Apprenticeship of Solfège. From Measurable Evaluation to a Constructivist Approach

Damien François SAGRILLO

Université du Luxembourg

Abstract

The article discusses the evolution of music education, particularly the shift from content-based pedagogy to a competency-based, constructivist approach. It emphasises the importance of using solfège as a method in music education and explores the impact of this shift on pupils' musical learning experiences. It highlights the limitations of content-based pedagogy, which focuses on rote learning and theoretical knowledge acquisition, and contrasts it with a competency-based approach that underlines practical skills, real-world application, and a deeper understanding of musical concepts. It discusses the benefits of this shift, such as fostering a deeper connection between theoretical knowledge and musical proficiency, encouraging pupils to apply their skills in diverse musical settings, and promoting a more holistic and practical understanding of music. Furthermore, it provides insights into the use of solfège in developing aural skills, pitch recognition, and sight-reading abilities in music education. It also discusses the role of familiar and aesthetically pleasing melodies in enhancing pupils' musical competence and understanding. Overall, the contribution advocates for a shift towards a constructivist approach in music education, highlighting the importance of practical skills, real-world application, and a deeper connection between theoretical knowledge and musical proficiency, with solfège playing a significant role in this transformative process.

Content-based music education is a term that refers to a music curriculum that is organised around meaningful musical content rather than specific skills or methods. Additionally, content-based music education aims to expose pupils to various musical genres, cultures, and styles and to help them develop their musical understanding, appreciation, and creativity. It can be implemented differently, depending on the teachers' and pupils' goals, resources, and preferences. It aims to provide pupils with specific musical content such as music theory, music history and repertoire, but mainly in allowing them to read music. The focus is on gaining knowledge and understanding of musical concepts and works. The curriculum is usually structured around specific musical topics, and mastering predefined content is paramount. Assessment methods often measure pupils' knowledge and understanding of musical concepts through written 'exams'¹ or singing tests. Solfège serves as a method in music education to instruct pupils in aural skills, pitch, and the sight-reading of European music. It is a system for teaching - absolute - pitch and sight singing in which each scale note is associated with a particular syllable: do, re, mi, fa, so (or sol), la, and ti (or si). In addition to reading skills, it also imparts musical knowledge, such as music theory. In content-based music education, solfège comprises technical aspects such as music theory, composition, and performance. For instance, music teachers may employ solfège to guide pupils through sheet music reading or to enhance their vocal abilities. Historically, solfège, based on the concept invented more than a thousand years ago by Guido of Arezzo and taught in Roman - in France driven to mechanised perfection – countries,² held a crucial role in classical music education and continues to be extensively employed in numerous music schools outside Roman countries. On the other hand, the Kodály Concept, originating in Hungary during the mid-20th century, underscores the use of solfège in teaching music theory and composition.³ Compared to Solfège, the Kodály concept is an approach to music education that is more comprehensive and, contrary to the French Solfège system involves several key components helping to develop musicality. The use of folk music and mother tongue: Kodály believed that pupils can understand music more profoundly if they learn their native folk music, especially songs they have already been exposed to. As a logical and sequential approach to musical concepts, the Kodály concept is built on learning music logically and sequentially through collaboration, singing, rhythm exercises, and folk songs. It uses a system of movable-do solfège syllables, e.g., relative solmisation, for sight-singing. The syllables show function within the key and the relationships between pitches, and, contrary to French solfège, not absolute pitch.⁴

On the other hand, competency-based music education shifts the focus from pure knowledge acquisition to developing practical skills and competencies in music. The focus is on applying musical knowledge in authentic contexts and developing playing, composition, improvisation, and collaboration skills. The curriculum is designed to create specific musical competencies, and the assessment methods measure pupils' ability to authentically apply their skills and competencies in music. This can include practical assessments, performances, portfolio reviews or creative projects.⁵ While content-related music education aims to help pupils acquire knowledge and understanding of musical content, competencies in music. In content-based music education, pupils learn about specific musical content, theories, and works. On the

¹ The term exam (examen de solfège) is frequently used in countries with the solfège tradition to paraphrase the final tests at the end of a school year.

