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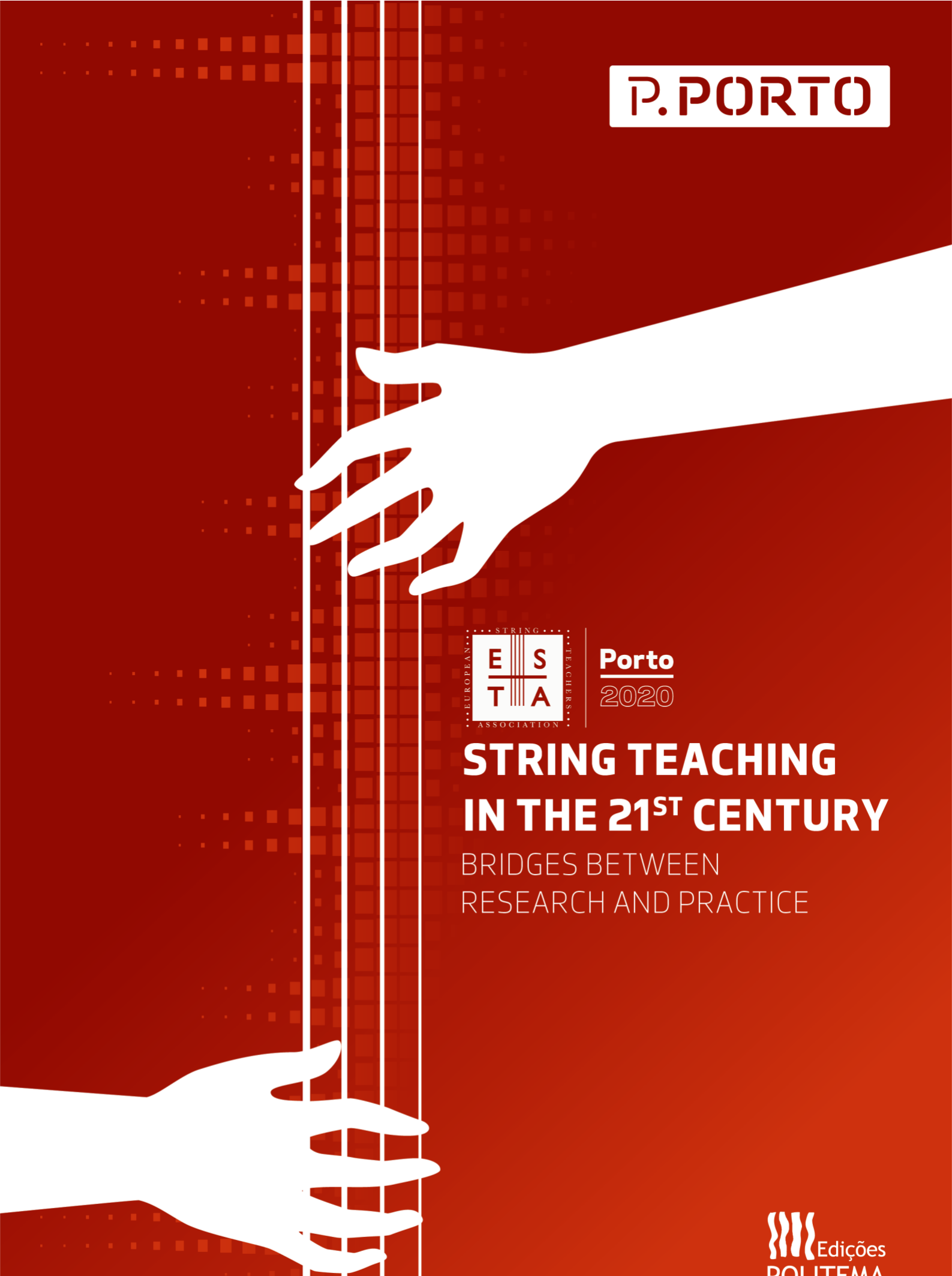

EUROPEAN STRING TEACHERS ASSOCIATION

Porto 2020

STRING TEACHING IN THE 21ST CENTURY

BRIDGES BETWEEN RESEARCH AND PRACTICE

Edições POLITEMA

String teaching in the 21st Century: Bridges between research and practice

Edited by Clarissa Foletto, Jorge Alves and Dora de Queiroz

ESTA Portugal

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String teaching in 21st Century: Bridges between research and practice

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Foreword and Acknowledgements

The 48th International ESTA Conference marked the first Online conference in the history of ESTA. The conference theme “Bridges between research and practice” encouraged the teachers, students and researchers of the ESTA family and abroad to reflect and discuss String teaching in 21st Century. The 21 articles published in this book show how we can join forces to create, develop and disseminate our collective knowledge and experience about string teaching. We hope that this book can be a contribution by ESTA Portugal to this field and an attempt to fill the gap between research and practice.

The ESTA Portugal Branch would like to thank all our authors, editors, scientific committee members and reviewers who have participated in this book. In addition, we would like to thank the organizing committee of the ESTA Porto 2020 conference, without whom none of this could have happened. We would like also to thank all our presenters, participants and commercial partners who have supported the conference, as well as the collaboration of ESMAE - Escola Superior de Artes e Espetáculo - IPP/Porto and INET-md – Instituto de Etnomusicologia – Centro de Estudos em Música e Dança/UA.

Clarissa Foletto, Jorge Alves and Dora de Queiroz

Preface

The theme addressed at the 48th International Conference of ESTA assumes particular relevance in the times that we are going through in Music Education in Portugal. From the growth of Specialized Artistic Education in Music in Portugal, up to the recent confrontation with the new needs of distance education in a pandemic setting, a vast range of new challenges has emerged such as novel tools, strategies, and technologies.

In such an eminently practical environment, research tends to be under-evaluated and considered more at a theoretical level, with low applicability in the daily life of our schools. It is therefore crucial to understand - as a community - how bridges can be built between these two universes: research and practice.

A round table on this topic was promoted during the 48th International ESTA Conference with Cristina Bellu (France), Claudio Forcada (United Kingdom), Philip Aird (United Kingdom), Francisco Cardoso (Portugal), Wolfgang Klos (Austria), Jorge Alves (Portugal) and Clarissa Foletto (Portugal). As the guests mentioned, those bridges must be understood as a path of reciprocity: if instrument teachers and instrumentalists have a lot to learn from researchers, the latter also have a lot to learn from the former. The metaphor of the “secret garden”, addressed by Clarissa Foletto, who presented and mediated the discussion, clarifies this very well: we tend to consider instrumental classes as a micro-universe, an almost sacred territory in which the ones involved - the teacher and the student - are isolated from the outside world, and specifically from researchers. Clarissa Foletto, also reinforced in her introduction how much we can learn from each other if we are willing to cross these imaginary boundaries: both teachers and researchers have a component of planning and organizing their work, which includes research, and have to coordinate it with administrative work as well. This similarity is just one of the links that unites these two universes, so if we are willing to learn from each other, we will actually be promoting an ever more in-depth knowledge and, thus, potentiating the impact of scientific research in instrumental practice and its corresponding teaching.

It was very interesting to verify the great potential of this reciprocal path, through the crossing of different experiences between fellow professors and scientific researchers, assuming that the role of the teacher is not limited to the classes they developed, since today it is already assumed that the teacher should continue to be a scientific researcher for life, either following the progress that is being made in the area, or promoting a permanently critical and reflexive attitude that enhances the questioning and advancement of his practices and methodologies.

It was also interesting to note that this gap between research and practice has been diluted. New generations of researchers seem to be increasingly aware of the challenges

that teachers face nowadays and new generations of teachers are increasingly interested in the results of this research. As Francisco Cardoso and Wolfgang Klos also mentioned, scientific research itself has evolved, moving from the laboratory environment to the classroom itself, which has greatly aided this process of blurring boundaries.

In my teaching practice, I have always employed this approach of bringing to my awareness a permanent questioning of my own strategies, which was relatively encouraged during my Master's in Education. Gone are the days when Music Education was seen as something stationary, based on a series of dogmas that were seen as inviolable. I consider it extremely important to remove the burden of success from the skills of the students: we have spent too much time considering that when the learning was unsuccessful, it was inevitable result of a deficient individual study of the student, or even of an inherent lack of talent. Today, this situation is already beheld from a different perspective, and the process of reflection on the strategies that we can use to find other solutions is more commonly discussed.

I have also encouraged the habit of keeping myself updated about the advances that are emerging in scientific research, namely through the attendance of symposia and conferences on Education as well as reading the associated bibliography. It is therefore very impactful to realize the extent to which the dissemination of this teaching and learning activity can so decisively influence our sector, and how we are all active agents of change and important elements in the process of building more bridges.

Diana Pereira

Part 1
New approaches and tools to the teaching and learning process

The activity-oriented blended learning of violin and viola with multimedia

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School of Music Celje, ESTA Slovenia, Slovenia

Abstract: Previous research on the use of Information and Communication Technology - ICT – in the educational process has largely been concerned with the use and storage of digital resources and contents, and less with the support of learning activities. In this paper we will focus on the ICT-based activity-oriented blended learning using multimedia technology as a combination of offline (i.e. traditional learning, face-to-face) and online learning. The theoretical basis for the use of multimedia technology in the learning process is provided by the cognitive theory of multimedia learning developed by Richard Mayer with his colleagues. The theory explains how linking different modalities is important for successful learning. The theory assumes that the human cognitive system includes dual channels for visual and auditory perception and processing of information. Both channels have limited capacities, but they can operate simultaneously and do not reduce performance mutually. We conducted a three-part research project with students, teachers, and technology. Firstly, we checked the functionality of the multimedia tool with the reliability of estimating simulated errors in scales. This was followed by the teachers checking and assessing the same simulated errors with the help of multimedia e-material in MIDI format. In the third part, we asked students about their experiences and comparisons of live and remote lessons with the help of multimedia tools. Learning technology was reliable in obtaining assessment results while a comparison of manual teacher assessment and machine assessment showed significant differences. Social distancing deepened the integration of ICT and students increasingly used multimedia tools in the final stage of assessment. With this research, we examined the consistency of a new approach in learning and checking e-material in the form of a notation of scales with the help of multimedia to compare the experiences of teachers and students with the effective use of ICT.
Keywords: Blended learning, multimedia, activities, violin, viola

Introduction[2]

We are often faced with the problem of how to demonstrate and to explain the learning contents using computer-assisted tutoring tools for independent learning. It can be partly solved with appropriate design of learning material and integration of multimedia in the learning process to provide feedback. Having in mind the characteristics of the human cognitive system, we explored visualisation of aural information using the computer-assisted musical instrument tutoring tool Match My Sound - MMS (Käo, 2016), available online and as a plug-in in the MOODLE learning management system. This multimedia system can establish an effective online training to independently evaluate students' performance of playing their instrument through auditory analytical perception of feedback.

Theoretical basis and principles

Some students learn more successfully by listening, others by reading the presented content, and still others by physical activity. Experts can say that students have different perceptual styles: auditory, visual, or kinesthetic. This means that they use all three modes

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of perception when learning, but they learn best when they use the chosen mode for their perceptual style. In the hierarchical classification of learning, Marentič Požarnik (2019) defines playing an instrument as a demanding learning of psychomotor skills.

Požarnik defines the perceptual style as the relatively consistent and lasting features of the individual in how one receives, preserves, processes and organises information and solves problems with their use. Cognitive psychologists have found out through research (Paivio, 2014) that the ability to connect different modalities is important for successful learning. The hypothesis was largely confirmed by Mayer (2014) and colleagues, with the Cognitive Theory of Multimedia Learning (CTML). CTML is based on previous integral theories, such as Baddeley's (1987) a working memory model of Paivio's double-coding theory, and Sweller's theory of the cognitive burden of the amount of information stored in working memory (Chandler & Sweller, 1991). The CTML can be summarised by the following key elements: (a) dual channels for processing visual and audio perceptions; (b) limited data processing capacity in both channels; (c) two memory stores in each channel (i.e. sensory and operational) and shared long-term memory; (d) five cognitive processes of selection, organisation and integration: i.e. tone selection, image selection, tone organisation, image organisation and linking new knowledge with prior knowledge. We will focus on the cognitive model presented in CTML in Figure 1 based on Paivio's (2014) double-coding theory. This explains how everyone has two mutually separate systems for perceiving stimuli from the environment. One system processes verbal or sound stimuli in music, while the other processes pictorial stimuli. Each channel includes three types of memory known as sensory, working, and long-term memory. Sensory is a cognitive structure that allows us to perceive new data; working memory is a cognitive structure in which we consciously process data into information; and long-term memory is a cognitive structure that stores our integrated knowledge for a long time. We are aware of information in long-term memory, and can only use it when we transfer it to working memory.

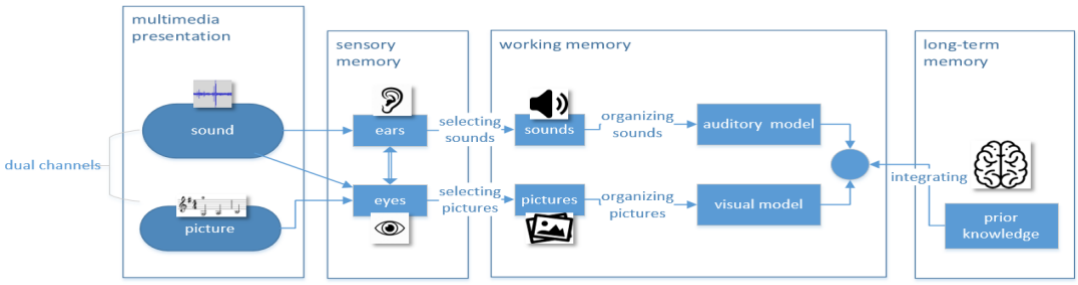


Figure 1: Multimedia learning model (Mayer, 2014), adapted for music learning by K.Kolman

Assessment and verification activities in blended learning

Blended learning (also known as hybrid learning) can successfully link ICT and multimedia with traditional teacher-led learning activities, allowing students greater flexibility in adapting their learning experiences. Using CAMIT programs such as MMS, we can successfully optimise assessment and verification activities in the learning process of playing and home practice of scales, and establish a more attractive and more motivated learning environment with the help of ICT. In Table 1, we define concrete possibilities for applying Mayer's (2014) principles in teaching violin playing.

The goal	***The principle***	***The application of the principle in violin teaching***
Minimising non-essential cognitive processing	Coherence principle	Removal of unnecessary notation elements (sounds, dynamic and line markings).
	Signalling principle	Emphasising key parts of notation (rhythm, metre, tonality, finger order).
	Redundancy principle	The notation is not previously played together with the metronome.
	Spatial contiguity principle	Placing the controllers above the notation.
	Temporal contiguity principle	The notation should be clearly grouped in bars according to the duration of each stage.
Mastering essential cognitive processing	Segmenting principle	Performing shorter sections by bars and phrases before the whole piece.
	Pre-training principle	Prior acquaintance with the scale and characteristics of key elements.
	Modality principle	Playing audio material instead of written notation.
Promoting generative cognitive processing	Multimedia principle	Using notation and sound rather than just notation.
	Personalisation principle	Use of conversational style.
	Voice principle	Using the human voice for spoken text and performing with an instrument.
	Drawing principle	Students notate the scale using an online notation program.

Table 1: Definition of Mayer's principles of multimedia in violin playing (Mayer, 2014)

For use in music education, we had to supplement Mayer's principles accordingly. The default text part in the context of auditory perceptual style was replaced by sound as a consequence of playing the violin. We also upgraded the pictorial part of reading the text in the context of the visual perceptual style, by reading the text and notes. With such adapted principles, we have highlighted the various functionalities that CAMIT technology can support. By highlighting the influence of Mayer's principles with the help of experimental measurements, we wanted to confirm their meaningful use in everyday pedagogical practice of teaching the violin. In the past, researchers have been focused on the impact of

technology on learning. Now, however, research on the degree of integration in the learning process, with the help of psychometric reference models, is more at the forefront.

SAMR Psychometric reference model

A number of psychometric reference models are available to examine the characteristics, circumstances, and causes of changes in the learning process. SAMR stands for replacement, augmentation, modification, and redefinition. When teachers integrate technology tools into teaching, the model can be used to determine whether the use of technology has improved or changed learning. The model (Figure 2) created by Ruben Puentedura (2018) has four levels that explain the growing impact of integration in replacing other traditional learning methods (such as writing with pen and paper) to creating a whole new way of learning (when students complete and present a team project using global videoconferencing and a virtual classroom).

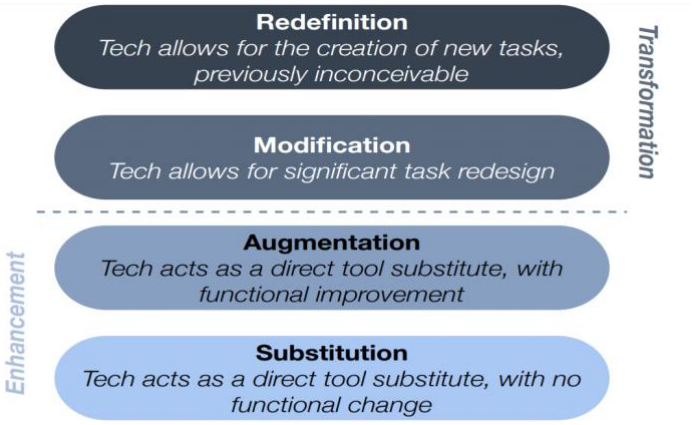


Figure 2: SAMR psychodynamic theoretical model (Puentedura, 2018)

Match My Sound - MMS technology

Computer programs for general learning support have been successfully upgraded in recent years into software tools for computer-assisted instrumental music teaching (CAMIT). The MMS technology (Käo, 2016), which is an example of such a software tool, provides comprehensive and effective support for blended learning to all instrumental families, not just violin teaching. Its integration into learning management systems (LMS) is easy and stable. It is designed (Figure 3) to make the best use of many of the features already offered by online classrooms in MOODLE (Popa et al., 2008). The MMS activity supports reading, updating and deleting grades, and connecting with the student. It provides a safer environment for students in the online classroom than the direct online application "MMS in the cloud". Greater security of student data and the results of evaluations of experiments

performed is ensured. In the online classroom, MMS is downloaded as an external tool and displayed as an activity, and with confirmation, the plug-in enables a direct connection to the aforementioned web application "MMS in the cloud". The plug-in calls up the section My Exercises, where the teacher can assign the desired exercise.

