writings by Mainwaring) offer models looking at approaches to instrumental teaching. These mention three elements (or 'entrances' into music: sound, symbol, and action (instrumental), between which different connections can be made. Already in the 1950s, Mainwaring advocated teaching music 'from sound to symbol, not from symbol to sound', similar to learning a language by first learning to speak, and only later to read it.[10]

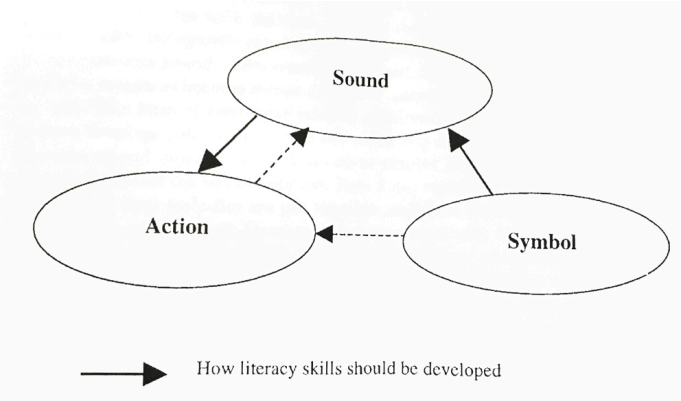

Figure 2. McPherson, G. & Gabrielson. Model of literacy development (adapted from Mainwaring (1951) p. 20)

The diagram above can be read in two ways. The dashed lines represent the way of teaching in which a written source is translated into an action. Sound is the result of this process, but might be a more or less coincidental effect. A better approach, according to Mainwaring's central concept of being able to 'think in sound'[11], would be to follow the continuous lines. In that case, a written source leads to an imagined sound, which is then transferred to an action to make that sound appear. The latter way of working through the student's 'inner hearing' is, as Mainwaring claims, "the most efficient and effective means for developing a young player's overall musicianship"[12]. Again this model could be seen as an ideal end state in which equal relations and connections are described between "[…] three automatically functioning responses, which become inseparable and seem, as in lingual efficiency, to occur synchronously. The visual symbol evokes an image of the sound represented and stimulates the action necessary to produce the sound. The sound can recall the symbol or stimulate

[8] Vree, T. de, (1988) *De didaktiek van de instrumentale en vocale muziekles*. Best: Uitgeverij DAMON.
[9] Gordon, E. (2012) *Learning Sequences in Music.* Chicago: GIA Publications.
[10] McPherson and Gabrielsson (2002), p. 103
[11] *Idem*.
[12] *Idem*.

the action. The action or its image produces, respectively, a known and expected sound or the image of the sound and can recall the symbol."[13]

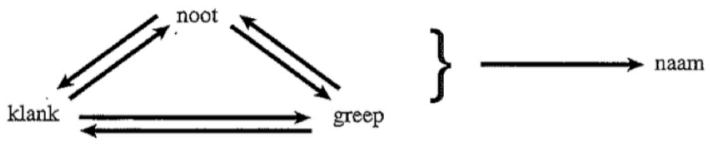

Figure 3. Vree, T. de, (1988) *De didaktiek van de instrumentale en vocale muziekles*. Best: Uitgeverij DAMON

In contrast to McPherson et al., De Vree initially proposes a model with four elements[14]. It is similar to McPherson's model in many ways: *noot* could be translated as 'note' or 'symbol', *klank* means 'sound', and *greep* can be seen as the instrumental execution or 'action'. The most notable difference is the fourth element: 'Name' is added in an equal position to the other three elements. He, however, dismisses this four-element model quickly, stating that 'name' contains no aural information and only functions as a means to talk about the other three elements: "Knowing the name says nothing about how a note sounds or how it should be played and thus has no significant meaning in the process of translating notes in sound"[15]. This may have been true according to his view on instrumental teaching, but in a present day conservatoire environment, 'talking about' or 'conceptualising' musical phenomena is an essential way 'into' music.