² Sagrillo, Solfège and Musical Sight Reading Skills, p. 116 sqq.

³ Cf. Zwolenszky.

⁴ Cf. The Kodaly Method: An Easy Way of Learning Music and Rhythms.

⁵ Cf. Carrasco / Mercedes.

other hand, competency-based music education aims to develop pupils' abilities to create, perform, and respond to music effectively. Traditional assessment methods such as written exams or quizzes are often used in content-based music education to measure knowledge acquisition. In other ways, competency-based music education typically uses performance-related assessments, portfolio reviews, or creative projects to assess pupils' application of musical skills and competencies. Content-related music education follows a structured curriculum focusing on specific musical topics or content areas. Furthermore, competency-based music education focuses on developing particular musical competencies and may allow more flexibility in shaping individual learning paths. In content-related music education, the emphasis is on understanding musical concepts and works within a theoretical frame. Competence-related music education, on the other hand, prioritises developing and applying practical musical skills and competencies.⁶ To summarise, this means that content-based music lessons focus on what the teacher is teaching, while competence-based music lessons allow for learning at one's own pace with the teacher as the facilitator.⁷

Learning to read notes

Regardless of scientific findings concerning the psychology of musical development, we must recognise that from the pedagogical-didactic perspective or from the point of view of learning to read music, there are stages that the music teacher must consider. In his 333 Elementary exercises, Zoltan Kodaly begins his first lessons (1 to 19) with the notes d and e.⁸

Figure 1 – Zoltán Kodály, Exercice 17



This approach is astonishing since, as a music teacher, I always assumed that a child's development as a singing person first imitates the call for its mother, namely 'Mama', which could be transcribed into notes: g - e, the minor third. With increasing age, the child will aim for the interval of the second upwards. Countless songs exist for this age in the so-called *Kinderliedterno*⁹, e.g., songs with three tones consisting of the notes g-a-e.

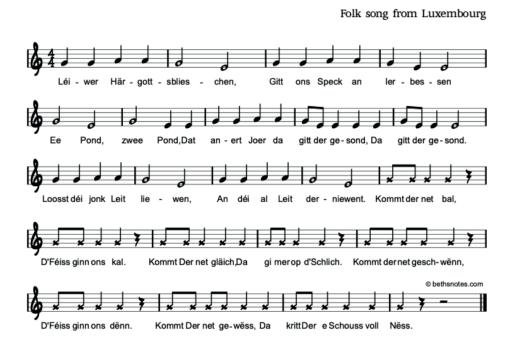
⁶ Cf. Bond.

⁷ Marie Francois.

⁸ Kodály, Choral Method, p. 2.

⁹ About the term 'Kinderliedterno', cf. Lajos Bardos, p. 209 sqq.

Figure 2 - Luxembourgish Folksong.10



Léiwer Härgottsbliesche

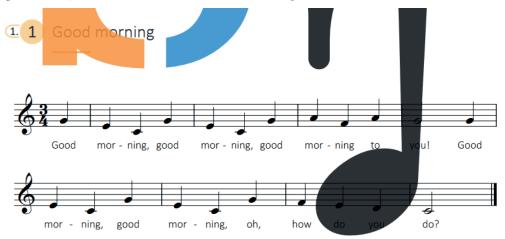
Only after the pupil has achieved certainty in singing these notes will the music teacher be able to venture into pentatonic songs. At this point, he can also deal with the idiosyncrasy of tunes and enable the pupil to distinguish between so-called 'Negro spirituals' or Chinese folk songs. Such a methodical approach would facilitate the next consequential steps towards the correct singing in exploring the diatonic and, as adolescence approaches, the chromatic scale. Needless to say: Music education that uses this methodological approach is based on the European music tradition. In other music traditions, other educational traditions will be used. Although European music is mistakenly associated with global music, different musical traditions exist. However, developmental psychological facts must also be taken into account there. Now let us cast an eye at today's solfège books, which endeavour the content-based to competency-based instruction in a traditional content-based discipline. After many years of negative experiences with course dropouts,¹¹ some younger music teachers in Luxembourg have decided to adopt a more 'human' approach to acquiring musical literacy in solfège lessons. What follows are examples of a 'new' solfège that is more

¹⁰ With permission of Beth Thomson.