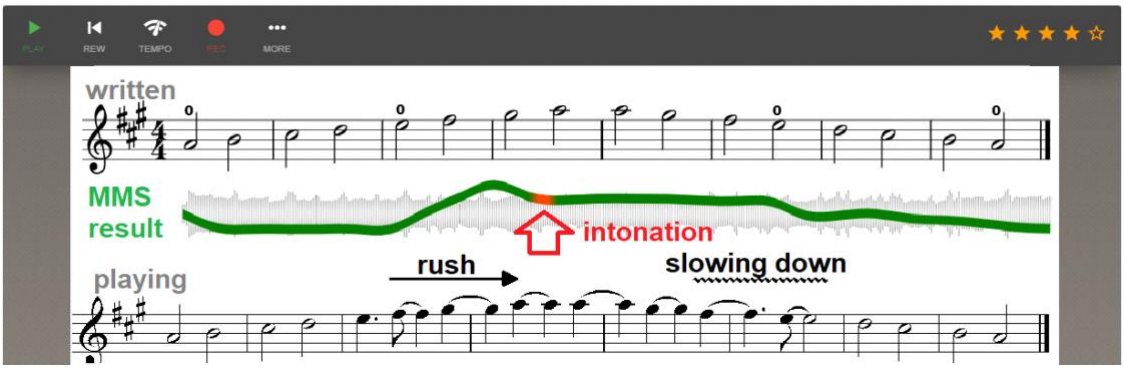


Figure 3: MMS user interface with measurement result

The MMS technology (Figure 3) recorded the audio performance of the scale (or other piece). Upon completion, it created a timeline under the notation that shows a two-dimensional trace of the correctness of the scale played. Raising the line means rhythmic rushing, and lowering it means slowing down. The green colour indicates the correct pitch. The change of colour from green to yellow indicates too high or too low pitch, while red indicates a serious intonation error.

Comparison of the reliability of scale assessment activities from students and teachers through MMS technology

We conducted a three-part experiment. In the first part, we checked the functionality of MMS technology. In the second part, we examined the reliability of teacher assessment of simulated scale errors in MIDI recordings. In the third part, we asked students about their experiences and comparisons of live and remote lessons with the help of multimedia tools.

Measurement

Goal and purpose

The main purpose was to check the functionality of the MMS technology as a teaching aid for evaluating scale playing on the violin, providing feedback to the student with the score diagram of duration, pitch and rhythm, to enhance practicing with the gamification and to achieve a higher level of metacognition and self-regulation. The aim of the experiment was to examine the diversity of assessment of the violin teachers involved, as a result of different auditory-analytical perceptions of intonation and rhythm. The purpose of using this tool is to

identify the meaningful use of technology with e-materials as a learning tool for objective students' assessments. One of the main goals of multimedia lessons is also to encourage students to create a coherent mental representation from the presented e-material.

Research questions and Hypotheses

RQ1: How accurate and telling is MMS technology in scale playing assessment?
RQ2: How reliably do teachers rate scales, in comparison with each other and MMS?
RQ3: What is the degree of technology integration in different learning phases of the learning process of students, according to the reference psychometric model SAMR?
H1: MMS technology is very accurate and always clearly shows errors in length, rhythm and intonation.
H2: Teachers give inconsistent assessments of scales, and less precisely than MMS.
H3: The highest level of integration (redefinition) occurs in the final learning phase of assessment and testing of knowledge, according to the SAMR reference model.

The functionality of MMS as a teaching tool for verification and evaluation

The accuracy of pitch in playing scales is easily verified with the help of digital tuners, which takes advantage of the MMS technology (Käo, 2016). We wanted to eliminate any possible interference that may occur in the experiment when playing and recording with the violin, therefore we used the mechanical playback of the MIDI player in the Sibelius notation software to accurately evaluate the scale recording. For the source, we used the A major scale over one octave in half notes from a1 to a2. The A major scale over one octave is written in the first finger pattern and is often the first scale that students become familiar with. We recorded the scale in Sibelius, saved it as a musical xml. file, and then imported it into the digital storage program of the MMS web application. The errors in the Sibelius program (Figure 4) are highlighted and numbered in the left-hand column. In the right-hand column, there is the notation in MMS with the corresponding time line below the notation.

E-learning material

In accordance with Mayer's (2014), we especially followed the principles of coherence, emphasis, redundancy, prior learning, modality, multimedia, guided discovery and self-interpretation when selecting different learning materials for assessment. We chose thetechnical element of the scale as the most suitable, as it does not contain parameterswhich are more difficult to assess, such as interpretation, dynamics and agogics.

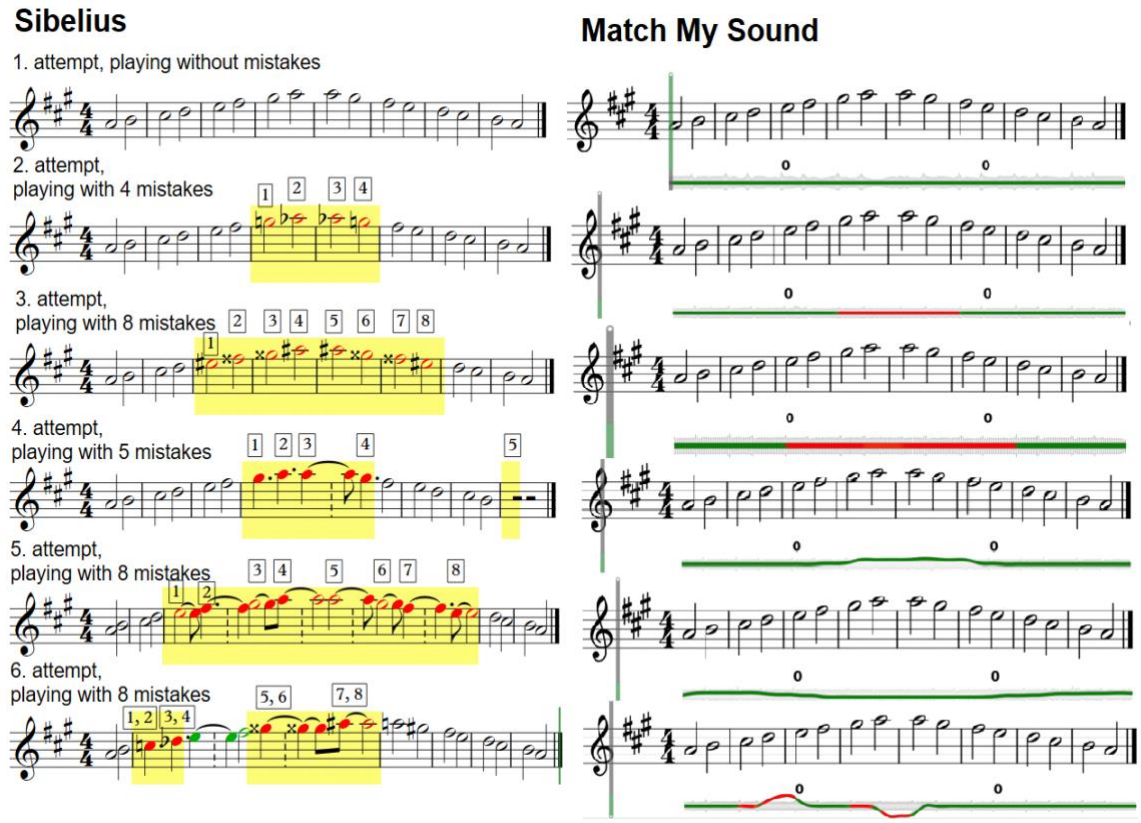


Figure 4: *Comparison between Sibelius notation and Match My Sound evaluation*

The implementations of the scales (Figure 4) were prepared in the Sibelius player according to the uniform methodology as maintained by the principles of multimodality. The first scale in the first attempt was a control and contained no errors. It served the teachers so that they could successfully adapt their auditory-analytical perceptions to the sound recorded in MIDI format. The second scale in the second attempt, and the others in the experiments that followed, contained various simulated errors, depending on the performance of the note, intonation and rhythm. During the implementation of the scale, we changed three key evaluation parameters: the length of the performance, the pitch, and the rhythmic performance of the speed of the half notes. For comparison, the measurements were performed in the web application (WEB) and in the plug-in of the online classroom (MOODLE).

Examining the reliability of teachers' assessments

Eight violin teachers participated in the experiment. We had prepared detailed implementation instructions in the Google drive web cloud. The screening included six scenarios, and the teachers were not aware of any intentional errors in execution, intonation and rhythm. Distorted patterns of scale procedures were formed in the prepared e-material. Teachers were asked to give an assessment of the adequacy of the played scales

according to the required assessment criteria. In the last role of the control teacher (T-08), we performed at first-person level to make comparisons with the reference score.

Scale playback process with MIDI recordings

Teachers performed a blind test of six trials with intentional errors. They listened to MIDI recordings in the Google drive web application. We asked them to imagine a student standing and playing in front of them. They listened only to audio recordings without a musical background, assuming that they were as close as possible to the real situation of the student's performance. Because they took the tests in the classrooms where their classes take place, they were also exposed to sounds from other classrooms. During the course of the test, three key evaluation parameters were changed: the length of the performance, the pitch, and the rhythmic performance of the half notes in the scale. In the first control experiment, the teachers were informed that it was a recording without error, and only confirmed the correctness of the execution. In the other five experiments, however, simulated errors were identified by careful auditory perception. The measurements were recorded in a prepared table in the Google Drive application.

Assessment and grading process

Teachers in the role of assessors signed up for the assessment form on Google Drive according to the assigned code, thus making the authorisation process anonymous, and entered the obtained data into a previously prepared questionnaire. All evaluation parameters were defined, and the evaluation criteria were uniformly defined. The scale was played in half notes, M = 60 beats per minute. The tuning is A = 442 Hz. For the assessment criteria, the teachers used three proposed assessment parameters: a) note played or unplayed (-1 point); b) intonation pure or impure, i.e. note too low or too high (-1 point); c) rhythm correct or incorrect, i.e. played too slowly or too quickly (-1 point). Teachers recorded the number of errors for each parameter separately. There were 16 notes in the scale. According to the three parameters, the highest total number of points is 48. For each error, 1 point could be deducted (16 x 1 point x 3 parameters = 48 possible points). If the errors are doubled (intonation + rhythm), they then deducted 2 points. The summative grade was given by teachers in percentages, where 100% is the highest possible number. Therefore, the sum of all points was multiplied by a factor of 2.08, by the number in % (48 x 2.083334 = 100). The threshold for a positive assessment was 50%. The number of percentages achieved was converted to a five-point rating scale. We proposed the following delimitation of estimates by percentages. The numerical interval between each grade was the mean value of 13%, except for the excellent grade where it is 12%: a) excellent (5) 89-100%; b)

very good (4) 76-88%; c) good (3) 63 -75%; d) adequate (2) 50-62%; e) inadequate (1) 0-49%. The questionnaire contained the same input fields for all five subsequent attempts. All questions were marked as required, and answered by all participating teachers. The data was automatically submitted as responses to the shared Google Drive table.

Depth of ICT integration in students' lessons

We defined five learning phases in the lesson in Table 2: a) Introduction (tuning an instrument with a digital tuner); b) Discussing new learning material (using a digital metronome); c) Practice and training (home practice with digital accompaniment); d) Repeating (playing with digital accompaniment and metronome). e) Checking and grading (assessment of scale and audio recording errors). With each learning phase, we also deepened the integration of technology in the learning process according to the reference psychometric model SAMR (Puentedura, 2018).

learning phases	***activity(ies)***	***SAMR level***	***SAMR Definition***
Introduction	tuning an instrument with a digital tuner	Substitution	Technology acts as a direct tool substitute, with no functional change
Discussing new learning material	using a digital metronome	Substitution	
Practice and training	home practice with digital accompaniment	Augmentation	Technology acts as a direct tool substitute, with functional improvement
Repeating	playing with digital accompaniment and metronome	Modification	Technology allows for significant task redesign
Grading	(audio) recording scales and evaluation of errors	Redefinition	Technology allows for the creation of new tasks, previously inconceivable

Table2: Activities in the learning phases according to the SAMR model

Results

We verified the accuracy of assessment of MMS online and plug-in functionality, the diversity of teachers' assessment and students' use of ICT in all learning phases. Finally, we confirmed all three hypotheses.

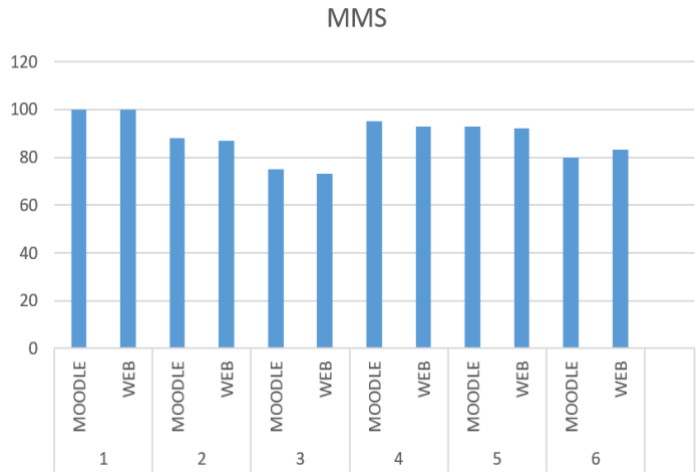
The measurements of MMS online and plug-in functionality

MMS has always accurately assessed all three parameters: played length, pitch, and rhythmic performance. The first parameter - the length of the note - was changed only in the fourth attempt. In other attempts, the MMS program always detected the entire scale played (100%). In measurements of the differences between the arithmetic mean of the expected and actual

result, we found that the MMS program actually gives more errors than expected. The total number of errors is higher when the errors are lined up longer in a single parameter than in the second, third, and sixth attempts. As Table 3 shows, in the 3rd attempt, due to the large number of errors, MMS gave only the total number of errors, without estimating the individual parameters. The standard deviation was always low.

attempt	*tool*	*length played*	*pitch score*	*rhythm score*	*score*	*AVERAGEA*	*STADEVA*
1	MOODLE	100,00	100,00	100,00	100,00	100,00	0,00
	WEB	100,00	100,00	100,00	100,00		
2	MOODLE	100,00	75,00	100,00	88,00	87,50	0,71
	WEB	100,00	76,00	97,00	87,00		
3	MOODLE				75,00	74,00	1,41
	WEB				73,00		
4	MOODLE	97,00	100,00	89,00	95,00	94,00	1,41
	WEB	97,00	100,00	86,00	93,00		
5	MOODLE	100,00	100,00	86,00	93,00	92,50	0,71
	WEB	100,00	100,00	83,00	92,00		
6	MOODLE	100,00	75,00	86,00	80,00	81,50	2,12
	WEB	100,00	78,00	89,00	83,00		

Table 3: Differences between MOODLE and WEB with arithmetic mean (AVERAGEA) and standard deviation (STADEVA)



1: Comparison between MOODLE and WEB score in 6 attempts

Diversity of teachers' assessment

Each of the eight teachers involved provided one measurement. We anticipated that differences between teachers would be more noticeable when different types of errors were

lined up at higher values. The largest standard deviation was in the fifth attempt at measuring rhythm and in the sixth attempt at intonation. The results of individual measurements were summarised in Table 4 with the measured arithmetic mean (AM-AVERAGEA) and standard deviation (SD-STADEVA).

Attempt	*measurement*	*T-01*	*T-02*	*T-03*	*T-04*	*T-05*	*T-06*	*T-07*	*T-08*	*AM*	*SD*	*MAX*	*MIN*	*DIFF*
1	**score**	100	100	100	100	100	100	100	100	100	0,00	100	100	0,00
2	**length played**	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00			0,00
	pitch score	12,50	10,42	4,17	8,33	8,33	8,33	8,33	8,33	8,59	0,18			0,00
	rhythm score	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00			0,00
	score	91,67	89,58	95,83	91,67	91,67	91,67	91,67	91,67	91,93	0,18	95,83	89,58	6,25
3	**length played**	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00			0,00
	pitch score	16,67	16,67	16,67	16,67	16,67	16,67	16,67	16,67	16,67	0,00			0,00
	rhythm score	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00			0,00
	score	83,33	83,33	83,33	83,33	83,33	83,33	83,33	83,33	83,33	0,00	83,33	83,33	0,00
4	**length played**	2,08	2,08	0,00	2,08	0,00	2,08	2,08	2,08	1,56	0,37			0,00
	pitch score	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00			0,00
	rhythm score	8,33	6,25	8,33	8,33	10,42	8,33	10,42	8,33	8,59	0,18			0,00
	score	89,58	91,67	91,67	89,58	89,58	89,58	87,50	89,58	89,84	0,18	91,67	87,50	4,17
5	**length played**	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00			0,00
	pitch score	4,17	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,52	0,37			0,00
	rhythm score	0,00	16,67	16,67	16,67	16,67	16,67	12,50	16,67	14,06	**1,84**			0,00
	score	95,83	83,33	83,33	83,33	83,33	83,33	87,50	83,33	85,42	1,47	95,83	83,33	**12,50**
6	**length played**	0,00	0,00	2,08	0,00	0,00	0,00	2,08	0,00	0,52	0,37			0,00
	pitch score	12,50	8,33	10,42	8,33	14,58	8,33	14,58	8,33	10,68	**1,66**			0,00
	rhythm score	4,17	8,33	4,17	8,33	12,50	8,33	6,25	8,33	7,55	0,55			0,00
	score	83,33	83,33	83,33	83,33	72,92	83,33	77,08	83,33	81,25	1,47	83,33	72,92	**10,42**

Table 4: Overall results of teachers from the arithmetic mean (AM-AVERAGEA) and standard deviation (SD-STADEVA).

The largest difference (DIFF) between the highest (MAX) and lowest (MIN) score was in the measurements of the fifth attempt by 12.50% and slightly smaller in the sixth attempt by 10.42% in Table 4. The smallest differences between the measured values for individual teachers were in the third attempt, as all teachers gave a uniform grade, i.e. 0%. Exactly

the same result as the control teacher was measured by two teachers, which represents 28.57% of all teachers, without the control teacher. T-08 was a control measurement; the control teacher presents the correct measurements (Chart 2)

All teachers carefully understood the instructions and independently assessed the sound examples and transmitted them correctly via a prepared computer. Only one teacher had difficulty replacing the parameter played note and rhythm in the fourth attempt, and needed an additional oral explanation from the control teacher before submitting the results.