Contrary to De Vree's ideas about instrumental teaching, already in 1915 Edwin Hughes writes in The Musical Quarterly: "Piano music may be memorized in three ways: by ear, by visual memory, either of the notes printed on the printed page or the notes on the keyboard, and by finger memory or reflex action. On one or both of the first two ways are dependent the very useful and important methods of learning the harmonic and formal structure of the composition to be memorized and of being able to say the notes, or at least to bring up a very distinct mental picture of them."[16]

This is in line with for instance the views of Kodály – name (e.g. a relative note name) tells you something about function, and thus can be an 'active' musical element. In the introduction to his book about the analysis of the music of Verdi and Wagner Ernö Lendvai describes what the use of relative solmisation names means to him: "[…] it coincides with 'live experience: its codes are directly

[13] Mainwaring, J. (1951); p. 201
[14] Vree, T. de, (1988); p. 65
[15] *Idem*. (author's translation; 2020)

[16] Hughes, E. (1915) "Musical Memory in Piano Playing and Piano Study". *The Musical Quarterly, Vol. 1, nr.4*, p.597.

perceptible […]"[17]. And more than 100 years earlier John Curwen writes about 'the importance of correct names' by stating that "[…] equally important is it the moment a thing is apprehended by the pupils to label it with a distinct name. […] Single words and certain constant conventional combinations of them are the tools of thought."[18]

Therefore, we propose to use a model similar to the initial model of De Vree.

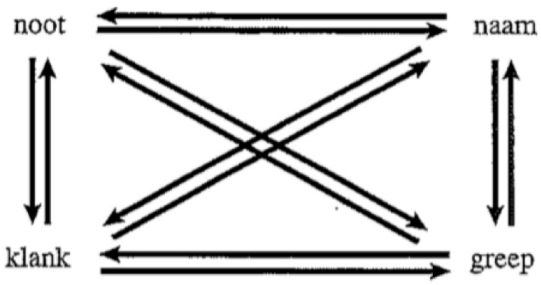

Figure 4. Vree, T. de, (1988) *De didaktiek van de instrumentale en vocale muziekles*. Best: Uitgeverij DAMON

This step is confirmed if we combine the two views described above. The four structural elements from the initial model of De Vree are nouns – the six modalities of Graybill are verbs. Could it be that they are actually two sides of the same coin? In other words, are the modalities the connections between the four structural elements, and vice versa?

Combining the two models gives the following result:

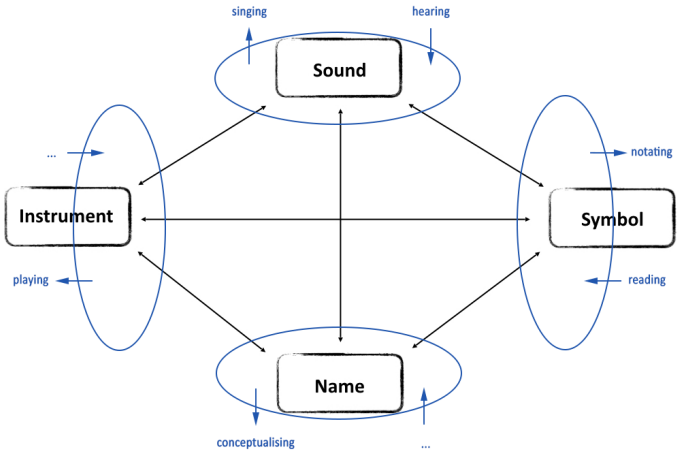

Figure 5. The model based on De Vree and McPherson combined with the modalities of Graybill.

[17] Lendvai, E. (1988) *Verdi and Wagner*. p.11
[18] Curwen, J. (1875) *The Teacher's Manual of the Tonic Sol-Fa Method.* p.15

Taking the four elements derived from De Vree's model as a starting point, we add the modalities to this basic layout. We can directly link each modality to an element. For instance, reading and notating are both directly connected to the element 'symbol'. One (reading) could be seen as having 'symbol' as the origin, the other (notating) has 'symbol' as an outcome. This is indicated by the two arrows going in (reading) and out (notating). The same can be said about the element 'sound'. Two modalities, hearing and singing, take place in this area of the model. In this case, hearing has a source in 'sound', while singing produces 'sound' as a result.

The two other elements have only one modality connected to it. Conceptualising is the modality that takes place in the area of the element 'name', and could be described as 'naming something'. In this case, 'name' is the output of a process. Playing is closely connected to the element 'instrument'. In this case, the playing describes an instrumental outcome of the process preceding it.