¹¹ Sagrillo, Solfège as a Reason for the Drop Out of Music School Pupils.

motivating for pupils. The very title of the publication *Musek léiere mat Spaass! Di nei Method fir d'Formation Musicale* "Learning music is fun. The new music training method" suggests that learning music was challenging in past years – and partially still is! As well as being attractively presented, the musical material consists of songs with lyrics rather than numbered lessons. The first lesson consists of repetitive tones that facilitate internalisation.¹²

Figure 3 - Nadja Burdot-Koob, Lis Eich, Musek léiere mat Spaass!



In other ways, a competency-based music pedagogy should not confront eight-yearold children with descending broken triads in the very first lesson.

Figure 4 - Pulsation



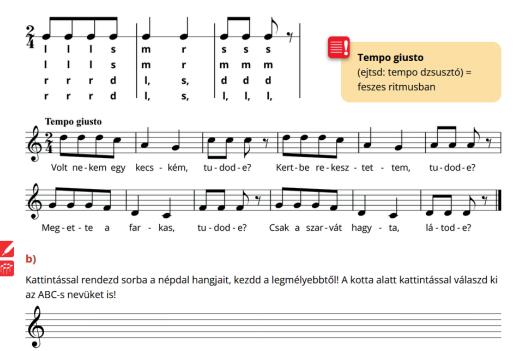
¹² Burdot-Koob / Eich, vol. 1, p. 13.

While it may be advantageous to dissociate melody and rhythm and represent both instances separately by learning melody and rhythm in different exercises, a rhythmic differentiation between, for example, quaver and semiquaver notes would be favourable. The technical term 'pulsation' in relation to rhythm may not be understood here.¹³ The Hungarian counterpart for eight-year-old beginners follows a more differentiated approach. It is based on a pentatonic song (collected?) by Zoltan Kodaly. The melody line moves downwards, in line with the musical development of this age group. Specific questions are included in the lesson so that the pupil can approach musical knowledge directly from the song.¹⁴

Figure 5 – László Dobszay / Réka Kosztándy / Erzsebet Petrigan, Szolfézskönyv zeneiskolásoknak 1

🗢 a)

Énekeljétek el a népdalt először szolmizálva, majd szöveggel!



Melyik hang a záróhang?

In this singing lesson, pupils can explore various aspects within a single example, delving into the unique features of pentatonic halftoneless scales, practising relative solfège, mastering quaves and semi-quaves. The lesson extends to understanding music

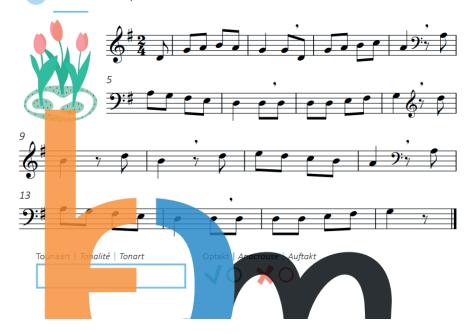
¹³ Ibid.

¹⁴ Dobszay / Kosztándy / Petrigan.

theory, where pupils engage with variants and sort tones based on pitch. They further enhance their skills by singing in canon, fostering creativity with the encouragement to find their own variations – by singing or by writing them down. Rhythm study is crucial, culminating in a comprehensive and competency-based music education that exemplifies effective content delivery.