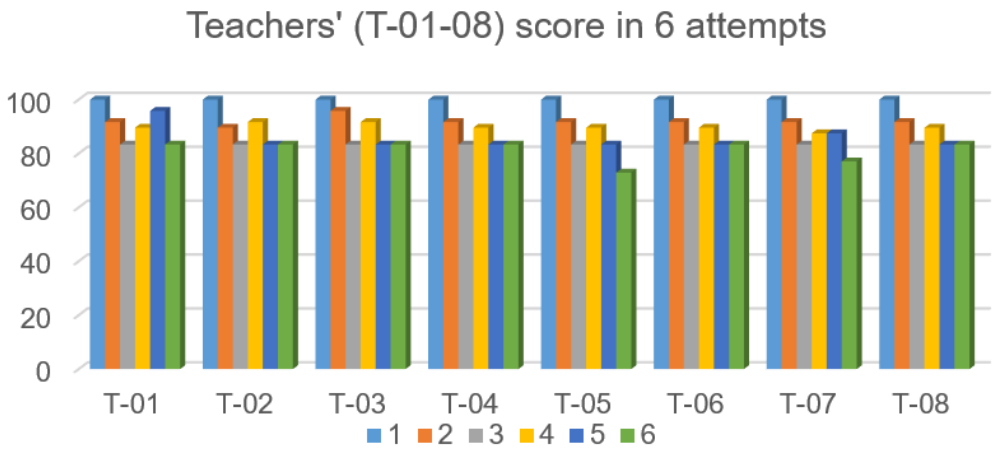


Chart 2: Comparison between teachers and control teacher (T8) in 6 attempts

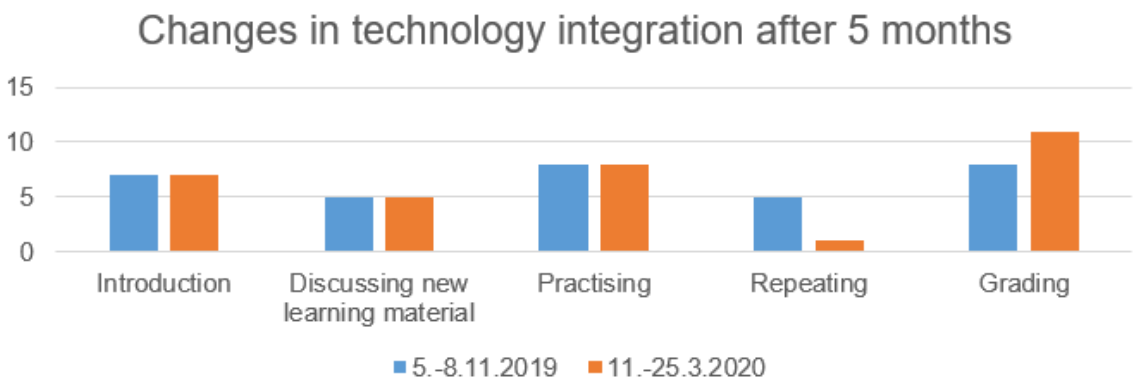
Students' use of ICT in the learning phases

Then, we asked 14 students in which learning phases they use technology. They used the uniform descriptors in the questionnaire to confirm the use of ICT in the particular learning phase. We checked the results of the answers of the first and second time cycles, and detected significant differences in the fourth and fifth learning phase. In the fourth phase, repetition, mainly related to digital monitoring, the number decreased significantly. However, the presence of technology in the final fifth phase of verification and evaluation has greatly increased, due to the increased use of automatic evaluation using MMS as shown in Table 5 and Chart 3.

Cycle	*Introduction*	*Discussing new learning material*	*Practising*	*Repeating*	*Grading*
5. - 8.11.2019	7	5	8	5	8
11. - 25.3.2020	7	5	8	1	11

Table 5: Comparison of the use of ICT in two different time cycles by learning phases

Chart 3: Representation of MMS technology integration by learning phases



Conclusion

MMS learning technology is reliable in obtaining assessment results. A comparison of manual teacher assessment and machine assessment with the help of MMS showed significant differences. There was no significant deviation from the control evaluation in the verification of MMS functionality in ten iterations of the evaluation of six attempts. Meanwhile, differences in teacher assessment were evident in four of the six cases. Since the first case was a control case, all teachers uniformly provided the correct result only in the third case. Over a five-month interval, students increasingly used MMS in the final stage of assessment. This indicates the presence of self-regulation. Checking students during the COVID 19 pandemic (March 2020) has also shown how deeply the integration of ICT has changed blended learning due to social distancing.

When students try to build meaningful connections between sound and images, they learn more deeply than they could with words or images alone (Mayer, 2014). Through gaming with the help of MMS, students deepened the integration of technology in the learning phase of assessment to higher taxonomic levels of learning, from simple substitutions to redefinition according to the SAMR model. Researchers in the field of violin pedagogy have so far not used the [use of] cognitive theory of multimedia learning (CTML). This research should be extended to other instrumental groups with a longitudinal study.

With new ideas, we would like to see multimedia learning in the future encourage the creation of new learning strategies with blended learning models. By introducing new methods and learning strategies, we want to create initiatives for process innovations that can significantly improve the quality of teaching, and create successful conditions for learning violin and viola, also for students with learning difficulties and less developed auditory perception (hearing). We expect music teachers to use innovative approaches provided by digital learning tools to upgrade existing learning practices with new functional replacements, extensions and updates, thus redefining the learning process in terms of the modern constructivist learning paradigm.

Acknowledgements

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The Use of SmartMusic® Platform in Strings Pedagogy[3]

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Abstract: SmartMusic® is "a web-based suite of music education tools that support efficient practice, helping musicians to develop and grow". It provides digital accompaniment from a large repertoire library that includes not only music, but also method books, warm up and sight reading exercises from some of the major US music education publishers. Its practice tools include metronome, tuner, and the ability to loop sections. With the assessment tool, students can see which notes and rhythms they played correctly/incorrectly. The music can be read from the computer screen or can be printed from a downloadable PDF file. Teachers can also create their own exercises and arrangements and share it with students. In order to have access to its entire library, SmartMusic® users have to pay an annual fee. Its prices vary according to the type of account (student/teacher, individual/institutional). There is also the free option that allows us to access most of its teaching tools and a fraction of its repertoire. Several academic research papers have been published in the USA investigating the efficacy of SmartMusic® with music students, the majority of them in wind ensemble settings. The particular interest of my doctoral research is the effect of digital accompaniment on the intonation of cello undergraduate students. I have created exercises using SmartMusic® based on excerpts from the standard repertoire for intermediate to advanced cello students to address this.
Keywords: SmartMusic; digital accompaniment; music education technology; strings pedagogy.

SmartMusic®, what is it?

According to its publicity, SmartMusic® is a web-based suite of music education tools that support efficient practice, helping musicians to develop and grow. SmartMusic® provides students and teachers with access to thousands of band, orchestra, and vocal pieces, allowing students to practice with an accompaniment and get immediate feedback on their performance. (Makemusic, 2020)

The online platform SmartMusic® has its origins as a hardware-based program of digital accompaniment for solo wind instruments and voice named Vivace®, produced by Coda Music Technology, Inc. and launched in 1994. This software was acquired by MakeMusic®, Inc, the same company that produces the music notation software Finale®, in 2000. According to Buck (2008) "Continued product development brought additional features to the program, ushering in the transition from Vivace® to SmartMusic®". Among these new features are the software-only version of the program and the addition of the Assessment Tool. In 2003 SmartMusic® was listed for the first time in the String Industry Council Membership Directory from the American String Teachers Journal, announcing the arrival of strings accompaniment (ASTA, 2003). Surprisingly, no academic articles about the use of SmartMusic® were published in both journals of the American String Teachers Association. We can find the same lack of interest in the two most popular template and

[3] Translation: Pedro Henrique Ludwig. Translated under the organizer authorization of the "Anais da II Conferência Nacional do Encontro de Cordas Flausino Valle". Originally published under the reference: Ludwig, P. H. (2020). A Utilização da Plataforma SmartMusic® no Processo de Ensino/Aprendizagem dos Instrumentos de Corda. Anais da II Conferência do Encontro de Cordas Flausino Valle.

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guidelines for magazine authors about the violin family, Strings (USA) and The Strad (England), with both of their websites not showing any entry in their search tool. In a search for thesis and dissertations about the use of Vivace® and SmartMusic® on Google Scholar, I found 24 works and only four of them were about their use on strings education, two from the USA (Conrad, 2008; Voltz, 2016) and two from Portugal (Ribeiro 2016; Zupancic, 2016). This scarce number of publications may serve as evidence that although being in the strings market for 17 years, this educational technology tool may not be as popular among string teachers as one would expect. In 2016, MakeMusic® announced the New SmartMusic®, which is the actual version of the program, an online platform that runs on any computer with the Google Chrome browser. The "classic" SmartMusic® was disabled in 2020. The technical requirements are fairly simple. It runs on any computer (Windows, Mac or Chrome Book) with the Google Chrome browser and high-speed internet. It also runs on iPads but not in other kinds of tablets. It doesn't run on any kind of smartphone as well. Headphones and speakers are recommended, but not entirely necessary. Since most laptop speakers don't have much sound intensity range, external speakers or headphones may be necessary. Cellists and bass players may have some difficulty using wired headphones while practicing with SmartMusic®, since their cord length is usually too short. In these cases, extension cords might help.

Practice Tools

The **Digital Accompaniment** is the main function of this platform. With it you can play your part while the computer plays the accompaniment. According to the SmartMusic® website "Professional reference recordings provide students with a sense of how their part fits in and an opportunity to model their performances after world-class musicians" (Makemusic, 2020). In my exploration through the strings repertoire I could notice that, in fact, part of the accompaniments is clearly recorded from acoustic instruments and real musicians, but not always. Unfortunately, the platform doesn't inform the user whether the accompaniments are recordings or MIDI files. For example, the original Suzuki Cello School recordings[5] from volumes 1 to 4 are available on SmartMusic®, but volumes 5 to 8 are clearly MIDI sounding. With some other pieces, especially for string orchestra, I found it hard to distinguish if the accompaniment is a very clean, uniform sounding real orchestra recording or a very good digitally sampled orchestra. Some other pieces, especially for string orchestra, I found hard to distinguish if the accompaniment is a very clean, uniform sounding real orchestra recording or a very good digitally sampled orchestra. In these cases, regardless of the

[5] The same ones that are usually sold on CDs.

actual sound origin, the instrumentalist can experience a close sensation of practicing with a real orchestra.

Different from the traditional play-along recordings[6], in which the student needs to adapt his playing to the recording's tempo, with SmartMusic® you can control the accompaniment tempo. Even when the accompaniment is an actual recording, the sound quality loss is minimum. In the software version of SmartMusic®, there used to be the "Intelligent Accompaniment" feature, in which the computer could follow the performer's tempo changes in real time (Long, 2011). In the online platform version, this feature is no longer available.Another useful feature of the SmartMusic® digital accompaniment is the **Loop** tool. With it you can select technically challenging parts of a piece and repeat it as long as desired without having to take your hands off the instrument. You can also choose if you want a count-off between loops.

While practicing with SmartMusic®, the sheet music is always shown on the screen and the user can zoom the content as desired. There is also the option of sheet music **PDF download** for printing, although this is not available for all music. Part of the pieces and method books don't have this alternative, probably because of copyright issues.

The **Compose** tool is something I find particularly useful, since I am creating my own exercises. The music editor is simple and intuitive but, obviously, it doesn't have all the resources that Finale® has. Also, if you are used to editing music with a specialized music editing software, you may find the process a little too slow. In this case, there is the option of importing MusicXML files from Finale® or any other software of music notation. Sharing your own composition or exercise on SmartMusic® with students and colleagues is quite easy. There are two ways, by creating a URL link that can be sent by e-mail or any kind of messaging app or through the platform. For the first option, the person who receives the link doesn't need to have a SmartMusic® account, but this link can be forwarded unlimited times to anyone, which may not be interesting for the composer. Sharing through the platform is possible only with other users with a registered account (either paid or free). Forwarding the music by others is not allowed and the platform registers the amount of times the piece was played. I have tried both ways with my college students, and both work very well. In a pilot project I sent the links of exercises through WhatsApp, which is the most popular messaging app in Brazil. When opening this links on their laptops, the platform takes them straight to the exercises, and all of them found it very easy to operate. Once they were familiar with the platform I asked them to create their own free accounts. Sharing the exercises through the platform was also quite simple, none of the students reported any difficulty.

[6] "Play-along or sing-along recordings date back to the player piano [...]" (Thibeault, 2018)

The **Assessment** tool gives the musician instant feedback about his or her intonation and rhythm. “It analyzes music performance, considering the elements of pitch and rhythm” (Buck, 2008, p.7). Clicking on the record button, the computer will not only play the accompaniment, it will also record and assess the practitioner’s performance. Immediately after a note or rest, the program will change its color to green, red or yellow. Green means accurate playing (pitch and rhythm), red means the intonation was not correct and yellow means the rhythm was not correct (see Figure 1). Upon completion of the music selection, the computer displays a percentage of the accurate performance. For a more analytical investigation on the efficacy of this feature, I suggest the reading of works by Buck (2008), Long (2011) and Shih (2018).

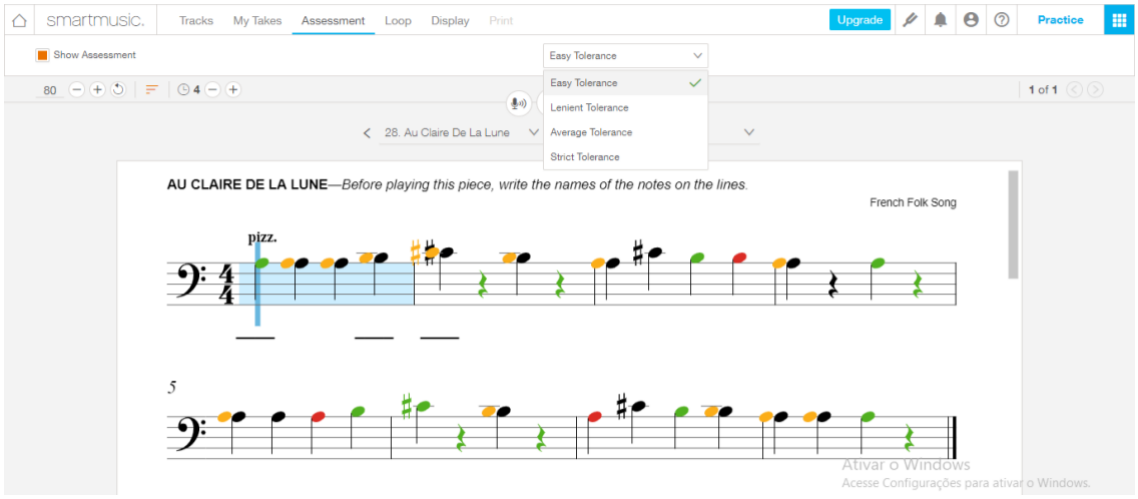

Figure 1. Example of the colour coded assessment result.

For teachers, there are also some specific tools to keep track of the students practice, register grades, rubrics and so on. This is especially useful for group teaching in regular schools, like in many public schools in the USA, they are: **Practice Analysis for Teachers**, **Units**, **Gradebook for Teachers**, **Class Tools** and **Admin**.

The platform also offers a set of courses called **SmartMusic® Academy**, where you can learn about all the features this program offers to music practice. It is organised in units with short videos with one topic each.

Library Content

According to the SmartMusic® website, its **Repertoire Library** has “150+ method books, 5,400+ ensemble titles and thousands of solos from top publishers” (Makemusic, 2020). Most of this collection comes from publisher partners, such as Alfred Publishing, Carl Fischer, Kendor Music, Hal Leonard and Neil A. Kjos Music, besides Makemusic® own

editions. The repertoire covers technique exercises, folk, classical, jazz, rock, pop, religious songs, soundtracks and musicals, from solos to band and orchestra. When searching for violin method books, the search tool shows 38 titles, most of them are designed for heterogeneous string class. The Suzuki Method is available with its original recordings from volumes 1-4 for violin and cello and 1-3 for viola and bass, the other volumes have MIDI sound accompaniment. There are also six titles for learning jazz and blues improvisation. All of these methods have some kind of play along feature in their original version, with accompanying CD's or downloadable mp3 tracks.

Pricing

Rudolph (2006 as cited in Nichols, 2014) stated that when Vivace® was released, the purchase of its software and hardware "cost several thousand dollars, and owners needed to spend hundreds of dollars more to purchase solo accompaniments. By 1998, Vivace® was renamed SmartMusic®, no longer required expensive hardware, and the program became subscription based". Nowadays SmartMusic® accounts range from zero cost to US$ 80 a year. A one year individual subscription costs US$ 80 for a teacher account and US$ 40 for a performer account. For institutions, SmartMusic® offers the "academic pricing", reducing the subscriptions to US$ 40 (teacher) and US$ 10 (student) a year. In this case, there must be a minimum of 3 teachers or 25 students (SmartMusic, 2020). You can also have a free account with access to a small amount of the repertoire, technical exercises, sight reading exercises, the book 1 of the method "Sound Innovations for String Orchestra"[7] and all the practice tools. So, even if you can't afford a paid subscription, SmartMusic® can still offer some useful resources.

My Experience in an Undergraduate Music Program

Since I am a college professor, I have undergraduate cello students majoring in both music education and music performance. So, a question I asked myself after getting to know this platform was: **How can SmartMusic® help string players in an intermediate/advanced level?** I mean young adults that are seeking a professional career in music. The most advanced solo repertoire for cello I found on its library was in volumes 6 to 8 from the Suzuki Cello School, as most of the material in the platform is designed for beginning to intermediate levels. It might be too complicated to, for example, practice an entire movement of a romantic concerto or sonata, with all its tempo nuances, using digital accompaniment, but still, some help from this technology might be useful, especially for intonation issues.

[7] Phillips, B., Boonshaft, P., & Sheldon, R. (2010). *Sound Innovations for String Orchestra, Book 1*. Alfred Music.

David Popper's *High School of Cello Playing* Op. 40 are well known among cellists for its high technical demands for the left hand. Figure 2 shows the beginning of Etude No. 3 with an accompaniment I created on SmartMusic® in order to guide the cellist's intonation. This second voice was arranged based on a harmony analysis, using pitches that work as roots for every chord identified in the melody. This way the cellist can tune the notes of the etude with these reference pitches played by the computer. For this exercise I used a piano timbre for the accompaniment.

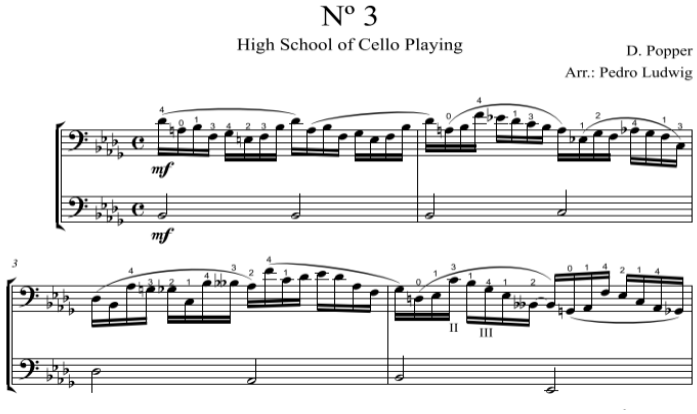

Figure 2. Beginning of David Popper's Etude No. 3 from High School of Cello Playing Op. 73 with a digital accompaniment created on SmartMusic®.