Both elements lack an 'inward' modality treating the element as a source of information. A possibly missing 'inward' modality could be 'interpreting' in the case of 'name', and 'associating' as a modality involving the element 'instrument'. The former can be seen in light of for example relative solmisation. In that case, the name directly gives a musician information about the next steps to be take. The latter can be understood as a student who uses an instrumental association (via imagined fingerings, e.g.) as a tool in a solfege exercise, amongst other things.

For the second, and more practical part of this paper, we propose a 'clean' version of the model. It gives the user a clean start, and, more importantly, refrains from prescribing certain activities (and possibly discouraging the use of others) because of the presence of the modalities. The version of the model that we will use from now on looks like this:

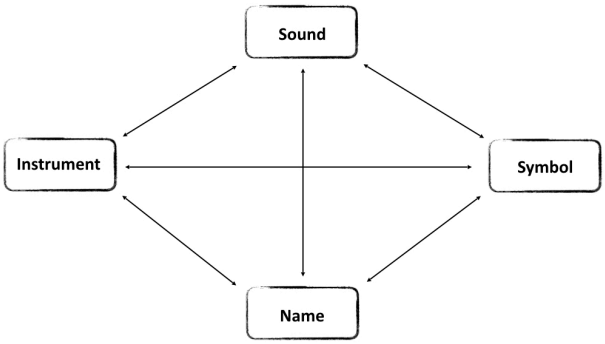

Figure 6. The clean model

At this point, it is important to explain that under the four labels of structural elements, many different items can be nested.

Name can for instance be understood as meaning names and concepts that can relate to the other elements in a direct or more remote and abstract way, for example: relative note names (different solmisation systems), absolute note names, relative rhythm names (rhythm language), absolute rhythm names, chord structure names (e.g. 6^{th}-chord), harmonic concept names (e.g. 'dominant', 'tonic', half cadence), form analysis concepts (e.g. 'phrase' or 'basic idea'), etc.
Sound can be understood as an acoustically sounding outside source, or as inner hearing.
Symbol should be seen as a visual representation in a form of music notation, e.g. staff notation with pitch clefs, staff notation with relative clefs, stick notation, Curwen notation, chord symbol notation, basso continuo, movements such as hand signs, etc.
Instrument, lastly, refers to the instrument as a means to make the musical sound, including the voice. The actual *playing* or singing, but also *imagining* playing or singing. For example imagining fingerings or other physical or mental aspects to create the sound.

Each of the four structural elements consists of different aspects that can interact in different ways with the different aspects within the other elements or even within the same element. In the following section this will be further explored by looking at a few practical examples.

Using the model in lessons

The following activities are examples of what can be done in a music theory lesson. We will show how the model can inform one's understanding of the various components involved in these activities.
The chosen examples are related to reading and sight singing, to listening and dictation, and to analysis. All described connections that are made in the exercises can be marked on the model (as shown for the first example).

Sight singing

The first exercise starts with a basic tool that can be used in theory instruction, the system of relative solmisation with hand signs as developed by the English theorist Curwen in the 19° century.

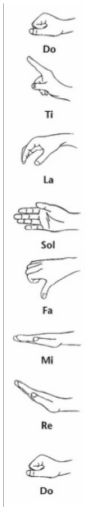

Figure 7. Solfa hand signs

A set of solfège syllables (do, re, mi, etc.), connected with specific hand signs represent the exact position of each note of a diatonic tone-set. The aim of this tool can be described as a way to enhance the connection between sound (in the form of an outside source, as well as inner hearing), symbol (in the appearance of hand signs) and one specific form of name, namely the relative note name. On the model, this could be indicated as:

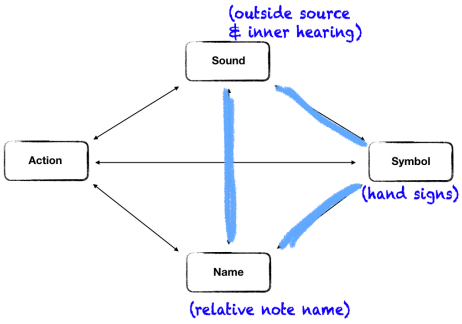

Figure 8. Possible use of the model

The next example comes from the ear training method by the Italian theorist and composer Francesco Villa[19]. The starting point here is the combination of one form of name, in this case numbers which represent the melodic scale degrees of a given tone-set, and a visual representation, the grid in which the vertical axis represents the distance of the scale degrees. This exercise can be used as a singing (solfège) exercise, in which students intonate the succession of scale degrees on the basis of their previous acquisition of relative pitch skills. Again, the focus is on the connection between relative note names and sound.