Figure 6 – Italian folksong

18. 8 L' inverno è passato



The well-known Italian song *L'inverno è passato* serves as an exercise for the third grade in the Luxembourgish music book 'Solfi'.¹⁵ It can already be considered progress, away from a content-based pedagogy, to dispense with lessons such as the one in Figure 7.¹⁶ Lacking any musicality, it only requires the pupil to be able to read. Inversely, it confuses him by changing the key. Using a familiar and aesthetically pleasing melody can be interpreted as progress towards a pedagogy based on competence. – The pupil 'constructs' additional knowledge based on what is known. – However, to insist on alternating between treble and bass clef is inappropriate for this song. After reading it several times, the talented pupil will know it by heart. More than that, the diligent and motivated pupil will be able to scan the melody using apps and reduce it to one clef.

¹⁵ Burdot-Koob / Eich, vol. 3, p. 135.

¹⁶ Solfège Lenain, p. 2 sq.

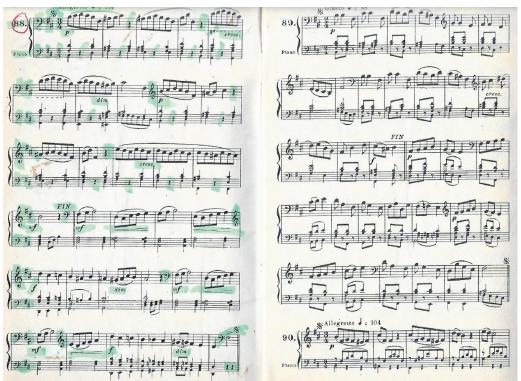


Figure 7 – Lenain Solfège Lesson

As shown in the examples, old curricula only provided musical literacy with the help of solfège lessons. Although reading ability is competence in the narrower sense, teaching further knowledge was not foreseen. In the newer textbooks, a musical singing exercise is a starting point for enabling pupils to apply their knowledge in different situations. Beyond reading music, these are learning and singing wellknown pieces of music or folk music literature, music theory, musical forms and analysis, listening to music, and learning rhythm and creativity. They allow the pupil to 'construct' comprehensive musical knowledge from musical mosaic pieces. The difference between the Luxembourg and Hungarian examples seems to confirm that the singing exercise also incorporates insights from musical developmental psychology. While the Luxembourg example of the first grade above uses monorhythmic (quavers) and semitones, the Hungarian example, more accurately, uses a pentatonic descending melody and the basic rhythmic alternation between quavers and semi-quavers. Nevertheless, content-related aspects must be addressed when learning music. A beneficial coexistence of content-related and competencerelated elements will determine the success of future music education. As the former educational scholar Heinz-Elmar Tenorth stresses in his essay Bildung - zwischen Ideal und Wirklichkeit (Education – between Ideal and Reality), education always has

a social dimension. Missing diplomas and missing competencies are at the origin of a minimum of education:

"Without basic cultural skills – in reading and writing, in arithmetic and scientific understanding, in the ability to organise one's own learning and in the use of media – in other words, without basic education, all futures are blocked."¹⁷

Learning theories and solfège

Applied to music education and solfège, a minimum of music reading competence must be acquired to participate in any music from European musical culture actively. To achieve this goal, future musicians expressively need content-based music education.¹⁸ However, we must briefly look at the underlying learning theories to understand the supposed contradiction between content-based and competency- or skills-based music lessons. In learning to read music, it is essential to connect content-based and skillsbased music education with learning theories such as positivism, behaviourism and constructivism which also have implications on the process of (music) learning.

Before turning to cognitive learning theories, it is advisable to have a brief look at the positivist aspects of learning in connection with Solfège.