Bach's Prelude from the Fourth Suite for cello solo presents some level of difficulty for the intonation because of its key of Eb major, the large leaps, the frequent string crossings and extensions. Figure 3 shows the beginning of this piece with an accompaniment, again, using the roots of each chord, which serve as a reference for the arpeggios that compose this score. In this case, I used a cello timbre.

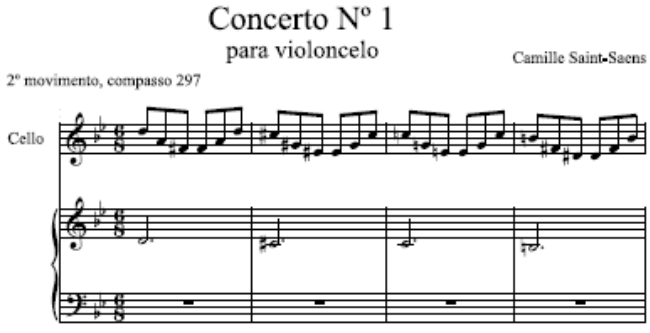

Figure 3. Beginning of the Fourth Suite for Cello Solo by J. S. Bach with a digital accompaniment for SmartMusic®.

In the next example (Figure 4), I created an accompaniment for an excerpt from the second movement of the Saint-Saëns Cello Concerto No. 1. At this point the soloist plays a *cadenza*-like sequence of major triad arpeggios descending by half steps over an octave.

The cellist plays in *capotasto* position and moves the left hand for every new half step down, starting in a slow tempo and accelerating it. Once again, the roots of each arpeggio keep the cellist aware of his intonation accuracy during practice sections.

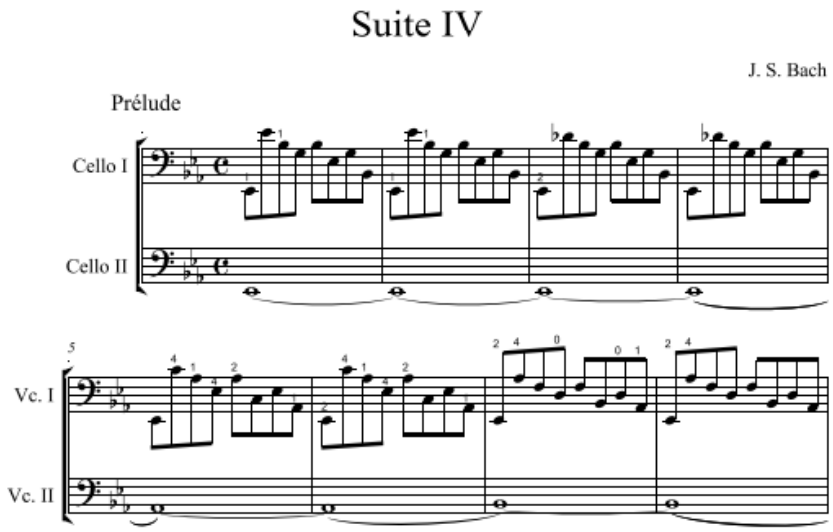

Figure 4. Excerpt from the Concerto No. 1 for Cello and Orchestra by Camille Saint-Saëns with a digital accompaniment for SmartMusic®.

As mentioned above, these accompaniments were arranged to be used on SmartMusic® focusing on intonation issues. I consider them as a sort of "metronome" for the intonation. Purposefully, I use single pitches instead of complete chords in these accompaniments, so the cellist can be free to adjust the intonation according to whatever desired tuning system: Just, Pythagorean or Equal Temperament. A significant amount of academic research about the use of SmartMusic® as a music education set of tools has been produced since its release. Obviously, since most of its content serves beginning to intermediate player most of these investigations focus on the effectiveness of this technology applied to that setting. My experience with students in college level has encouraged me to explore more deeply this subject. Further creation of new experiences and a methodological research would be necessary to assert what is the effectiveness of this resource in higher education setting for string instrumentalists.

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Playing around with modern music: the introduction of extended techniques for string's group classes as a vehicle of raising awareness and learning of contemporary repertoire

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Abstract: 'Playing around with modern music' intends to bring students closer to contemporary music. This intervention project was developed with the 3rd cycle string orchestra in which contemporary music and string techniques are improved. In an interactive laboratory, organized in two sessions, string students had the opportunity to learn about some of the techniques of contemporary writing for strings and recognize the result of them. At the end they were able to read and to play together a music piece composed for the moment.
Keywords: contemporary; modern; string instruments; intermediate students; string orchestra.

Introduction

Like Dominique and Jean-Yves Bosseur (1990, p. 9) I believe that "rich in diversity, contemporary music should satisfy the most opposed aspirations, if in the meantime teaching and information kept pace with its changes and dialogue with it". Transporting this statement into the present time, I can conclude that the investment in contemporary music is now more complete, based on the program choices of the main concert halls and music school's curriculum. However, the contemporary language is still devalued in the learning process of the string instruments, specifically regarding the violin. The way the instrument is taught focuses mainly on the traditional approach rather than introducing contemporary aesthetics and not covering modern repertoire throughout the primary and secondary music learning process. Bearing in mind that the music student is a strong cultural consumer reinforces the idea defended by Bosseur in which "(…) the absence of effective connection between new musical practices and the public is mostly responsible for the isolation of the music of our time". Consequently, Susana Porto (2013) clarifies if we allow the child experience and explore sound by instilling the taste and pleasure of producing music through sound objects - looking for new sounds and different aesthetics - we are crossing borders for the new and the unknown so that, in the future, the understanding and acceptance of modern music take place. (p.143)

In addition, having contact with different techniques accelerates the instrument's learning process and the consequent domain of it.

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The research problem

Based on the previous ideas, I can highlight, as a research problem, the shortage of contemporary music in violin teaching. How are students encouraged to listen and to play contemporary music? Do instrument and group teachers try to insert this repertoire in their classes? What are the main reasons for teachers not to include it?

As an improvement plan, I proposed a direct approach with the 3rd cycle string orchestra through an intervention project designated by 'Playing around with modern music'. This project embraced not only violin students but also students who play viola, cello and double bass. The main idea was to provide these students with an opportunity to approach modern writing and also to acknowledge a thematic that provides a better domain of the instrument. According to this, it was essential to use extended techniques, often used in this type of writing. These techniques have complemented and developed according to the aesthetics which expanded after the second half of the 20th century. As the string instruments are similar, the writing and the execution of the techniques to be developed and adapted for intermediate students, were also similar.

The main objectives of 'Playing around with modern music' are to elucidate the participants about the techniques of modern musical writing; to contribute to the formation of audiences for contemporary music (in a long-term perspective) and to raise not only the teachers' but also the pedagogical leaders' awareness to include new repertoire in music teaching in general. In addition to these, and focusing on student learning, this project aims to stimulate creativity and to experiment and explore the instrument through non-traditional techniques. After analyzing the research material and concluding the project, it should be possible to understand if contemporary music incites interest both in students and teachers. It is also expected to motivate and encourage greater connection with the instrument, as well as the future investment of this theme by students and teachers. According to the literature review, the importance of including contemporary repertoire should be strengthened.

Effective contemporary music teaching and its benefits

The concept of contemporary music appears to characterize music after 1950, which was an important year due to its history, politics, morality, aesthetic and style. After the Second World War, following the need for recovery and sentiment of restarting, there was an extension of the musical concept resulting in a pluralism of styles. Serialism (serial technique); electronic music (using electronic equipment which allowed for spontaneous and innovative results) and aleatoric music (diversity and unpredictability) are musical trends that characterize the 20th century. The new aesthetic is determined by the

authenticity of the work of art, so the concept of beauty begins to be questioned. New instrument formations are being explored as well as new forms of emitting sound from instruments (Michels, 2007). Since then, 'contemporary' and 'modern' are the words that characterize the art of our century, and its concept is still uncertain and undetermined. The *avant-garde* movement is felt to oppose any stagnation in the musical domain (Michel, 2007).

Looking for variety has been a constant throughout the evolution of music. However, the acceptance and understanding, whether by players or listeners, reveal to develop slowly. Nowadays, it is still quite common to feel and to listen to some displeasure towards irreverent sounds. However, it is important to keep in mind that "likewise, all the great composers of the past, considered revolutionary at the time, also wanted to extend the limits of the musical tradition they had inherited" (Bernstein, 1954, p. 191). Leonard Bernstein, using an understandable and informal vocabulary, uncomplicated the perception of modern writing in his book *The Music World*.[9] As uncovered by an example from the author (Bernstein, 1954, p. 205)

What is the dissonance? (…) It is another perverse word, used to the left and a right to express dislike about music. Here is one of the deepest roots of musical expressiveness, once a dissonant note (the note that does not belong to a particular chord) is always the most expressive of that chord, precisely because it is foreign to him.

Regarding *Tristan and Isolda Prelude* by Richard Wagner, Bernstein commented "Notice that these twelve sounds started to have an equivalent importance from this point on. They live in an anarchic democracy and not in an organized society governed by a well-defined tonic" (Bernstein, 1954, p.209). In conclusion, the evolution of music is still provided by the traditional processes but giving it new colors, rhythms, harmonies and reorganized timbres, which should be valued and encouraged.

The educator is one of the main accountable for this and who must help to listen to the phenomenon sound in a relativistic way, that is, to consider any system of organization (modal, tonal, serial,…) as a particular case within this inexhaustible source of principles of composition that is the world of sound (Bosseur, 1990, p.280).

Dominique and Jean-Yves Bosseur, specialists in composition and aesthetic philosophy, support that "musical pedagogy seems to give little attention to the multiple paths adopted by music today, as if what counted were to inculcate in the student an abstract and museographic knowledge" (Bosseur, 1990, p.280). Generally, music from the 20th and 21st century is transmitted according to ideas and comparisons with antecedent

[9] Translated from *O Mundo da Música* (portuguese edition); Original edition is *The joy of Music*.

eras, mainly with the thoughts of the 19th century. So, there is a risk of underestimating the value of both works, mostly taking into account the personal preference.

Cited by Porto (2013, p. 56), Paynter (1994) enhances this idea arguing that the understanding of a work of art (referring in this case to a musical piece) can only stand out according to its own individuality. Linking this notion with pedagogy, the teacher should orient the student in order to reflect on the work, addressing aspects such as the concept of aesthetic and structure, thus instigating interpretative autonomy and individuality. In order to promote and deepen the listening of classical music in the contemporary society, one of the fundamental objectives is to educate the listener so that he does not persist in finding the same compositional intentions, the same sounds, the same technical treatment, nor the same delight that one obtains with works of composers prior to the 20th century. (Martinez, 2004; as cited in Porto, 2013, p. 76).

In order to obtain a more oriented procedure, the teacher must pay attention to the student's musical culture, for example, his preferences, favorite composers, styles and even musical ensembles. Thus, the orientation given and active influence by the teacher should complement the musical universe of the student, which may for instance include strategies according to a referentialist or formalist approach (Porto, 2013, p. 77). The teacher should avoid comments regarding the quality of the work or their preference keeping their main goal: the child's interest and perception of music in general. Through actions such as listening, thinking, verbalizing, writing, describing and representing, the student is subtly oriented towards creative and critical thinking, important aspects for the development of their personality and their conscience.

Strategies such as those listed above must be continuously applied during the student learning process from the first class, using works from the various periods. Even in pre-school children, this way of teaching can be carried out effectively with contemporary music, following the principle of starting with experimentation and afterwards creating an approach to theoretical aspects, as defended by several pedagogues of the education (Porto, 2013). The similarity between musical learning and language development is recognized worldwide and the early years of life are crucial regarding creating a solid basis for the child's evolution. Edwin Gordon (1997) points out that since birth to 5 years of age, musical experiences have a profound impact on how your child will understand, appreciate and conquer music as an adult. Therefore, during preschool, a child should have contact with an abundant and complete musical universe in order to develop the necessary tools for assimilation of their learning at later age stages. In the process of language learning, Gordon (1997) sequences five steps In learning to speak, children first listen. (…). Soon after, children begin to imitate. (…). Then they begin to think in the language. (…) Next, children

improvise in the language. (…) Finally, after several years of developing their ability to think and speak, children are taught how to read and write.

The theory of Gordon's musical learning is structured by these principles, following the specific objective of the 'audiation', which is a concept created by the author and It takes place when we hear and comprehend music for which the sound is no longer or may never have been present. (...) It is a cognitive process by which the brain gives meaning to musical sounds. Audiation is the musical equivalent of thinking in language. (...) When listening to music we are at any given moment organizing in audiation sounds that were recently heard. We also predict, based on our familiarity with the tonal and rhythmic conventions of the music being heard, what will come next (The Gordon Music Institute, 2020, para 1,2).

How can *audiating* contribute to the acceptance of contemporary music? Gordon (2000, as cited in Porto, 2013, p.90) "says that through training of the ear, it will be possible to *audiate* what seems to us a priori to be difficult recognition and understanding, such as certain trends compositions like atonal music, which Gordon calls multi tonal music". The author considers atonal music as music that integrates various tones, although these can change very quickly.

Therefore, considering that contemporary music is very demanding in terms of performance and technical dexterity, it is essential that there is an adaptation of musical techniques and language so it can be adapted to different levels of development. Mariana Krewer (2018) focuses her attention on the contemporary techniques aimed at intermediate level string students. Normally, only more advanced players are able to perform the existing material, creating not only a barrier for curious younger students but also a distance from contemporary musical aesthetics.

As already mentioned, musical writing continues to evolve, therefore there is a consequent need to also develop the strategies of teaching. Hence, it is important that students, teachers and professional players have access to more information as well as more experiments with modern writing and technique.

Extended techniques for intermediate students

Taking into account the benefits evidenced by Susana Porto (2013) compared to the stimulation of learning with the contemporary musical language previously described and the compendium structured by Mariana Krewer (2018) about the specific techniques to the intermediate level of strings education, I conceived a project where these two panoramas can be crossed. There is a wide range of techniques, as Patricia and Allan Strange described on *The contemporary violin - extended performance techniques* (2001), but only some of them were explored. The main objective is to adapt them to the academic reality so it can more easily be included in teaching, such as suggests Mariana Krewer. I was also

inspired by the work *Threnody to the victims of Hiroshima for 52 strings* (1960) by Krzysztof Penderecki (1933 -) for the complete list of techniques to put into practice in the project. Consider this, the question arises: how will the use of techniques allow positive impact on the learning process?

The chosen techniques intend to explore several aspects of the instrument. Krewer believes that the learning process can be enhanced while anticipating the approach to this language as well as achieving the goals of a modern violinist or string player: first, a more flexible left hand; second, mastery of a variety of extreme tone colors and dynamic level changes; and last, the capacity of switching between different techniques quickly, but in a controlled manner. It is in the best interest of the performer to be able to build these skills paying attention to the mechanical nature of each movement, in order to not strain muscles and joints unnecessarily (Krewer, 2018, p. 7). Techniques that involve intentional changes of intonation, such as microtonality, and also techniques that involve adding too much pressure on the hands or other body parts were avoided. Intermediate students are still developing physically as well as improving their hearing acuity. Interfering directly in these two areas can be a reason for destabilization, which is not positive for the student learning.

Playing Around with Modern Music[10]

'Playing around with modern music' intends to bring students closer to contemporary music, in this case the 3rd cycle students. This decision, in addition to being supported by the theoretical foundation, is due to the fact that the students' level of knowledge is enough, unlike the 2nd cycle orchestra that has some students with a first experience in a music school or unlike the secondary students which revealed a higher level of technical knowledge.

I can characterize the 3rd cycle orchestra as heterogeneous, naturally by including students of 7th, 8th and 9th grade which have different levels of maturity and technical knowledge. The younger students begin the most evolutionary process of learning and older ones are already in a more consolidated stage of knowledge.

Session I

Regarding the 1st session, I proposed an anonymous questionnaire with the objective of knowing what the students understood about contemporary music and the regularity with which they listen or play contemporary music. It consisted of 6 single-select and 4 open-ended questions. It was structured in three groups: personal characterization of the participant; characterization of general knowledge about the theme; motivational aspects. The questionnaire was completed in the first session by 36 students before any deepening of the theme, in order to understand the general knowledge of the students as well as the

[10] Portuguese original name: Laboratório de Modernices

experience with the theme to be developed. The results were interesting and support my need to explore this subject.

The students were aged between 12 and 14 years old attending classes of 7th, 8th and 9th grade. There were 9 violins I, 9 violins II, 8 violas, 6 cellos and 4 double basses. The ratio of string instruments per class is: 7th grade class had a total of 13 students; the 8th grade had 9 students; and the 9th grade had 13. The violin was the most prevalent instrument in the three described classes taking into account the conventional orchestra's distribution. Regarding the viola, there was a greater number of students of this instrument in the 9th year as opposed to double basses that were only distributed over the 7th and 8th grades. Cellos had a greater number of students in the 7th grade in contrast to the 9th grade with only one student. This distribution affected directly the general attitude of each section: violas were the most homogeneous section, with good posture and a lot of technical dexterity contrasting with the double basses which showed some shyness in their performance.

Questions	Results	
1. What do you understand about contemporary music?	17%	Null
	23%	Valid
	60%	Not valid
2. How often do you listen to contemporary music?	0%	very often
	36%	sometimes
	49%	rarely
	15%	never
3. How do you do it?	34%	Concerts
	0%	CDs
	0%	DVDs
	25%	Youtube
	8%	Spotify
	33%	Radio
4. During your instrument or group classes did you have some contemporary music experience?	20%	Yes
	72%	No
	8%	No answer
5. If your answer was Yes, please write the name of the piece(s) you've played.	(*)	
6. Have you already participated in an event/workshop/masterclass regarding this thematic?	11%	Yes
	89%	No
7. If your answer was Yes, please tell me which project(s) did you participate in.	(*)	
8. Describe some extended techniques for your instrument.	(*)	
9. How much do you feel attracted to contemporary music?	22%	1
	11%	2
	22%	3
	45%	4
	0%	5
10. What is your motivation to develop your knowledge about this theme?	14%	very motivated
	67%	motivated
	19%	less motivated
	0%	not motivated

(*) qualitative answer

Table 1. Questions presented in the questionnaire and its results.