[19] Villa, F. (2015) *L'Orecchio Tonale*; p. 8

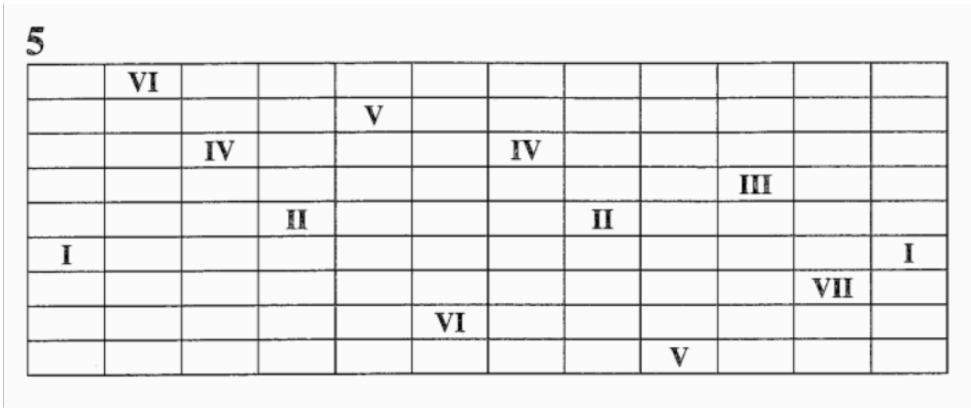

Figure 9. Villa, F. (2015) *L'Orecchio Tonale*; p. 8

However, the exercise can also be used in a different way, namely by asking students to perform this exercise in a given key on their instrument. In this case, the exercise reinforces the connection between relative note names, absolute note names and knowledge of key signatures. The connection with sound is established by the performance on the instrument.

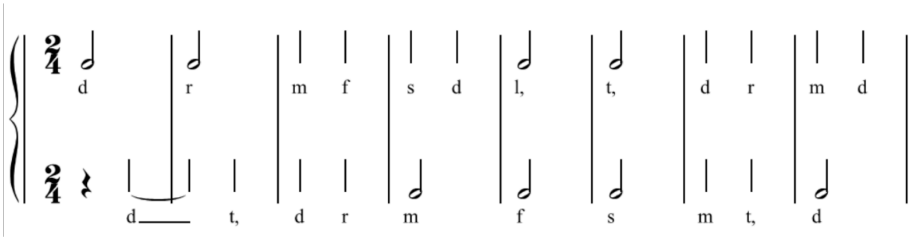

Figure 10. *Solfèges d'Italie* n.12

The example above, taken from *Solfèges d'Italie*[20] (exercises by various composers, edited by Levesque and Bêche in 1760), is another example of a form of notation that makes use of relative note names, this time relative solfège syllables, combined with rhythm notation. Once more, it can be used as a singing exercise, or two instruments can play it in a given key.

[20] Levesque and Bêche (1760) *Solfèges d'Italie*. Paris: Le Roy.