Positivism is a philosophical and scientific theory movement that emphasises the importance of empirical, verifiable facts and rejects speculative, metaphysical considerations. It assumes knowledge should be gained through observation, experience, and empirical investigation. Auguste Comte is considered one of its founders. Positivism played an essential role in sociology, mainly through Comte's idea of a 'social physics' or sociology, which should work according to the principles of the natural sciences. It is important to note that there are different variants of positivism, including logical positivism in the 20th century, which focused on clarifying concepts and analysing language.¹⁹ Positivism has a significant impact on the way music is taught today. It influences the methodologies, pedagogies, and even the philosophical underpinnings of music education. Positivism, emphasising observable and measurable facts, has led to an empirical approach in music education. This can be seen in the way music theory and performance are taught, with a focus on quantifiable aspects such as rhythm, pitch, and the technique of reading. The positivist emphasis on quantifiable results has also led to the use of standardised testing in music education, e.g., the so-called 'solfège exams' at the end of a school year. This allows for the measurement of the pupil's progress. Nevertheless, the term positivism does not have a good reputation. Michael R. Matthews argues:

¹⁷ Tenorth.

¹⁸ However, as mentioned above, this does not mean that actively making non-European provenance music is excluded. After all, many cultures do not use the term music, but people participate in rituals that we here in Europe call music.

¹⁹ Cf. Feigl.

"Indeed 'positivist' has become a term of extreme scholarly abuse, it is almost the worst thing that can be said about a philosopher or social scientist. Once some position is identified as 'positivist', then it can be dismissed; such identification is basically the end of any argument. It is difficult to think of any term in the educational lexicon so laden with negative connotations as 'positivism'. 'Positivist' is to education, what 'terrorist' is to geo-politics."²⁰

In contrast, do behavioural theories in the context of music education, as introduced by Pavlov (1927), Thorndike (1932) and Skinner (starting in 1948), benefit from a better reputation? They are based on the idea that all behaviours are learned through interactions with the environment and that the principles of learning can be applied to modify behaviour. Behaviourism has been influential in the field of education, particularly in the development of instructional theories derived from behaviourist models.²¹ Programmed instruction entails employing sequential patterns to deliver suitable stimuli in the form of easily digestible information snippets, prompting responses through accessible questions, and offering feedback or reinforcement via additional information or praise. Initially, these programs followed a linear structure, where all pupils underwent the same process, albeit at different speeds. Subsequently, programs evolved to a branched format, enabling more advanced students to bypass specific material. Scholars have conducted reviews on programmed instruction and 'Computer-Assisted Learning' (CAL) in the context of music education. Additionally, the use of music itself as a reinforcement mechanism has been explored by researchers, investigating the effectiveness of music lessons and books as alternatives for reinforcing academic tasks.²² In the realm of music education, the behaviourist learning model, mainly through programmed instruction and CAL, has contributed to the development of effective instructional strategies. However, it is crucial to acknowledge that this model has faced criticism for its exclusive emphasis on observable behaviour, overlooking the cognitive processes integral to the learning experience.²³ While praise and blame have always been a pedagogical approach in Solfège's teaching, such pratfalls are no longer justifiable today. Nevertheless, performance is still measured in the learning process of solfège, e.g., pure note and theory learning and a deplorable lack of musical realities and practice.

When it comes to more cognitive-based music instruction, the information processing theory has shown us influential theories. They posit that learning involves processing information through a series of stages, including sensory input, attention, perception, memory, and retrieval. This theory has been applied to the study of music perception, with researchers exploring how pupils process and organise musical information²⁴

²⁰ Matthews, p. 7.

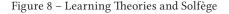
 $^{^{\}rm 21}$ Cf. (1) Taetle / Cutieta, p. 281. (2) Application of behaviorism in Education.

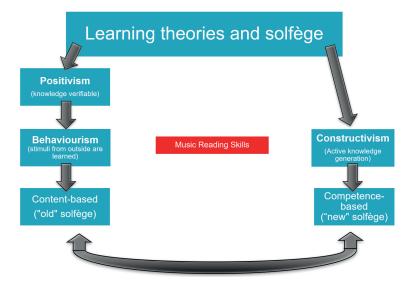
²² Cf. ibid.