The first question, an open-ended, intended to understand the knowledge of the students about contemporary music. The answers were varied, which I decided to consider 'valid, not valid and null', according to the notions that characterize contemporary music. A small sample of students, to be more precise only 23%, managed to respond in order to get closer to the ideas of contemporary music, for example focusing on the modern aspect of works, abstract/*avant-garde* language and use of different techniques/expressions. Some examples of answers are "Contemporary music is music that isn't very meaningful, with uncertain and different rhythms and melodies"; "Contemporary music is a song with a different style that is played in a different way"; "Current music (modern)"; "For me contemporary music is abstract music"; "It is a different style and more modern"; "I think it's a kind of more modern than classical music". Regarding the remaining 77%, it represents the 'not valid' and 'null' answers, which moved away from the main concept, style and language and as well as answers that were not filled out or had "I don't know" as a statement. Some of the incorrect answers were "I think it's a mix of songs. Contemporary music accompanies some dances"; "The contemporary music is lighter and often slower".

Regarding questions 2 and 3, I only considered the questionnaires with valid answers to question 1 (7 examples) in order to avoid fallacious results. 'Rarely' was the most chosen option regarding the frequency with which students listen to modern music; 'sometimes' followed it and lastly was 'never', showing the least popular in this subject. However, 34% indicated that they usually did it when attending concerts, which reveals a greater investment in concert programs to include modern music in order to provide listeners with a full musical experience.

It is easily understandable that these students had little or no experience of contemporary music performance in the face of the results of the previous responses. Nevertheless, I highlighted the 20% who answered affirmatively to the question 'during your instrument or group classes, did you have some contemporary music experience?'. Linking the information from the 7 questionnaires that answered question 1, I was able to verify that the answers to this question were majority considered 'not valid', except for only one student who did not respond. So, I could conclude that these 20% are false positives, since the base for their choice did not support the truth of the answer. In addition, when questioned about the name(s) or composer(s) of the pieces performed, the students reported that they did not remember. On the other hand, the student who refrained from completing the first question did indeed reveal that he had contact with contemporary music and the piece he played was *Musikalisches Blumengärtlein und Leyptziger Allerley* by *Paul Hindemith*. This piece, composed in 1927 by the German composer did not however fit precisely into the

contemporary panorama, but his tendency to avoid tonal language indicated that the student understood the general concept of contemporary.

Once again, to the sixth question *have you already participated* 'in an event/workshop/masterclass regarding this thematic?', the largest result revealed the gap in the learning process of these students in the face of the introduction of contemporary music. Four students contradicted this tendency. Two of them did not specify in the seventh question what was the event in which they participated, having answered affirmatively to question number 6; Another student wrote "*An American in Paris* and the J*oly Braga Santos Viola Concerto*", which I suppose was the repertoire performed at some project that he or she integrated as participant; the remaining student said that he was part of the "Festival Música Júnior". However, I noticed that there was some confusion about the concept, because on question number 1 one of the students described contemporary music as "pieces of a slower and calm rhythm" and on the seventh question the student showed at least one work with a more modern language, the Viola Concerto by Joly Braga Santos, composed in 1960.

The participants were also asked to describe some extended techniques they knew for their instrument. Three students answered "pizzicato, staccato and/or detaché" and a 9th grade student wrote "synthesizers and music pads" who revealed that he understood the question, evidencing two characteristic elements of electronic music often used in contemporary musical writing.

The last group of questions focuses on motivational aspects for the development of this theme. To analyze question number 9, I only considered students with a valid answer to the first question. The answers focused on the first four parameters to classify their taste about contemporary music. There is a greater tendency (45%) for number *4*, which is a better result regarding the thematic. To the last question, all questionnaires were considered and the results described that students (86%) are *motivated* and *very motivated* to develop this theme mostly due to the curiosity inherent to the exploration of the concept.

After I demonstrated some scores with an unconventional music writing, I started to explain and to explore the 12 chosen techniques, supporting my explanation with colorful cards and giving the students a document which they could fill during the activity. About twenty minutes before ending the class, I proposed an exercise where the students could practice the chosen techniques, as well as stimulating creativity and autonomy. Each student played a 5 second segment created by themselves resulting in a dynamic and unique sequence of 180 seconds (36 students). The final result was amazing! Some students stood out due to an expansive segment and with well executed techniques, the younger ones who were more shy, followed the directions and confidently carried out their ideas, some of the distracted students were lost in the count and didn't play in their turn but

provided an expectant silence. The exercise was a success in terms of understanding, behavior, creativity and skills.

Session II

The second session took place two weeks after the first. My intention was that the sessions would take place in two consecutive weeks but, at the request of the responsible orchestra teacher, the 'Playing Around with Modern Music' sessions were alternated so regular orchestra class could take place. I was afraid that the content of the first session would have been forgotten and the continuity of learning in the second session would be compromised. However, it was something out of my control, so I decided to start this session with a brief recap of the first session content.

The second session was attended by 35 students: one of the cello students was not present in the first session and one second violin and a double bass student missed the second session. With the collaboration of 12 volunteer students, we exposed the 12 extended techniques so that all students could remember or learn (in the case of the cellist) and all doubts could be clarified. Then, the final exercise played on the first session was performed again, also resulting in a dynamic and unique sequence of 175 seconds this time.

The main objectives of this second session were to explore and execute in an organized manner a musical form which I called *Sperto 23_10* in Esperanto, which in English means 'Experience 23_10' regarding the date of the last session. Being this Project an experiment, in other words a space for musical exploration, it was proposed that students develop their skills in contemporary music for string instruments so 'experience' fitted perfectly. The inspiration in Esperanto comes from its existence as "an artificial language, made by combining features of several European languages, intended as a form of international communication"[11] which can be related to musical language. So, this approach to contemporary music language allowed the students to understand a more complete musical universe.

After analyzing *Sperto 23_10* regarding structure, form and extended techniques symbols we started to rehearse the piece. As a challenge, I proposed to present *Sperto 23_10* to an audience, which was possible because students of the 3rd cycle wind orchestra had class at the same time and their teachers kindly gave up 10 minutes and went to the auditorium to see the work performed by their string colleagues. They settled down and listened to a brief presentation of what would happen in order to contextualize the project followed by the performance of the piece *Sperto 23_10*. The audience was calm and attentive, and the players were concentrated and engaged into the task of performing the piece.

[11] Cambridge Dictionary. (2020). *Esperanto*. Cambridge: University Press. Retrived from https://dictionary.cambridge.org/dictionary/english/esperanto

Overall, it was a very positive experience and the result was quite satisfactory. The proposed objectives were achieved, concluding the activity. At the end assessment questionnaires were distributed to students as well as to the present teachers in order to understand the acceptance of the activity and identify what could be improved.

Evaluation

The ‘Playing around with Modern Music’ has resulted in a successful activity, in which all proposed objectives were achieved. The students were attentive, committed and interested allowing the right compliance with the stipulated time for each content and session. All students were allowed to participate, to question about the thematic, to comment on the exercises respecting their individual opinion in building a more global view. From my point of view, I think I achieved a good relationship with the participants, often interacting with all of them. The content was exposed in an organized manner allowing its continuous connection. Through exemplification and analogy with aspects easily known, the techniques were quickly perceived.

I would like to share one of the students' comments “I enjoyed learning about these new techniques and exploring the instrument. I loved the effect of the final piece! In a short time, we were able to finish a piece that gave me a taste for playing”.

Conclusion

After all this process of researching, conceiving and creating ‘Playing around with Modern Music’ it is important to review what issues were raised in the beginning. How are students encouraged to listen and to play contemporary music? Do instrument and group teachers try to insert this repertoire in their classes? What are the main reasons for teachers not to include it?

It is possible to conclude that students are not very encouraged to listen or to perform contemporary music. As verified, about 80% of the sample did not have contact with this repertoire neither in instrument classes nor in group classes. However, the motivation for exploring the theme was 86%, not to mention the 10% improvement after the activity. Generally, children are curious, and, in my opinion, it is possible to take more advantage of this characteristic for personal and technical development. As was mentioned by one of the teachers which followed the activity, it is not always possible to create moments in the instrument class to deal with themes that digress from the established program. The solution might be to include earlier contemporary techniques and repertoire in the school’s curriculum or to create more activities like the ‘Playing around with Modern Music’, where students can explore music and their instrument.

In an informal context, I realized that the students experimented the techniques at home and also showed it to their families after the first session. In addition, some of the students researched by themselves the theme and found pieces for their instrument that one day they would like to play. This attitude provides more contact with the instrument and stimulates the search for new sounds and new musical ideas, two of the objectives proposed when I was preparing this project. Moreover, there are several benefits that the execution of extended techniques brings to the development of a student's technical knowledge and, when appropriate, do not mean any setback in the learning process.

The distance between the students and the modern music in the end is often similar to the contact of an adult with a foreign language. The reading of the conventional music score is certainly easier and faster compared to the scores that I showed as examples, or even with the score *Sperto 23_10*, used during the last session. But as one student said, “in the first moment there is confusion, after understanding it is possible to enjoy that music”. Therefore, two more proposed objectives were concluded: to elucidate the students for the techniques of modern musical writing and to contribute to a long-term audience for contemporary music.

‘Playing around with Modern Music’ aroused interest in the students and the final result of the piece was very satisfactory. Looking at the students’ reaction after the public presentation of *Sperto 23_10* was absolutely rewarding according to my expectations in this theme. I do not aim to overvalue contemporary music to the detriment of the musical past, but I find it important and useful to combine this repertoire and this language with music pedagogy.

With regard to contemporary music and contemporary performance techniques, “to play or learn something for the first time is always difficult, and the first performance of a work that presents new issues is rarely ideal to the ears of most musicians, particularly for students” (Krewer, 2018, p. 6). Therefore, I consider it essential to continue investing in this thematic, both as a violin player and also as a teacher. As Bernstein (1954, p. 213) points out, “(…) we receive modern art with open arms. And let us accept modern music as the music of our times".

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I Love Mistakes

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Abstract: In this article I will talk about an educational approach to mistakes as an experiential method to teach music improvisation, under the name of Helicona Project. Through a general analysis of different attitudes when making mistakes, the origin of the mechanism of producing a mistake will be investigated, in order to understand from what elements a mistake reveals its discrepancy. The narrative of this article aims to bring the reader to focus on the importance of an experiential attitude, made of acts that include mistakes; the physical and emotional experience will be revealed as the origin of a process that creates rational procedure from which a mistake is judged. The physical and emotional experience in different disciplines is an essential step to understand the development that produced the expressive codes that are responsible for an effective organization of the knowledge of a specific domain. An historical perspective will clarify the importance of Renaissance and Baroque eras as a key time for understanding the process of codification of the expressive codes. This historical perspective invites to consider an action as a combination of a *Content* that moves the action, and the *Form* that shape that *Content*. This *balance*, also sought between *emotional* and *rational* components, is the required attitude of an act of improvisation. A closer view to the Helicona Project will finally present the method used to develop all the strategies for a mistake-free attitude in producing effective musical choices.
Keywords: mistakes; improvisation; multi-disciplines; history; Helicona

Introduction

In this article I will talk about improvisation; this topic may relate to everyday life, even if mainly referring to music. In fact, improvisation has itself become a school of life and this is why it is difficult for me to teach improvisation without talking about everyday life. I owe this to Music because it is the food that fed my childhood and the wings that allowed me to travel inside and outside myself, all over the world. This article references this journey.

In this journey I discovered that improvising does not mean putting notes randomly, without a plan, without taste, without taking into account the music one is playing, the place where it is played, the people that it is played with, or the audience or culture in which it is grounded or performed. So, improvisation is not just a generic freedom: it is much more complex than this, but nevertheless full of fun.

So let's begin: the important thing is not to worry about making mistakes, but actually respect them. I've made many mistakes in my life, and I have learned a lot from them: this opinion is actually shared by many, both in the past and present. So why not set up an educational system that includes the possibility of making mistakes instead of judging and sanctioning them? Why not invest in a system that privileges experiences rather than formulas or rules and time-saving shortcuts? Beyond what might seem like a joke, I discovered that effective strategies can be adopted in accordance with this "intuition". This article will discuss an innovative idea: The Helicona Project.

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A Mistake! Ooops

How many times a day do we make a mistake? Are we more trained to see the mistakes made by others or by ourselves? How many mistakes do we spot around us? I think that it is actually very normal to notice incoherent behaviours in others. Perhaps seeing other people's errors is in some way connected to realising our own weaknesses: the more we feel guilty about our mistakes, the more we see what is wrong in the others.How do we feel when we confront a mistake? My attempt, in the following list, is not to completely cover the spectrum of possible feelings, but to offer some ideas that may resonate with different people. We may feel guilt, shame, frustration, judgement, sadness, happiness; or think of procrastination, social convention, different options, destiny, resignation, rules, new opportunities, uniformity, improvement, empowerment.If we sum up these terms that resonate with us, we may discover WHO HATES MISTAKES or WHO LOVES MISTAKES.This survey is not intended to judge the reader but aims to let us approach the second perspective that generally is less common: to LOVE the errors that arise. It is a possible alternative that may be worthy to take into consideration as educators of others, as well as for ourselves. In any case we may be enlightened from some of the shades that enrich our attitudes from one or another point of view.

What is a Mistake?

Write A mistake is an unwanted or unintentional *faux pas* in discordance with a procedure or a common convention.

A procedure or a convention may be:

- Rules: "*If you do it differently, you will pay a fine*."
- Formulas: "*It doesn't work if you don't follow exactly these steps.*"
- Relationship or Agreement between people: "*Your behaviour puts our relationship/agreement in serious danger.*"
- Tradition or habit: "*We always did it like this, we just can't do it differently.*"
- Act of Convenience: "*Well, it is much more convenient to do it this way.*"

The path has been clearly defined, and we can't change it, or at least it is not convenient to change it, even if the action is unintentional or unwanted.

What is our reaction?

In a schematic description of this topic, I describe two possible reactions that imply some possible effects, as well as some resulting psychological consequences.

If the reaction is:

"NO, this is not the way it should be!"

Some of the effects could be:

1. Correct the mistake in order to follow the right procedures.
2. Keep things within limits that must not to be surpassed.
3. Reduce inefficiency
4. Limit surprises.
5. Avoid wasting time in the short-term.

If the reaction is:

"YES, Good try, try it again!" "What did you understand?"

Some of the effects could be:

- Instigate the desire to try and understand what was wrong.
- Listening to ourselves (and to others) in order to understand the *measure*[13] of what we are.
- Support experimentation and personal solutions which develop creativity.
- Empower individuals
- Invest time in pondering.

Each personal experience may add other effects to this list. But most of all, they may tell us what psychological effect a "NO", or a "YES", may have on our education. It would be interesting to see if there are differences between the answers that we give, and the ones that we would like to receive. How do we feel when we were treated in one way or the other? In any case, my article proposes a different perspective towards mistakes and is not intended to prove the absolute validity of these theories. In fact, sometimes a firm "NO" is necessary to balance the disorganised freedom of a generous "YES". For example, there are "NOS" that bring positive results when one defends her/his space and there are some "YESSES" that could reflect a negative attitude, for example when nobody actually cares about the results.Psychology may sometimes make things even more complicated! So let's use the example above to introduce the general narrative of this article and Helicona's approach, while leaving the solutions to more complex and specific situations for another time.

Where does a "procedure" come from?

Let's investigate: is there any historical basis to this question?

We may all agree that geographic and scientific discoveries have been made over time due to the intuition or even casual attempts of curious individuals. For centuries nature

[13] *Measure* is an historical term used during the Renaissance, when searching for proportions was a partly aim of aesthetics and education. From the *Quadrivium* educational system to Fibonacci/Pacioli, and in all disciplines like Manners, Architecture, Gardens, Fencing, as well as music with the practice of *Contrappunto*, everybody was searching for the perfect proportions, which could be termed as *Good Taste*.

has been our teacher and the art of observation has been the way to understand what to do. The spark of necessity, or even just curiosity, gives an energy to move, and to move means ***to experience, experiment and research***.Humanity has achieved extraordinary results using the principle of experiencing through mistakes. In the same way as the world followed an evolutionary model[14], in shorter periods individuals as well as societies have collected data, useful information, feelings, according to the feedback from their physical and emotional effort. Feedback reports include positive and negative results, the percentage and probabilities of the results, the relationship between cause and effect, and analysis of results through time. Everything begins with a necessity or curiosity that sparks our research. All this information becomes little pieces in a flexible puzzle that humanity uses to organise the expressive codes of knowledge which are then used to define effective procedures. Progress and evolution can be described as the history of all experiences where it is necessary to understand and give form to knowledge.Let's give an example: to represent happiness and welcome, we may use the expressive code of opening our arms widely. This gesture, together with other symbols, has been recognised and catalogued[15] in the 16th century as an effective code to express cheerfulness because the physical and emotional experience up to that moment described this movement as a non-defensive act, without weapons, and then later as a sign of a positive attitude towards someone.

Figure 1. Allegrezza by Cesare Ripa in *Iconologia* (1593)

What has been described in the previous part of this chapter can be summarised in the following diagram:

[14] We refer to Darwin's Evolution Theory.

[15] We refer to the book *Iconologia* by Cesare Ripa, and his representation of *Allegrezza*.

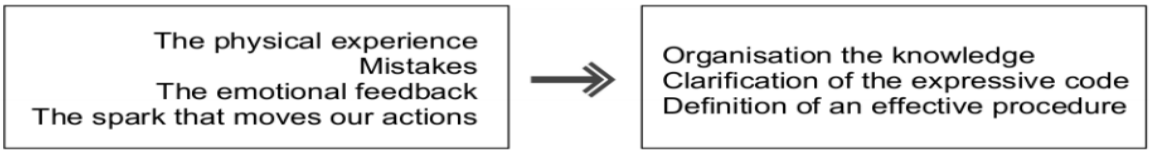

Figure 2. Diagram Content-Form in an historical context

These two categories can also be named as *CONTENT* and *FORM.*

CONTENT is the spark of our attempts, our emotional motivation, a physical engagement, and is the meaning of the story that we want to tell.*FORM* is the shape, the organisation of information, an effective plan to deliver a content, a complex harmonic system of choices. The CONTENT that moves will find an effective FORM to be expressed.Actually, the learning process of a brain follows similar paradigms[16]. A child learns through her/his experiences driven by two main directions: *Casualty* and *Models*.*Casualty* is random experimentation, curiosity, pure attempt and pure mistake. The incredibly fast neurological response of the brain (not influenced by moral or ethical over-judgment) helps to organise the synapses in a convenient and efficient way. The repetition of a rough model will gradually reinforce the good synapses and will eliminate the inefficient actions. This teaches us that our body knows most of the time what is good and what is bad. It also teaches us that casualty is not just a messy attitude: with creativity, c*asualty* can create new models and refine old ones.*Models* are examples of people or mechanisms that already act in a specific way. It means that I can copy an action and my mirror neurons will help me to achieve a faster result. As an example, we can observe how quickly a last-born child learns the psychological mechanism within the family, compared to the first-born. When effective, the *model* is copied and reproduced.[17] This teaches us how important it is for an adult to give a good example, to show how things can be done. But it also teaches us that it is important to be flexible, to be able to adapt and transform old *models*: intuition and instinctive attitudes can be useful for this process.*Casualty* refers to experience, an emotional approach, intuition and mistakes. *Models* are processes already organised with a visible and possibly efficient form. *Ca va sans dire,* if a child is able to experience both processes, *Casualty* and *Models*, her/his achievements will be even more *balanced*.Finding the *balance* is a topic that requires some attention: in this article, we will be able to just mention the need for *balance*, without really finding a proper space to go into depth on the subject.Finally, improvisation can be seen as a discovery between *Casualty* and *Models*

[16] Dehaene, 2020.