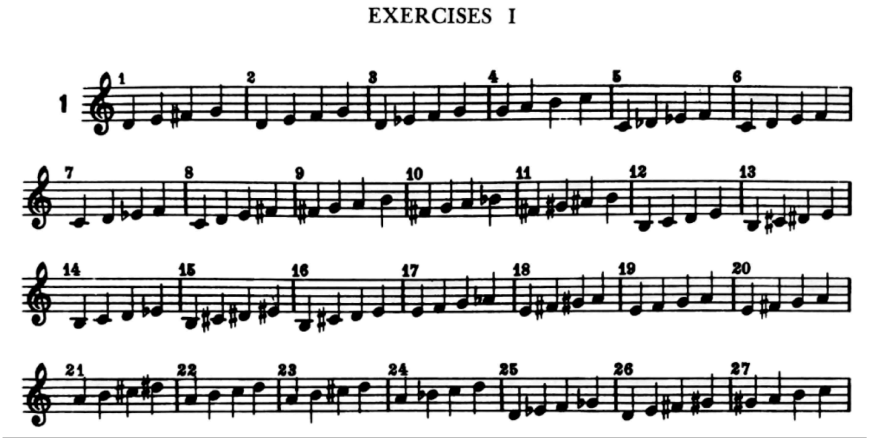

Figure 11. Jersild, J. (1966) *Ear Training*; p. 33

The last example in the field of reading and sight singing is taken from the Ear Training method of the Danish theorist and composer Jersild[21]. Differently from the previous example, the starting point here is the standard musical notation. And when it is used as a singing exercise, it requires the ability to contextualize each tetrachord into a specific diatonic tone set.

Listening and dictation

The examples presented so far deal mainly with reading. In such exercises, the sound is the final result of a certain cognitive process. On the contrary, when sound is the starting point of a certain exercise, the activities are mostly related to listening and musical dictation.

Dictation is a typical component of an ear training course and it can be realized in multiple ways. After presenting a melody or a harmonic progression, one could for instance ask students to repeat it by singing with solfa names, to repeat it by singing with letter names, to repeat it on their instrument, or to write it down in music notation, etc. All these activities share one fundamental feature: namely the fact that the starting point is a given external sound, for example a melody performed by the teacher or a recording.

If students are asked to repeat a melody using relative or absolute note names, the main focus lies on a developing a certain type of relation between sound and name. Differently, when a teacher asks to write in standard music notation or in any kind of notation, he actually adds another component in the process: the element of symbol. This holds true in the realm of pitch structures, as well as rhythm structures. The association of rhythmic structures with relative rhythm names such as ta-di or ta-ka-di-mi works on the same sound-name-symbol connection.

[21] Jersild, J. (1966) *Ear Training – Basic Instruction in Melody and Rhythm Reading*. Hansen.

But musical dictation can also be practiced by using the instrument, thus not explicitly emphasizing the analytical process of naming, but directly linking sound with action on the instrument.

In this paper, we are not specifically looking at improvisation activities, but as a side thought it is worth to mention that improvisation activities can be understood and undertaken in multiple ways: as activities taking place on this direct connection between sound and instrument – not necessarily mediated through the use of a name but relying more on intuitive processes – or as activities which include the fast and implicit connection between sound, names and concepts, and instrumental action.

Analysis

Finally, a short remark about analysis activities. When a piece of music, such as this fragment of a composition by Mozart, is presented to the students, and they're asked to describe the texture, to make a harmonic analysis with Roman numerals, to identify embellishing notes, or to name the given passage according to a certain theory, they are required to make a direct connection between symbol (the score) and name (theoretical concepts).

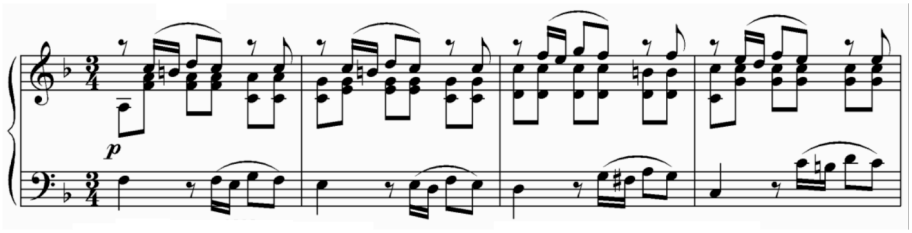

Figure 12. Mozart, String Quartet K. 465, II mov.

Looking at the model raises the question whether the element of sound could also have a place in this analytical activity. Both in preparing the lesson, preparing an assignment or assessing homework, it is interesting and important to reflect on the role played by sound in the student's analysis.

Describing teaching and learning processes indeed is not an easy enterprise. The use of this model does not aim at a comprehensive and definitive description of teaching and learning. Rather, it aims at bringing to the fore some of the components involved. It can shed light on the nature of exercises performed in our lessons, and which elements are combined – or missing from the equation.