²³ Cf. Taetle / Cutieta, p. 282.

²⁴ Cf. Taetle / Cutieta, p. 282 sqq.

and could be linked to Allan Paivio's 'Dual Coding Theory'.²⁵ In the context of music education, the 'Dual Coding Theory' could easily be applied by pairing visual and auditory stimuli. For example, a music teacher might use sheet music (visual) and sound (auditory) to teach a piece. The pupil would encode the information in both, visual and auditory forms, potentially enhancing his understanding and recall of the music. In the context of music, the 'Dual-Coding Theory' could help explain how pupils learn to read music notation. These considerations now lead us to the learning theory of constructivism. It emphasises the active role of learners in constructing their understanding. Instead of passively receiving information, learners reflect on their experiences, create mental representations and integrate new knowledge into their schemas. This promotes deeper learning and understanding.²⁶ In the abstract of his article about constructivism in music education, Joseph Shively highlights that "Efforts to shift music education toward a more constructivist practice have significant implications for policymaking at all levels of music education."²⁷ This includes rethinking the nature of knowledge, the role of the teacher, and the types of musical experiences valued in the classroom.²⁸ Constructivism does not reject traditional teaching methods but, instead, seeks to find a balance between progressive and conventional views of music education.²⁹

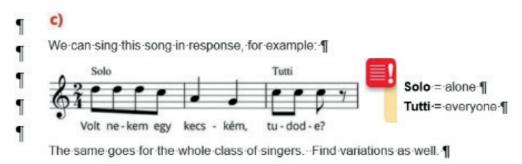




- ²⁵ Cf. Pavio.
- 26 Wells, p. 335 sq.
- ²⁷ Shively, p. 128.
- ²⁸ Cf. Shivley, p. 129 sq.
- ²⁹ Cf. Shivley, p. 131.

The diagram above, divided into two sections, summarises different learning theories for Solfège, illustrating that diverse approaches to learning can lead to more methods of teaching solfège. It could represent an evolution from 'old' to 'new' methods of solfège teaching by didactical improvements influenced by these learning theories. The two sections: On the left-hand side, the three boxes mention the more 'classical' approach to music reading skills. Positivism and behaviourism lead to content-based acquisition of skills, the 'old' solfège. On the diagram's right-hand side, two boxes represent the 'new' solfège via a constructivist manner of acquiring reading skills. In concrete, this does not preclude the possibility of using constructivist approaches in content-based solfège lessons. The middle is where the truth lies. Both categories influence each other. The constructivist approach is more oriented towards competence, but it is more likely that content-related solfège learning can be achieved through positivist and behaviourist didactics.

Figure 9 - Solfège and Creativity³⁰



In the process of knowledge construction, creative tasks are added, as shown in Figure 9. These tasks include inventing a new melody line based on a given one and modifying or expanding the structure of the song, e.g., the pupil is asked to find (create, construct) variants out of the given three-bar pentatonic phrase.

In conclusion

There has been a notable shift towards a more competency-based framework from a traditional, content-based, or process-based approach to music education. The former emphasises what the teacher imparts to the pupil – specific content, techniques, and musical knowledge. However, in a competency-based model, the focus shifts to empowering pupils to learn at their own pace, with the teacher serving as a facilitator rather than a sole provider of information. A critical question emerges in this evolution:

³⁰ László Dobszay / Réka Kosztándy / Erzsebet Petrigan, Szolfézskönyv zeneiskolásoknak 1.