[17] For example, we may think of all the experiences of the Neuro Linguistic Programming (NLP).

where creativity is the feeling of being free to experiment and to find an effective *FORM* to represent a *CONTENT*.

Where are we now in this process?

Let's observe the evolution of humanity in order to describe what happened in the past and exhibit the resulting progress in today's society. The aim of this observation is to reveal whether society finally has found a healthy *balance* or not. We notice that today's society is strongly based on rational processes where humans want to be in charge of a complete organisation, not only political and economic life, but they want to control societies and nature too. The temptation of having everything under control with a rational organisation is enormous.

So, we may notice that:

- Society wants to be highly organised.
- There is a massive development in information technologies.
- The analytical thinking is the dominant way of reasoning.

This produces benefits and side-effects, including:

- A high level of bureaucracy.
- A general well-being in rich societies, with a generally safe environment (sometimes illusive).
- A delegation of responsibility towards procedures and away from individuals.
- A fast society.
- A society of doing (producing).

In the beginnings of humanity, we can notice that it was exactly the opposite:

- A supremacy of instinct and intuition due to survival attitudes.
- People learnt from listening and understanding nature.
- Analogical thinking was the dominant way of reasoning.

It may have produced the effects like:

- Living in a generally unsafe environment with a high risk of death.
- High development of personal responsibility.
- Slow-moving development of societies.
- A society of being

The purpose of this analysis is to place evolution and development in the same model that we already described in the previous paragraph. The emotional and physical approach typical of a primitive society has been transformed into the rational and mental organisation in modern society. This transformation can be simply expressed in the following diagram.

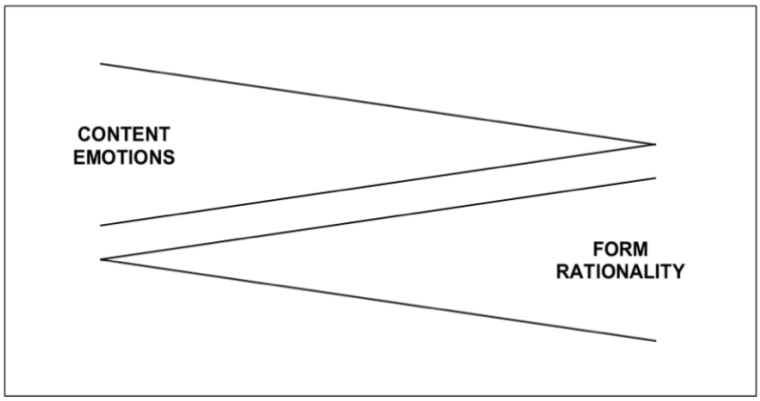

Figure 3. Diagram Content-Form, Emotions-Rationality

The effects of this transformation in human evolution are clearly visible. However, probably neither of these two extreme positions provide favourable benefits. Mistakes could help us to consider a broad perspective.

Why are mistakes important?

Many educators have stated that mistakes can be empowering and can also help us to take another step: they can help us to find a *Balance*.My proposal is to use mistakes to understand the special moment in which *Content* becomes *Form*, in which experimentation becomes an expressive code, in which an emotional spark finds a rational and effective organisation.This is a very special moment because it includes an emotional power that moves and a beauty of form. This is what happens when someone successfully includes improvisation in a concert: it is a positive sign when the public is not able to understand the difference between what is written and what is improvised on-the-spot. This means that what is *Form* is full of energy and what is *Content* is well-shaped.Within this process, a mistake can also become an opportunity to discover new paths and explore new *Contents* and new *Forms*.

How can *Content* and *Form* be balanced?

Balance has become a strategical element of my research spotting an educational need when facing situations in which one side of the opponent's terms, *Content* and *Form*, *Emotion* and *Rationality*, carries more weight than the other and hence produced ineffective results.Years of experimentation, discussion and verification, and love of wisdom[18], have led me to set up a method focusing on a search for *Balance*.The name given to this idea is

[18] Philosophy: from Greek: φιλοσοφία, philosophia, "love of wisdom".

Helicona Project. Helicon is a Greek mountain where in mythology the Muses used to gather. On this mountain, Pegasus, the flying horse, produced a spring of water, called *Hippocrene*, kicking a rock with his hoof. *Hippocrene* is a special source of water from which those who drink from it receive inspiration. This metaphor places the Helicona Project in a virtual place where actions are produced, inspired by a mistake-free environment, in order to practice the connection between *Content* and *Form*.Let's describe the three basic pillars that serve as main strategies for this method: **History**, **Multi-discipline**, **Music improvisation**.

Historical perspective

The previous diagram describes two opposing elements, Emotional/Content versus Rational/Form but also suggests that a hypothetical intermediate position may exist where two elements are balanced. It is necessary to analyse the course of history in order to find the moment where this balance may have happened naturally; this investigation may lead to some information that can enrich our perspective.

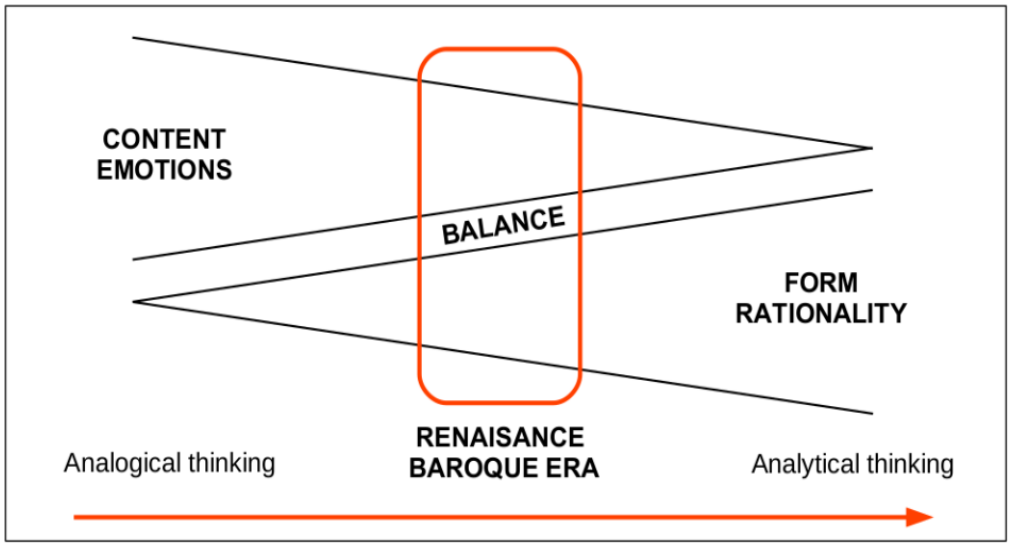

Figure 3. Diagram Content-Form in an historical context

The passage between the Renaissance and Baroque brought revolutions that have laid the foundations of the Modern Era, which can help us to find the *balance* we seek.Different disciplines introduced different outcomes when contributing to the epochal change between 1500 and 1600.[19] Despite a certain fragmentation of information distributed throughout a vast spectrum of knowledge, we would like to find a *fil rouge* that unites a line

[19] In Kate Van Orden's book (2005) she provides surprising insights into the historical moment that we are dealing with, which we will refer to when discussing our theories.

of thinking during that time. The scientific and artistic revolutions moved in parallel with the revolutions in the religious, political and social spheres; the Reformation and Counter-Reformation, military conflicts in Europe (including the many wars of religion between 1522 and 1712), but also plagues, furnish explanations for many transformations in different domains by innovators, philosophers, scientists, artists and educators alike[20]. These events and people with their philosophies and their actions have given a series of impulses to Western European civilization. They have fundamentally transformed our approach to the world and its manifestations: an *analogical* way of thinking gradually changed to an *analytical* one.*Analogical* reasoning refers to the observation of reality based on the intuitive and *inductive method*, tied to both sensory perception and extra-sensory perceptions; the wisdom of observing nature helps society to survive. Decisions in all domains of social life are taken according to an intuitive understanding of life: this produces consequences that regulate social life, from art to politics, magic and religion, for the caring of the sick, in body and spirit. Communication has been developed through the use of symbolic strategies; this modality, thanks to the *analogical* mechanism of *syllogism*, constitutes the way in which knowledge is organised, also defining the categories of Good and Evil, in a secular and moral sense. But as we know, *syllogism* has also been used to hunt witches, wage religious wars, and control the lives of others.

Analytical reasoning refers instead to a *deductive* way of managing research.[21] The educational system of the Renaissance was the *quadrivium* that included Neoplatonic mathematics on the intellectual side, and music that covered both the intellect and the emotions.[22]Descartes wrote in his "*Discourse on the Method* " of 1637 that research must be autonomous and free from bias in order to be authentic, and that *doubt* must inspire the researcher in the direct observation of phenomena. The observation of the infinitely large and the infinitely small opened up horizons in a system that posited the human being as the only centre[23]. Traditional systems were therefore queried by one side and defended by the other (Luther, Giordano Bruno or Galileo's abjurations). Astronomy and medicine evolved; telescopes and microscopes became the instruments of observation;[24] mathematics

[20] The list of names can be very long. We mention just some of them here: scientist like Galileo Galilei, Kepler, Isaac Newton, backed by theologians and philosophers and educators such as Marsilio Ficino, Martin Luther, Saint Ignatius of Loyola, Giordano Bruno, René Descartes, Michel de Montaigne, or writers, poets and playwrights such as William Shakespeare, Miguel de Cervantes, Torquato Tasso; still in the artistic field we cannot forget Gian Lorenzo Bernini, Francesco Borromini, Caravaggio, Rembrandt, Guido Reni, Peter Paul Rubens, and musicians like Claudio Monteverdi, Giulio Caccini, Jacopo Peri.

[21] Since Aristotle, philosophy makes a distinction between the principles of the *inductive* and *deductive* methods.

[22] Group of four arts called *artes reales*, as Mathematics, Geometry, Astronomy and Music.

[23] The Vitruvius man is measure and proportion in humanism. It is interesting to notice that the geometrical figure in this period is the circle and the sphere, associated to the harmony of the stars, before being transformed to the ellipsis, a typical shape of the Baroque time.

[24] The fame of the telescope and microscope are associated to Galileo Galilei, even if they had been invented

contributed to the development of a rational and therefore scientific approach, in a world still consistently moved by the Neoplatonic conception of numbers. Everything was pervaded by the desire to bring order to a disorganized world.

During the Baroque period, the Neoplatonic iconic elements of the Renaissance underwent a transformation, evolving from stability towards movement. In architecture the circle became an ellipse, gardens featured playful water games and theatrical scenarios; in sculpture torsion and dynamism were introduced to render representations more dynamic, and in painting the contrasts between light and dark were used to highlight the climax of the action. Sensuality, mystical tension, and emotion transformed a system that was previously considered static. The fixed characters of *Commedia dell'Arte*[25] began to lose rigidity, favouring more the psychological traits within one character; temperaments[26] of the Renaissance, through the Theory of Affects[27], led little by little to the extreme dynamism of 20th century psychoanalysis.

Cesare Ripa, wrote *Iconologia* in 1593; this book is emblematic of the art of *analogical* thinking, and can be considered a starting point to understand the turning point of *analogical* reasoning into *analytical* thinking. It is a long list of affects, vices and virtues, printed and described in minute details; every term is characterised through links to symbols (including colours and objects), citations from ancient texts, biblical references and popular wisdom, in order to effectively represent the symbolic synthesis of their meaning during this period.[28]

The historical process I describe is important for the Helicona method because it helps to gain an understanding of the gestures produced in music. If a musical gesture (and a communicative action in general) wants to be effective when delivering a message, it requires emotional and rational awareness. For this reason, Helicona aims to facilitate the comprehension of this mechanism through observation, experimentation and possibly understanding of the physical/emotional effort that defines knowledge and its form, and therefore becomes an expressive code. This strategy helps everyone to be in the closest physical condition to the historical moment where the expressive codes have been established; in this way, even today, we may reconnect to the history of communication and to the essential strategies that society still adopts today, despite that this research is three or four centuries old.

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before him.

[25] The four principal characters in the *Commedia dell'Arte* are: Old Rich man and doctor, Soldier, clever and stupid Servant, and Lover.

[26] The four temperaments of the Renaissance are: Melancholic, Phlegmatic, Sanguine and Choleric.

[27] For a more detailed overview on the Theory of the Affects, please refer to Francesca Gualandri's book, listed in the bibliography.

[28] Cesare Ripa, *Iconologia*, editions from 1593 published in Roma up to 1800 in Mexico City.

Finally, the main goal of Helicona is to promote a learning process in which experience, consisting of possible mistakes, produces a profound involvement, linked to the physical and emotional effort that is perceived during the experience, up to the point of leaving an internal "wisdom" of information; if confirmed by reiteration, it will become an *expressive code*, as a symbol capable of achieving the established communicative purposes.

The world of multi-discipline

This intuition comes from my personal experience, when I realised how activities in different physical disciplines have had a positive impact on the way I play.During my teaching I needed to make the students understand things that couldn't be written in the score, ways of shaping the notes, colours of sounds, rubato, swing and *inegalitè* in time, which the student had trouble understanding. I suggested to approach problems by employing different physical movements, related to different domains rather than music. In fact, a movement in a different discipline may help understand the intention and the energy of a gesture, the same gesture that music refers to when expressing a concept symbolically. Initially, I used to refer to dance, or to theatre, and then I discovered that fencing and horse-riding were also domains that could enrich a student's awareness. Early Music introduced me to a historical approach. Fencing helped me to get closer to the multidisciplinary model of the *Renaissance Man*, architect of his own destiny. In *Il Cortegiano* (Venezia 1528), Baldassarre Castiglione states that a member of the aristocracy must be able to be of good company to the sovereign, and therefore must master various disciplines, including fencing, horseback riding, poetry, astronomy, falconry, dance, and music. For these historical reasons, the Helicona Project includes *music, horseriding*, *fencing*, *dance* and *theatre* as reference disciplines for its pedagogy. These disciplines have been chosen because of the particular physical and emotional involvement that they demand even nowadays: these four disciplines serve Helicona's purpose effectively but we do not exclude that many others could also contribute towards Helicona's trajectory[29].Another benefit when working on an interdisciplinary way is the benefit to integrate an overall vision of knowledge in a society that continually pushes towards highly specific researches: also, in this case a seek of *balance* between a horizontal and a vertical perspective may help find effective strategies. In fact, intuition can discover brilliant solutions when it can profit from diversified resources and strategies, enriched by external influences, capable of relating elements from different

[29] As an example of a multidisciplinary approach through music, you can refer to the article mentioned in the bibliography as *Pensiero e applicazioni prtiche fra scherma e musica nei tempi*, in which I provide a more comprehensive description of the connections between music and fencing.

areas. It may not be a coincidence that Einstein played the violin! Creativity will therefore be greater when our database of experiences is richer. And today's world, highly regimented and not always emotionally educated, needs healthy creativity.

Figure 4. A Rake's Progress, Hogart, 1735, a parody of a multidisciplinary education oa gentleman.

Musical improvisation

The importance of music is widely known also due to recent studies that underline the influence that music has on many areas of the brain, as well as on hormonal and psychological behaviour, both on a personal as well as social level.On top of this, we add the indispensable element of improvisation. Improvisation is not just something related to music. Improvisation is the delicate process that happens, for example, every time we enter into a relationship with someone, choosing the right thing to say and do, in a very rapid exchange of verbal and non-verbal information, which can decide the success of the relationship.

- Improvisation is dealing with the unexpected, according to the information we receive: the senses are receptive in order to be able to understand the context where we are.
- Improvisation is an act in the moment: it is necessary to be reactive, develop our physical and intellectual promptness, concentration as well as awareness of our space.

- We need to find a proper and beautiful answer, the one that best suits the situation. It means to find in one's database of physical, psychic and spiritual information, the best answer to the situation, according to the relationship, the place, the moment, the history and culture in which one acts. This is the moment in which we deal with possible mistakes!

The opportunity that improvised music offers is therefore a formidable training in making impromptu evaluations in an abstract way, facing situations and finding solutions by relying on the ability to mentally plan, connecting one's perceptions with the appropriate strategy to obtain a good result. The objective part of making decisions can be trained, by developing the physical and psychological promptness, as well as discovering and developing possible models. But genius doesn't work with magic formulas: this means that improvisation is not a miraculous ingredient capable of producing genius-musicians who are able to cope with any situation. Each individual needs to find her/his personal solutions that works well in a specific context.

In the Helicona Project, music improvisation is a strategy in which the research and evolutionary process has the same importance as the results.

The educational process

Helicona finally proposes a strategy to train the ability to deal with the moment, in which one is able to listen, evaluate and decide, with respect to her-/himself, others and the situation. In this *objective* context everyone is free to make a *subjective* choice in complete autonomy, being responsible and aware of the consequences. Helicona is a rich and enjoyable mistake-free experience, full of engaging games in different disciplines, all driven by improvised music. This environment produces many beneficial effects on a personal as well on a community level. The improvisational skills guarantee the effects of the method on different areas, thanks to a multi-layered education.

In fact, in order to train the *objective* part of the choice, Helicona offers activities in the following areas:

- Sensorial Area
- Emotional Area
- Relational Area
- Cognitive Area

The **Sensorial Area** relates to the senses activation, which aims to develop personal perception, training the physical awareness of the specific senses, and the psychological focus on listening (being) rather than producing (doing). This work develops our awareness

inside and outside our sphere. In musical improvisation, the work in this area makes us attentive to possible changes in tempo, direction, intensity, notes (melody, harmony, mode, tone, use of patterns, etc.), for example, helping us to be aware if we are or not in "harmony" with the group.