This part of the paper has focused on the use of the model from the perspective of a teacher – in designing and evaluating lessons and activities. In the next section, we will explore a possible application from the perspective of the students involved.

Practical applications of the model for students and teachers

The model with its four elements can be used by teachers to reflect upon what they are asking of students in their lessons, and can be used by students to reflect upon their experience of lesson activities. Here is a proposition of how the model could be used through visual mapping (the colours are arbitrary):

Information: which information is given to the student/teacher by the teacher/student, what does the student/teacher perceive?
Action: what is the subsequent action (to be) undertaken by student/teacher?
Result: what is the result of the action?

As the model shows the elements only in their most abstract form, it makes sense to verbally elaborate on each of the three steps above to describe the "what" and "how".

Here is an example of what could happen during a possible lesson activity. As seen here, several cycles could be part of a larger task, touching on different elements in the model:

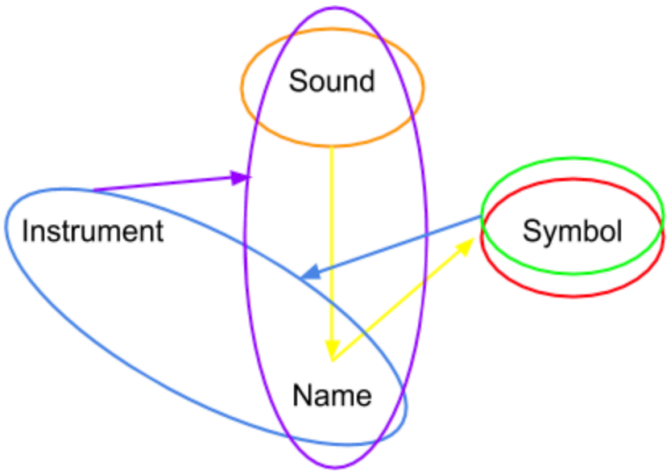

Figure 13. Model as used for activity evaluation

Information: the student hears a musical fragment sung or played by the teacher in a given key and time signature (sound, orange).
Action: the student decodes rhythm and melody (sound to name) and notates the music (name to symbol, yellow).
Result: musical notation of the music (symbol, red) -> *information* (symbol, green)

Action: student sings from his/her notation, using relative solmization (symbol to instrument + name, blue).
Result: sounding of the musical fragment sung on relative solmization -> *information* (sound + name, purple)

The resulting information can then be used for another cycle. A more independent musician, given information belonging to only one of the elements or aspects, may at once be able to call upon insights in other elements and aspects, based on earlier established connections. A less independent musician will need more information from several elements to be able to execute a given musical assignment, and will not be as easily able to connect different elements and aspects.

Further use and possibilities

After looking at the possible use of the model from a teacher's and student's point of view, we propose a more general application. There are a few possible scenarios in which the model could be of use to the management level of an educational organisation such as a conservatoire. We think the model can be used independently of musical styles and genres, and topics or activities that are offered within different study programmes.

Firstly, the model can be used in situations where you have to discuss the content of different subjects and the way they relate to each other. The model can provide guidelines for the conversation, so that the emphasis can be taken away from defending the importance of individual subjects or activities.

Secondly, the position of the theory subjects in relation to the other subjects and projects within a conservatoire, such as for example ensemble singing and chamber music, can be discussed with the model in mind.

Thirdly, we would like to ask students if they are able to reflect upon lessons in this way; what connections do they experience and are these the same connections as the teacher intended with his or her lesson? And on a larger scale, do students experience musical skill development, maybe instead of practising a very specific theoretical discipline that they may find difficult to connect to their performance practice and studies? Maybe this will help them to better understand the experiences in the music theory lesson.

Lastly, we have been organising the theory classes for bachelor students since 2012. It may well be possible that we will use the model to re-evaluate the current situation. The model can also be used if you need to think about or initiate major curriculum changes. Should new approaches or even subjects be created? Is there a balance in the activities that you offer to your students? In answering the questions above, this model might serve as a starting and reference point for discussion.