Should music education prioritise content or competence or find a balanced integration of both? One could argue for the exclusivity of one over the other, pondering whether competence should supersede content or vice versa. Alternatively, an emerging perspective could suggest a potential for a harmonious coexistence, where content and competence complement each other to create a more comprehensive and effective educational experience. In the realm of music education, a pertinent example arises when considering the teaching of solfège - a fundamental aspect of music theory involving the knowledge and the singing of musical scales. Can solfège be effectively taught through a competency-based approach? This question challenges traditional teaching methods that often follow a content-centric structure. In a competency-based setting, pupils would be free to navigate their learning journey at their own pace, with the teacher guiding and facilitating rather than imposing a predetermined curriculum. Implementing a competency-based approach to solfège requires a re-evaluation of the traditional teacher-pupil dynamic. The teacher becomes a mentor, guiding pupils in developing their musical skills and fostering a deeper understanding of solfège rather than simply conveying prescribed content. This shift encourages active engagement, self-directed learning, and a more profound connection to the musical material. In essence, the move from content-based to competency-based music education reflects a broader shift in pedagogical paradigms - an acknowledgement that fostering knowledge acquisition, skills, understanding, and autonomy is essential in developing well-rounded musicians. As educators navigate this transition, finding a dynamic balance between content and competence becomes key to shaping a holistic and effective music education experience. What is practicable in other areas of knowledge acquisition should also be possible for learning to read notes. It is possible to teach solfège in a competency-based way. In fact, it is an effective method of teaching music theory and practice. The focus is on developing skills and competencies that enable pupils to understand and play music rather than just focusing on memorising notes.³¹ The author of this article had the honour of accompanying two music pedagogical projects, one by the Liszt Academy and a second by the University of Szeged as a consulting professor. One of the final reports of the PI³² to the MTA concluded: "Singing and music education is in crisis in Hungary" (p. 10). It then reports on the undeniable merits of the Hungarian system. The phenomenon of this crisis in music education is not limited to Hungary. Music education is in this situation due to today's passive approach to music, where people can get their hands on a piece of music faster than a Coke or a piece of chocolate. The rapporteur's experience is that the fear of music and music education is due to this *zeitgeist*. Pupils and students who never encountered singing and (partly) movement during their school years (and were "forced to sit at school desks" (the same final report, p. 10) have lost something natural that they have naturally possessed as children, namely, to raise their voices and to

³¹ Cf. Francois, ibid.

³² Principal Investigator, e.g., responsible scholar of the research project.

move freely, improvising and imitating. We should show the pupils and students ways to regain this freedom. Probably no other country like Hungary can build on such a solid foundation and chart paths to overcome this crisis on an international scale. Therefore, music pedagogues in Hungary must only make selective adjustments to their didactics, which have been tried and tested over decades. The musical material remains the same but must be adapted to today's didactical approaches. The innovation is the learning of secondary musical knowledge based on a song. On the other hand, the progress in music didactics in Luxembourg is far more significant, moving away from blindly learning to read music towards more attractive, skillsenhancing discovery of music, similar to the Hungarian model. Shifting from a subject-based to a competency-based approach in solfège involves a fundamental change in focus. Traditional subject-oriented teaching emphasises the acquisition of theoretical knowledge, while a competency-based approach places a spotlight on practical skills and real-world application. The learning objectives also transform in this shift, transitioning from memorising solfège concepts to developing competencies such as accurate pitch recognition, dynamic expression, and the ability to improvise within a given musical context. The structure of the solfège curriculum undergoes adaptation to accommodate this shift, integrating more hands-on activities, ensemble playing, and creative projects that mirror real musical scenarios. Application becomes key, encouraging pupils to apply their solfège skills in diverse musical settings. The evolution from subject-based to competency-based solfège education marks a move from rote learning toward a more holistic and practical understanding of musical concepts, fostering a deeper connection between theoretical knowledge and musical proficiency. A music didactic approach incorporating these considerations into the didactic approach of solfège teachers will make it easier to keep the youngest music pupils motivated.