The **Emotional Area** includes the actions that emphasise perception not filtered by conditioning unwanted social processes. This is not a license to free will, but it is an encouragement to an empathic listening to ourselves and others. Training in this area means being aware of the motivational spark that can lead our actions, and that connects us with the others. Therefore, we can consider to start an action, or whether to choose to adhere or not to the proposed direction, and to know when to stop the motion. In musical improvisation, this means to understand the right moment to play a specific note, or to start a movement, or whether to oppose a contrasting phrase to a proposed theme or maybe to support it, being able to feel the energy and the direction that is getting developed, and to understand when it's time to finish or leave room for someone else.

The exercises in the **Relational Area** intend to train sensitivity and attention to the dynamics between two or more subjects of the action; this area concerns the construction of a relationship of trust and collaboration. The model to develop this mechanism is inspired by the theory of "sound dialogue" used in music therapy by Scardovelli and Cremaschi[30] and which is proposed here as a strategy to get in tune with the interlocutor, through three useful steps:

- Matching: physiological, spatial, specular mirroring of actions, sounds, movements.
- Pacing: reciprocal accompaniment to actions, sounds, movements.
- Leading: it is the introduction to novelties that allows one to enter in the relationship naturally and creatively.

Exercises in this area aim to build a creative dialogue starting from the available ideas, through a process of attunement based on trust. In improvised music, this means creating the trust that, for example, welcomes someone as a leader in guiding a note, a phrase, a piece, the performance of a piece.

The work in the **Cognitive Area** refers to the coordination of all experiential and emotional information within an abstract space-time diagram that constitutes our mental map, the GPS we can rely on when moving. It is the database that informs us of what elements in our experience come into play in the choice we are about to do, what efforts, how long, what results, what consequences can arise from an action in a certain direction. Through the exercises in this area, we can imagine and plan possible scenarios. In musical

[30] Scardovelli, 1992.

improvisation this means knowing how to give shape to one's content, whether it is a dance piece with a specific number of steps, or the effectiveness of the tension curve of a narrative.

The work that Helicona offers is actually dealt simultaneously across the areas during the activities in the different disciplines.

Conclusion

Helicona's method is intended to gain (or maybe regain) an educational perspective in which mistakes are positively judged and considered as an opportunity. More exercises and applications can be developed according to each personal sensitivity and creativity. We hope this article was able to express the value of this perspective and maybe to help musicians and educators to say: "I love mistakes!"

Acknowledgments

Behind this article, there is an intense research, in music as well as in life. I would like to thank all the people that supported this project. I would especially like to thank Dr. Jacqueline Letzter for her professional help and friendship, and Maria that tests all my experiments with eternal patience.

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Children with special needs in music Arts education programmes: challenges

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Abstract: In order to contribute to Inclusive Education of children with Special Needs in Arts education programmes in Portugal, an Action-Research project started at the University of Aveiro in 2018. We intend to find solutions for children with motor disabilities due to Cerebral Palsy who enter in music Arts education programmes in the First Cycle of Basic Education, to develop their music potential and abilities through the use of Digital Technologies and Assistive Technologies. We used the Action Research and Content Analysis supported by Computer-assisted Qualitative Data Analysis Software webQDA platform throughout our study. We present what has been done so far: literature review, short training workshop and characterization of the child. With the compiled information it was determined that it is necessary to carry out an Intervention Programme in the Artistic School of the Conservatory of Music Calouste Gulbenkian, Aveiro. This includes a music teachers' intensive Training Workshop focused on the use of Digital Technologies and Assistive Technology, to promote the inclusion of children with Special Needs in music Arts education programmes.
Keywords: inclusion; special needs; music learning; music education; assistive technology

Introduction

Knowledge is influenced by the problems that humanity has faced and to which we seek to respond (Coutinho, 2018; Habermas, 1974; McNiff, 2017). In order for knowledge to become a true holistic practice, dissolving the existing boundaries between theory and practice (O'Grady, 2018; McNiff, 2017), we have built an action-research project with support of Research Center for Didactics and Technology in the Training of Trainers and my advisors.

Initially the research was triggered by the enrolment of a child with Cerebral Palsy in the First Cycle of Basic Education of the Suppletive regime, in a Portuguese school of Arts education programmes in the area of music.

In Portugal, the Artistic education programmes courses (D.L. Nº. 344/1990 of November 2) aim to develop the skills of students with an artistic vocation in the fields of visual arts, dance and/or music. Artistic education programmes intend to be an integral and indispensable part of the person's global and balanced education, regardless of the professional destiny they may have.

In this context, and although the educational inclusion is considered fundamental, as recommended by the Basic Law of the Educational System of 1986 and the D.L. Nº

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344/1990 of November 2, D.L. Nº 54/2018 of July 6 and D.L. Nº 55/2018 of July 6, the courses of music of the Artistic schools are not yet prepared to receive children with motor disabilities arising from Cerebral Palsy. Considering this situation and having as purpose to contribute for the change of this reality, in the year 2018 a Research-Action project was initiated. Next, we will present some of the theoretical foundations that have strengthened the need to develop our action-research project for inclusion.

Framework

The Declaration of Salamanca (UNESCO, 1994) also signed by Portugal, and the theoretical principles provided for in the guidelines for inclusion of UNESCO (1994; 2014; 2016) as well as the Portuguese Basic Law of the Educational System (LBSE, 1986), proclaim the principle of inclusion. These principles provide for the recognition of the need to act with the aim of achieving "schools for all", as institutions with greater educational effectiveness, that include all people, accept differences, support learning, and respond to the individual needs of people (Almeida, 2012; Poker, 2017; Ribeiro, 2018).

For this purpose, different guidelines are established, which are key factors in promoting information, enabling the introduction of innovative teaching-learning strategies and relating the educational practice – reflective and critical, participatory and collaborative – to the adequate preparation of all educational personnel (Barros et al., 2017; Caiado, 2009; Freitas, 2019; Lucas & Moreira, 2017; Moreno, 2020; OECD, 2013; Poker, 2017).

Unfortunately, inclusive practices distance themselves from legal guidelines, due to tensions that arise between the tendency of education towards homogenization versus inclusive principles that suppose respect for rights, diversity and meeting individual needs (Espín-Tello et al., 2017; Prychodco et al., 2019; VanWeelden & Heath-Reynolds, 2017). The conceptual discussion on inclusion, the place of care of students with Special Needs, the lack of funding, the relations between public and private contexts and the responsibilities of the actors involved in this process contribute to this situation (Lee, 2020; Prychodco et al., 2019).

Considering: (i) the inclusive educational dichotomies presented; (ii) the opportunity for all children to develop their artistic potential and skills and; (iii) the research and innovation perspectives for 2030 of Portuguese Ministry of Science, Technology and Higher Education, we will define the objective of our study.

Objective

In order to find solutions so that children with motor disabilities from Cerebral Palsy who entered the 1st Cycle of Basic Education in the music Arts education programmes can

develop their potential and artistic skills, we started an action research project in 2018. Considering this, in the present work we intend to make known some of the activities already developed within the Action Research project, relating these activities with some works found in the literature, with the objective of sensitizing music teachers for the inclusion of children with Special Needs in the music Arts education programmes. In this sense we will start by presenting the Methodology of the action-research study, subsequently, we will present what has already been done and finally the perspectives to develop.

Methodology

The research project, which is in progress, was built following a dynamic, qualitative, emancipatory and logical-inductive way, anchoring the whole process to be developed in a collaborative action-research approach. This methodological process is characterized by having a circular movement that involves planning, acting, observing, and reflecting in order to produce knowledge (Figure 1), that will foster and encourage change and/or improvement in teaching practices (Coutinho, 2018; Habermas, 1974; O'Grady, 2018; McNiff, 2017).

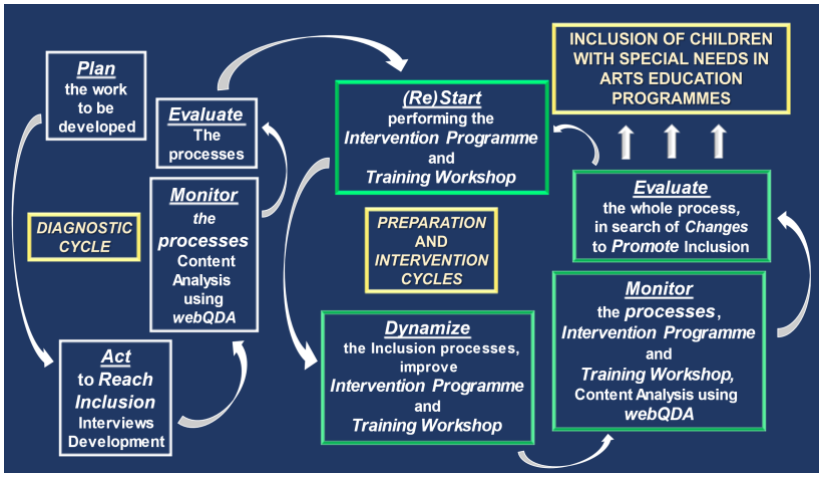

Figure 1: Action Research Cycles

The work plan of our study consists of three research cycles: a *DIAGNOSTIC CYCLE*, a training and intervention programme - *PREPARATION CYCLE*, and finally a training and intervention programme practical development cycle - *INTERVENTION CYCLE* (Figure 1). Each of these cycles considers the actions of planning, implementation, monitoring and evaluation from an inclusive and change-oriented perspective.

The following actions of the *DIAGNOSTIC CYCLE* have been carried out: (i) the initial sensitization training (Short Training Workshop) and (ii) the characterization of the child with Cerebral Palsy that originated the study. All the compiled information was organized and

studied through content analysis supported by webQDA platform[32], a qualitative, web-based data analysis software intended for all researchers and professionals conducting qualitative research (Costa & Amado, 2018).

Equally important was the carrying out of a critical review of the literature (using the SCOPUS and ERIC platforms). These reviews were carried out in English, using the following keywords together: “Special Needs”, “Music”, “Assistive Technology” and “Technology”, considering the difficulty of finding articles with the same terms in Portuguese. Only studies between 2011 and 2020 (last 10 years) were considered.

We found 291 studies, but most studies were related to the therapeutic perspective of Music Therapy and others focused on the approach to the construction (Design) of Support Products/Technologies and Software, with functionalities designed to support the development of individualized music learning among people with Special Needs. For this work, due to its importance in the development of adapted musical instruments, we considered only 6 studies by the following authors: Coton et al. (2014); Matossian & Gehlhaar (2015); McPherson et al. (2019); Samuels (2019); Thomann et al. (2017); Veytizou et al. (2013). Sperandio (2007) was often cited by these authors and therefore, despite being and older study (2007), we decided to incorporate it in our review.

Now that the methodological processes used in this study have been defined, we will present the results obtained starting with the Literature Review, and then will present the actions already carried out: Short Training Workshop and the Characterization of the child.

What has already been done

Literature Review

Considering the information collected on the characterization of the child and as mentioned in the Methodology of this study, in our Literature Review we found some authors who discuss possible adaptations of musical instruments for the teaching of music. We will now refer to five texts, related to our theme, which we consider important:

- Veytizou et al. (2013) presents an intelligent product design that transforms any object the user has at their disposal as a percussion musical instrument. It is based on body functions and structures, which include activity limitations, participation, movement restrictions, and significant environmental factors that children and adolescents with limitations have. He designed his project considering the needs of musicians (specialized teachers in instrumental music and musical manufacture), the guidance of health specialists (doctors, specialist therapists) and engineers (mainly by engineering students and their teachers).

[32] https://www.webqda.net/?lang=en

As part of his work, Veytizou et al. (2013) sought to offer children with needs a product that would allow them to enjoy musical games (activities) and participate in concerts (participation) with the same level of autonomy as their peers, transforming any object in the user's environment as a unit of action into electromechanical systems that generally allow children to perform percussion instruments with good results. His article concludes by focusing on the idea that it is possible for children to learn music regardless of their motor skills (movement, strength ...) and environment (wheelchair, tablet ...).

It is good to point out that Veytizou et al. (2013) work was inspired by the different musical artistic compositions made by LEMUR (League of Urban Electronic Music Robots), a product of the famous Patt Metheny's Orchestra, a prominent musician of the seventies, eighties and nineties, author of the Orchestrion Suite, composed of forty robotic musical instruments. His work can be seen in the following link:

https://www.youtube.com/watch?v=evHVh4bqaOQ

- Another work that we considered important for our study was developed by Coton et al. (2014). These authors focus on human factors as important aspects that influence product design and not the other way around, as is usually the case. In addition to proposing a product and its customisation possibilities, in their article they explain the technological, methodological advances and means used to construct this type of system. They consider that these ideas also apply to the area of music and musical instruments.

The same authors continued their research work, Thomann et al. (2017), presenting in its continuity a new work in the area of Assistive Technology and design for people with disabilities. They continued to defend the idea that before carrying out a design process, users should always be considered. Their multidisciplinary team of designers developed an automated electromechanical percussion drumstick so that children with Special Needs could play a drum. This work has boosted the development of different prototypes over the years, seeking to improve the design of support products by adapting them and making them more accessible, more operational and at a lower price.

- Matossian & Gehlhaar (2015) worked with three accessible devices (HeadSpace, Typhoon and Doosafon), so that users (people with Special Needs) can express themselves creatively through music. These authors believe that by working according to the needs and requirements of people with Special Needs, it can lead us to new ideas and new paradigms for everyone. "…*Adoo has performed with HeadSpace many times since 2001, in an eponymous ensemble and since 2012 in the British Paraorchestra stating", "This is the first time I feel like a musician, not a disabled musician"* (Matossian & Gehlhaar, 2015, p. 3). The same authors express that the history of inventions has shown that the ideas developed, specifically for people with Special Needs, ended up becoming essential tools for the daily life of all people.

- McPherson et al. (2019) developed a protocol of microanalysis of music practice based on the three phases of self-regulated learning, which are prediction, performance, and self-reflection. In their study, they outline a technique that maps the types of behaviour (actions), cognition (thoughts) and affection (feelings), which collaborate in the concentration for the development of musical practice. The importance of this study is in the search of the change of the study habits, so that there are productive practices optimized inside the music schools, which favours the learning of people with Special Needs. In other words, it is important to think "outside the box" to get differentiated strategies to improve the musical practice of any student.

- Samuels (2019), using participant observation as a methodology, found that the music technology devices normally used were not intended to meet the needs of people with special needs, but will make it possible to recover with adaptations, using other devices or adapted interfaces to the specific needs of each one. The same author observed also that it was not only the design of the devices that made them accessible. It was the interrelationship between music teachers, participants and musical technology devices that led to greater musical production.

- Finally, even though it is a bit dated, we want to highlight the work of Sperandio (2007). This author already shows that the problem "still" lies in the search for practical, efficient, and robust systems, sometimes ignoring more advanced technologies. In this case, we run the risk of focusing on obsolete, unfeasible, or very expensive technology, when the important thing is to make a good design from the beginning thinking about people's specific needs. Just to say that we are in the year 2020 and this problem remains.

Short Training Workshop

With the intention that teachers of music Arts education programmes were made aware of the inclusion of children with Special Needs in Portugal, we decided that it was necessary to conduct an initial Short Training Workshop. For this reason and in order to provide the trainees with some tools and specific knowledge to enable them to teach music to children with Special Needs, a short training workshop called "Music as a means to inclusion" (Table 1) was carried out in January 2019.

This Short Training Workshop was justified by the recognition of the need to develop collaborative work and learning processes and dynamics in favour of inclusive education. Its main purpose was, through interaction, to be able to build knowledge, promote inclusion, learning and development of children with Special Needs in music Arts education programmes. Thus, the following activities were carried out:

(i) different works already developed or under development through inclusive music education and/or music therapy (differences, similarities) were presented;
(ii) possible problems that can be found in inclusion processes were identified;
(iii) dynamics and collaborative work processes for inclusion were developed, providing the trainees with tools to teach music to children with Special Needs and;
(iv) the theoretical-practical learning process presented was evaluated.

At the end of the training, questionnaires with semi-open questions were applied to all 60 participants, focusing on the following dimensions: Achievement of objectives, Impact and Training Organization. Content analysis of the answers to the questionnaires was performed as follows: quantitatively and descriptively, based on a numerical scale from 1 to 6, using Excel for the Organization and Contributions dimensions; and qualitatively with content analysis performed using the webQDA software. In the analysis procedures (categories and coding process) the sentence was used as the unit of analysis for the dimensions identified (Table 1)

Analysis Categories and Subcategories

Achievement of objectives	Contribution to critical and reflexive analysis of practices	Critical analysis
		Reflexive analysis
	Contribution to skills development curriculum flexibility	Curriculum flexibility
		Skills development
	Contribution to identifying and solving concrete problems	Problem Identification
		Ways of solving concrete problems
	Promotion of inclusion and collaboration	Strategy presentation
		Video presentation with real cases
		Presentation of diversified material resources
		Sharing experiences and information
		Awareness for inclusion
	Contribution to the professional development of participants	Musical / inclusive pedagogical practices
		Knowledge about problems
Impact	What you liked the most	Real case videos featured
		Speaker's communicative abilities
		Music Approach / Music Therapy
	What you learnt	Assistive Technology / Tailored software
		Music therapeutic treatments

		Specific knowledge of music education
	What you liked the least	Missing more specific training
		Reception conditions
		Lack of time
Training Organization	Suggestions for organization improvement	Increase of Registrations
		Dissemination
		Course duration (Time)
		Prior availability of materials
		Technological Resources
		Human Resources
	Suggestions for content improvement	Coverage of Other Areas / Special Needs
		Applicability to the field of music
		Practical application of the themes
		Dimension / amount of contents covered
		Music and school indiscipline
		Shared reflection on thematic experiences

Table 1: Short training workshop – Tree Codes

For the development of this Short Training Workshop, a practical theoretical methodology was adopted, that is, the action comprised an initial theoretical part and in a second phase a practical theoretical part in which the concepts introduced in the theoretical component were put into action (Moreno, 2019).

The evaluation of this Short Training Workshop was very successful: in all categories the interviewees classified the training organization between *Good* and *Very Good* (Figure 2).