Concluding remarks

It is important to stress that we realise that this model is not giving the final answer on musical development and musical learning. The model is also not meant to prescribe how or what to teach but can be used to analyse which connections are being learned or are being used between the four elements that can interact in different ways. Its purpose is first and foremost to serve as a tool for debate, discussion and the development of a balanced theory curriculum within a conservatoire. We have deliberately excluded elements that are vital to music such as emotion and expression. We are convinced it will be humans (students and teachers) performing the connecting activities with emotions and musical expression.

A strong foundation in musical literacy empowers them to perform the musical language they choose as their own. The placement of an aural approach at the centre of music education, and sound being the connection between music theory and performance is also of great importance here. In addition, if our students are able to transfer this aural approach, leading to knowledge and understanding based on skills, to their pupils outside the world of music academies, we may hope to contribute to an even bigger goal: Educating creative and inspiring musicians who will be performing for educated and receptive audiences.

Topics for further research

We think that a better understanding of the *working* of the model is still needed and this could be realised through the following continuing activities:

1. Developing and testing a practical form of application for the model to analyse and evaluate lessons and lesson-experiences in a systematic way, by teachers and students.
2. Design and test lessons and evaluate method books within the context of the music theory curriculum of the Royal Conservatoire The Hague.
3. Literature study in different areas of research:

Semiology

If connections between an aspect of one element of the model and one or more aspects of the other elements are being build, they can become 'signs' for each other. We could say: the sound becomes the name, or the name has become the sound; they are no longer separate. If connections are being *used* in an activity to develop another connection it is assumed that they can already be used as signs.

This relates to theories of semiology. It should be noticed that *Sign* is not the same as *Symbol* in the model.

Nattiez quotes Jean Molino working towards a definition of a 'sign' in this way: "the sign is a fragment of actual experience which refers to another fragment of actual experience that remains in general virtual, the one being the sign or the symbol of the other."[22]

Connections becoming 'meaningful' when learning to perform, to read, to write or understand music, as we wish to realise with our teaching, is another topic that relates to semiology.

Nattiez gives the following general definition of meaning: "An object of any kind takes on meaning for an individual apprehending that object, as soon as that individual places the object in relation to areas of his lived experience – that is, in relation to a collection of other objects that belong to his or her experience of the world."[23]

Psychology

The topic of Naming and Category Learning comes from the field of cognitive psychology. Work has been done in the area of visual category learning, but not on sound. At least we could not find it yet.

Martin Zettersten and Gary Lupyan discuss aspects of category learning that seem to be related to our research in their recent article "What are the cognitive consequences of having a name for something? Having a word for a feature makes it easier to communicate about a set of exemplars belonging to the same category (e.g., "the red things"). But might it also make it easier to learn the category itself?"[24]

In another article they research the role of using language in cognitive processes; "Does language reflect the categories of our mind or does it help create them? On one widespread view (cognitive priority), learning a language involves mapping words onto pre-existing categories, leaving little room

[22] Nattiez, J. (1990) *Music and Discourse – Toward a Semiology of Music. p.8*
[23] *Idem*, p.9
[24] Zettersten and Lupyan (2020) *Finding categories through words: More nameable features improve category learning.* Elsevier: www.elsevier.com/locate/cognit

for language to change the structure of conceptual content. On another view (linguistic priority), conceptual structure is shaped by experience with and use of language. We argue for the latter perspective and present experimental findings examining how nameability – the ease with which a feature can be named – influences problem-solving, category learning, and geometric reasoning."[25]

Linguistics

Theories on second language learning and music-language relations are still in the beginning phases of research. Literature research in this field may contribute to a better understanding of the working of the model as well. As Patel explains, [t]he central role of music and language in human existence and the fact that both involve complex and meaningful sound sequences naturally invite comparison between the two domains. Yet from the standpoint of modern cognitive science, music-language relations have barely begun to be explored.[26] […] If, however, one focuses on cognitive processes of sound categorization, then similarities begin to emerge. In fact, there is growing evidence that speech and music share mechanisms for sound category learning, even though the two domains build their primary sound categories from different features of sound."[27]

[25] Zettersten and Lupyan. (2020) *Finding categories through words: More nameable features improve category learning.*
[26] Patel, A. (2008) *Music, Language, and the Brain*. p.3 and 10
[27] *Idem*. p.10

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