References

- *The Kodaly Method: An Easy Way of Learning Music and Rhythms*, at the Internet https://violinspiration.com/kodaly-method/ [12.12.2023].
- Herbert Feigl, "Positivism", in: *Encyclopedia Britannica*, at the Internet <https://www.britannica.com/topic/positivism>, [11.12.2023].
- Beth Thomson: Beth's Notes https://www.bethsnotesplus.com/2023/01/leiwer-hargottsbliesche.html> [28.11.2023].
- Vernia Carrasco / Ana Mercedes, "Competency-based learning: Music education, the great forgotten", in: 4th International Conference on Higher Education Advances (HEAd'18), 2018, p. 29-35.
- Marie Francois, "A Contents-based Education versus an Outcomes-based Education (OBE)", at the Internet Colour my Learning https://www.colourmylearning. com/2021/09/a-contents-based-education-versus-an-outcomes-based-educatin-obe/> [2.12.2023].

- László Dobszay / Réka Kosztándy / Erzsebet Petrigan, *Szolfézskönyv zeneiskolásoknak* 1, Budapest: Editio Musica Budapest Zeneműkiadó Kft. 2020.
- "Application of behaviorism in Education", at the Internet *Free Essays PhDessay.com*, 2018, <https://phdessay.com/application-behaviorism-in-education/> [11.12.2023].
- Vanessa L. Bond, " Culturally Responsive Education in Music Education: A Literature Review", in: *Contributions to music education*, 2017, Vol.42, p. 153–180.
- Damien Sagrillo, "Solfège and Musical Sight Reading Skills in a European Context", in: *Leo Kestenberg und musikalische Bildung in Europa*, ed. by Friedhelm Brusniak, Alain Nitschké, and Damien François Sagrillo (= Würzburger Hefte zur Musikpädagogik), Weikersheim: Margraf 2016, vol. 8, p. 115–127.
- Damien Sagrillo, "Solfège as a Reason for the Drop Out of Music School Pupils", in *Leo Kestenberg und musikalische Bildung in Europa*, ed. by Damien Sagrillo / Alain Nitschké / Friedhelm Brusniak, Weikersheim, Germany: Margraf 2016, p. 163–172.
- Joseph Shively, "Constructivism in Music Education", in: *Arts education policy review* 116.3 (2015), p. 128–136
- Heinz-Elmar Tenorth, *Bildung zwischen Ideal und Wirklichkeit. Ein Essay*, at the Internet <Bildung – zwischen Ideal und Wirklichkeit | Bildung | bpb.de> 2014, [3.7.2023].
- Anton Zwolenszky, Zoltán Kodály: und das Phänomen der ungarischen Musikerziehung, Bern: Peter Lang 2013.
- Michael R. Matthews, "Reappraising Positivism and Education: The Arguments of Philipp Frank and Herbert Feigl", in: *Science & education* 13.1/2 (2004), p. 7–39.
- Laurie Taetle / Robert Cutieta, "Learning Theories as Roots of Current Musical Practice and Research", in: *The New Handbook Of Research On Music Teaching And Learning: A Project of the Music Educators National Conference*, ed. by Richard Colwell / Carol Richardson, New York: Oxford University Press 2002, p. 279–298.
- Gordon Wells, "A Social Constructivist Model of Learning and Teaching", in: Dialogic Inquiry: Towards a Socio-Cultural Practice and Theory of Education. Learning in Doing: Social, Cognitive and Computational Perspectives, Cambridge: Cambridge University Press 1999, p. 335–336.
- Allan Pavio, *Mental representations: A dual coding approach*, New York: Oxford University Press 1986.
- Zoltán Kodály, Choral Method. 333 Elementary Exercises, London: Boosey & Hawkes 1957
- Lajos Bardos, "Natürliche Tonsysteme. Methode ihrer Messung", in: *Studia memoriae Bélae Bartók sacra*, ed. by Benjamin Rajeczky, Budapest: Acad. Scientarium Hungaricae 1957, p. 209–248.

Solfège Lenain, *Leçons à changement de clés, sol et fa*, Bruxelles / Paris: Schott Frères.