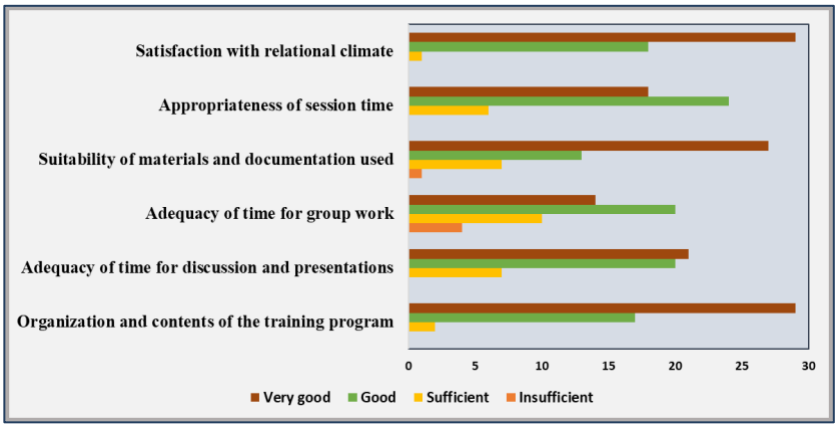

Figure 2: Training Organization Evaluation

The respondents considered that the contribution of the training to the acquisition of specific knowledge for the teaching of music to children with Special Needs was *Quite* and *Totally* adequate (Figure 3).

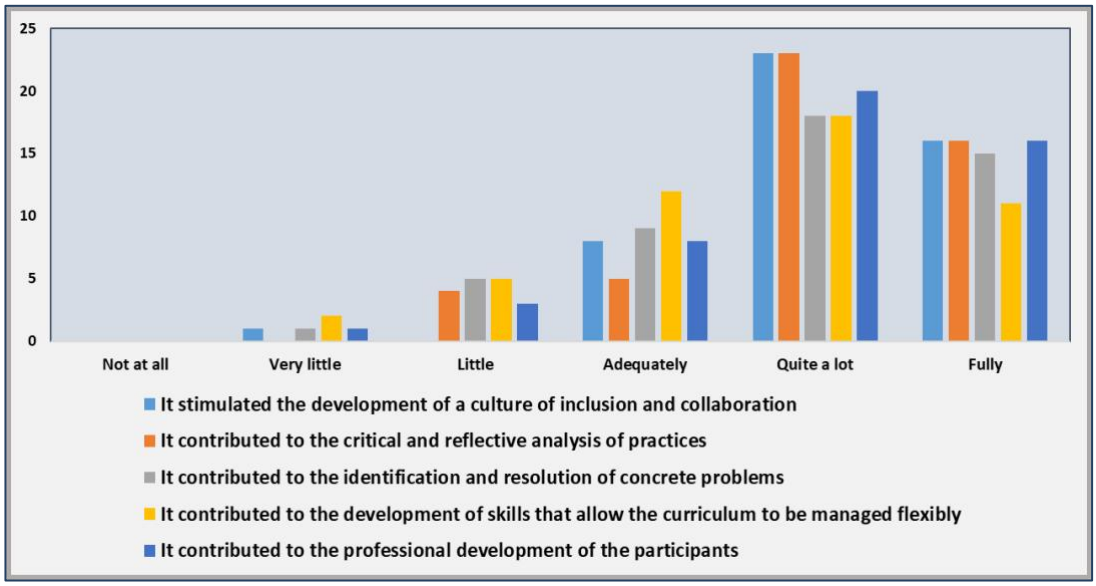

Figure 3: Assessment of the contribution of training for the acquisition of specific knowledge to teach music to children with special needs

In conclusion, the training was very successful, and the participants asked for more training of this kind. They feel the need for more specific and longer training periods with the possibility to reflect, share experiences, learn about instruments, technology, assistive technology, and adapted resources to facilitate the process of teaching music to children with Special Needs (Moreno, 2019).

Considering these suggestions and with the information raised in the Short Training Workshop, we decided that it was very important to do a set of interviews: (i) to interview the professionals working with the child who has triggered the study and thus get to know his/her different potentialities, artistic skills and needs and, in addition, (ii) to interview the parents and the music professionals in order to investigate what was the experience of the music teachers, in the teaching of children with motor disabilities due to Cerebral Palsy, in different contexts.

We have built up the interview script and asked specialists in the field to validate this script. We then safeguarded the data protection of the people to be interviewed. That is why we requested authorisation from the Ethics and Deontology Council of the University of Aveiro to continue our research, both for informed and free consent and processing of the data collected, and to comply with the General Regulation on Data Protection. Once these

procedures were fulfilled, we began to conduct the interviews aimed at the characterization of the child who originated the study.

Characterization of the child

Nine interviews were carried out, considering the parent and the different education and health professionals working with the child. All the information compiled was organised and studied by analysing Computer-assisted Qualitative Data Analysis Software webQDA platform, using the Sources, Coding and Questioning tools, which proved to be effective in characterising it (Moreno et al., 2020). The use of webQDA software has provided excellent methodological support as a tool to support the content analysis technique. In addition to facilitating the categorisation of data, it has made it possible to question the possible relationship between them (Moreno et al., 2020).

The analysis of the content of the information compiled through interviews has allowed us to observe that professionals are well aware of the characteristics of the child under study. They consider that he/she has a good cognitive development, which includes the communication and interaction skills necessary to be able to develop their learning, and possibly their artistic potential in music (Moreno et al., 2020).

The results obtained allow us to observe that the interviewees consider the personal characteristics of the child relevant from a temporal perspective. In other words, they refer to aspects that point to their past, present, and future perspectives. In all these aspects, the importance given to the use of assistive technologies, curricular adaptations, and the support network (people) for the child under study to be successful, namely in learning music, is highlighted. The need to enhance the different factors existing in the contexts (environment) is highlighted, promoting accessibility. Thus, making the space of the Arts education school accessible, carrying out adaptations in the curriculum of the music Arts education programmes, and also promoting the use of assistive technology for learning music, we can assume that the child under study will be able to develop their musical skills (Moreno et al., 2020). With the evidence referred so far, we now present our final reflections.

Final comments

All the work already done since the Short Training Workshop and the characterization of the child as well as the bibliographical research leads us to value the need of assistive technology adapted to the needs of each child, namely the child with Cerebral Palsy that triggered our study.

It should be noted that there are different products and interfaces on the market so that people with different Special Needs or disabilities can play music from digital audio. But few of them allow the musical practice on acoustic instruments. People with Special Needs

or disabilities who wish to make music, in most cases, are forced to adapt to existing systems, using support/technical aids products. Unfortunately, with reference to the cited authors, these technologies are not yet adapted to the needs of all people with limitations (Coton et al., 2014; Matossian & Gehlhaar, 2015; McPherson et al., 2019; Samuels, 2019; Sperandio, 2007; Thomann et al., 2017; Veytizou et al., 2013).

No less important is the fact that supporting products or technologies are not enough, they need to be updated according to the needs of each child and constantly updated. Furthermore, it is important to enable both physical and human contexts to meet all needs. According to the results already obtained, it is necessary to train professionals related to the teaching of specialised music so that they are prepared for the challenges, which imply the inclusion of all in the music Arts education programmes: it is necessary to "get out of the box", to be open to new teaching strategies, to be open to new technologies and to collaborative work, in order to develop support products and technologies adapted to the profile of each child. This does not dispense with the need for human resource support for all the needs of children with Special Needs, including basic needs.

Aware of the results obtained so far, and subsequently of our reflections, we finally want to state our future path. Following the methodology of action-research, the first cycle will be finalised by conducting interviews with parents and music professionals who work with children with motor limitations arising from consequent Cerebral Palsy analysis and evaluation. With the results obtained, the second cycle will start with the preparation of an Intensive Training Workshop for the music Arts education programmes teachers and the preparation of an Intervention Programme.

Finally, we intend to develop the Intervention Programme in the music Arts education school of Conservatory of Music Calouste Gulbenkian, Aveiro. This includes the music teachers Intensive Training Workshop focused on the use of Technologies to enhance:

- community learning, in an active and collaborative way,
- responding to the needs of children with respect for their difficulties, and
- stimulating the potential of children with Cerebral Palsy in order to transform the Arts education programmes into an inclusive education for children with Special Needs.

We will use Content Analysis with the software webQDA, in all our research. Finally, it is important to note that this work is only a first approach to all research that we are conducting. The entire process of implementing the Intervention Programme will be evaluated, including the Intensive Training Workshop. The final results will be disseminated in different scientific journals and congresses with the support of the Research Center for Didactics and Technology in the Training of Trainers and my advisors.

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“From the cello to the bass”. A new method of music learning

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Abstract: The cello and the double bass education in Spain calls for new teaching methods that add different possibilities to the teaching-learning process of these instruments.The central axis of the methodology that is presented in this presentation is the composition of a new method for the joint teaching of these two instruments, defined in the research carried out between 2012 and 2018 at the School of Music and Dance "Villa de la Orotava”, in Tenerife, Spain.

Keywords: cello, double bass, school of music, method, innovation.

Introduction

The teaching-learning process of the cello and the double bass in its initial stage has traditionally been carried out employing very diverse methods, examples of which are:

- Suzuki Cello School (Suzuki, 1982) or Suzuki bass school (Suzuki, 2002)
- Cello Time Joggers (Blackwell, 2002)
- The complete cellist (Matz, 1974)
- The Sassmannshaus para violonchelo (Sassmannshaus, 2009) and The Sassmannshaus para contrabajo (Sassmannshaus, 2012)
- Der cellokasten (Dartsch, Richter, 2011)
- El violoncello (Motatu, 1993)
- Bass is best (Emery, 1988)
- Kontrabass! (Schlink, 2010)
- Contrabajo para niños (Valero, 2012)

However, no reference has been found to a method that unifies the teaching of both instruments together. Nor has any teacher or center been found combining the teaching of the two instruments simultaneously.

Musicians who play both instruments have always studied one of them first and only several years later, the other. After conducting several studies and surveys, it has come to light that the number of professionals who play both instruments is significant. Given this situation, it is surprising that this practice has not been more thoroughly investigated during the years of regulated learning.

As a mean to gather information regarding this duality, the present investigation began through a pilot study carried out at the “Villa de la Orotava” School of Music and Dance (hereinafter, EMMDVO) in Tenerife, Spain, between 2012 and 2018. This research

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was based on the hypothesis that the technical concepts regarding the use of both hands as necessary to play the cello would make the transition to the bass easier.

During this study, 13 students began to play the double bass one year after starting with the cello. Many of them continue to play both instruments to this day, several abandoned one of the two and others stopped studying music (Hernández-Dionis, 2019).

In order to carry out this project, a specific repertoire was composed, which consisted of a set of songs for children with different contents and formats, as well as different technical exercises, with which it was possible for the students to learn both instruments simultaneously.

This repertoire was compiled and revised, giving shape to the method presented in this presentation. “From the cello to the bass” is already being used in many Spanish conservatories and music schools, and can be used to teach both instruments (the purpose for which it is designed) or each of them separately.

It is very important that the teachers who use this method know the technical differences that exist between the two instruments, for this it is necessary to complete the appropriate training (Hernández-Dionis, 2017a).

I. Objectives

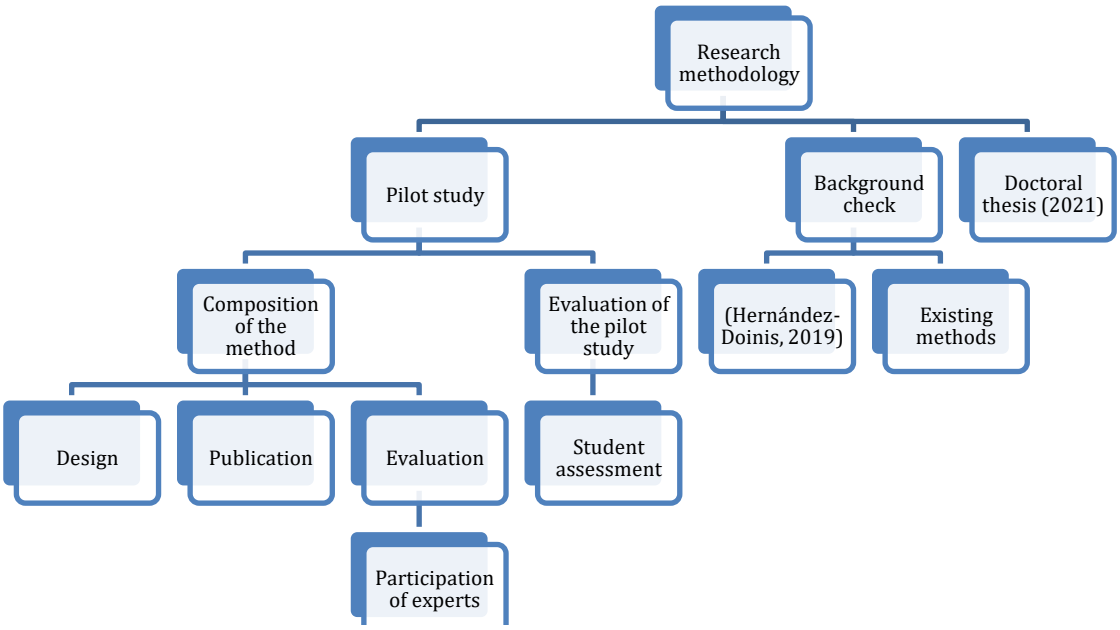
The main objective of this research is to design a new method of music teaching, which develops an innovative teaching-learning process around the cello and the double bass.

This general objective leads us to consider the following specific objectives:

- Design the “From the cello to the bass” method, based on the works used during the years of the pilot study at EMMDVO.
- Publish the method for subsequent dissemination at a national and international level.
- Analyze the results obtained with the method through the experience during the years that this research has lasted.
-

II. Methodology

The methodology used in this research is based on a mixed study, that is, attending to both the qualitative and quantitative aspects. Its main element has been observation, which has prevailed as a qualitative element throughout the research carried out in the pilot study.



Graphic 1:

Methodology design

The analysis of the evaluation sheets of the participating students is part of the quantitative section of this research, an aspect that is widely developed in the Doctoral Thesis that will be presented soon.

On the other hand, the second part of the investigation (quantitative) is currently being developed. In this stage, more than 60 experts and teachers of both instruments will evaluate the new method that has been presented to them through a questionnaire.

In addition, the following guidelines have been followed to conduct this research:

- Brief bibliographic review on both primary and secondary sources on the state of the issue.
- Generalized analysis of the different existing methods for teaching the cello and double bass in their elementary teachings.
- Evaluation of the results obtained by the EMMDVO students during their years of study.

II.1 Sources of information

The research sources used during this research have been the following:

- Consulted bibliography, study of primary and secondary sources.
- Field notebook, with annotations made during the pilot study.
- Audiovisual material collected during the pilot study.
- Evaluation documents of the students participating in the research.

II.2 Information collection procedure

According to the methodological design of this research, the collection of information was carried out through the following procedures:

- Revision, extraction and analysis of all consulted bibliography.
- Review and analysis of the most outstanding cello and double bass methods for teaching-learning these instruments from the beginning.
- Detailed analysis of the evaluation documents of the students participating in the pilot study.

II.3 Population and sample

The population participating in the pilot study that was carried out is made up of all the students who simultaneously study the cello and double bass. According to previous investigations, the population and the sample of this pilot study is the same, since, although there are many people worldwide who play both instruments, none has learned to play them together.

Therefore, the population and the sample used during this research is made up of the 13 students who have studied cello and double bass at EMMDVO.

On the other hand, the population of the second part of this investigation (method validation) is made up completely of Spanish cello and double bass teachers. The exact number of educational centers dedicated to musical education in which these two instruments are taught is unknown, since the available information regarding this type of center (conservatories, authorized centers, academies ...) and its relevance to the present, varies greatly. Regarding the number of conservatories that exist in Spain, we can affirm that the figure is around 250, however we are not able to offer an exact figure since the censuses vary for the same reasons mentioned above. Therefore, the sample that will be used to evaluate the proposed method will be approximately 25%- more than 60 cello and double bass teachers from Spain.

As mentioned above, this last part of the research is currently in full development, and it will soon be presented as a substantial part of the Doctoral thesis that is being developed at the University of La Laguna, Tenerife.

III. Results

III.1 Results obtained during the pilot study

The student body participating in the pilot study was evaluated year by year in the different subjects taught at EMMDVO. In the subjects of cello and double bass, important issues such as bodily, rhythmic, technical and attitudinal aspects were evaluated.

Of the 13 students of whom the sample is composed, two stopped studying music and two abandoned the double bass and continued only with the cello. The rest continue combining their studies of both instruments.

It is noteworthy that one of the students is currently studying for a degree in the specialty of Double Bass at the Guildhall School of Music and Drama in London, under the direction of Luis Cabrera. It is also important to note that five other students have become part of the double bass section in various youth orchestras in the Canary Islands, such as the Joven Orquesta de Canarias or the "Miguel Jaubert" Philharmonic Orchestra. Three of these students are preparing auditions to access different conservatories in the specialties of both cello and double bass.

The evolution of the students during their years of study was surprising, since all of them, except those who abandoned their studies, obtained- on average- outstanding marks in double bass in most of their evaluations.

Student	**Started with the cello**	**Started with the double bass**	**Currently continues with**	**Final average mark during the years of study: Cello/Bass**
1	2008/2009	2012/2013	Doublebass	8/10
2	2007/2008	2015/2016	None	5/8
3	2012/2013	2014/2015	Violoncello	9/10
4	2012/2013	2014/2015	None	10/10
5	2011/2012	2014/2015	None	6/9,5
6	2013/2014	2014/2015	Both	10/9,8
7	2013/2014	2015/2016	Both	9/10
8	2013/2014	2014/2015	Both	8,9/9,75
9	2014/2015	2015/2016	None	8/8,8
10	2014/2015	2015/2016	Both	9,5/10
11	2013/2014	2014/2015	Doublebass	8,1/8
12	2014/2015	2016/2017	Both	8,8/9
13	2016/2017	2017/2018	Both	9´5/9´5

Table 1:*Student – final average.*

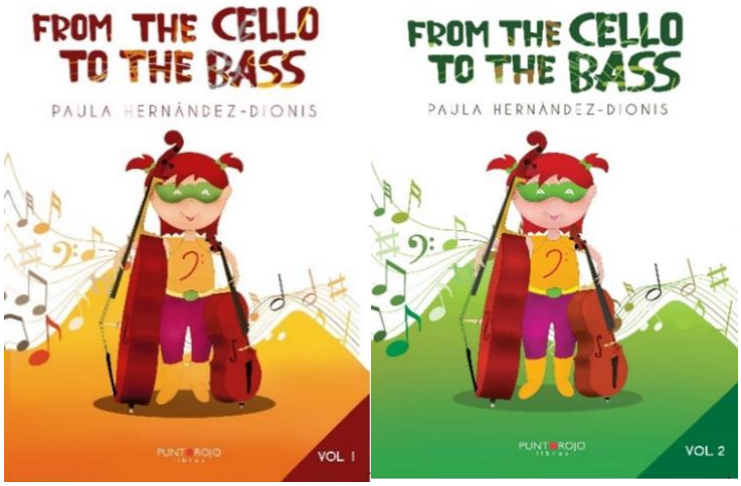
III.2 Composition and design of the method “From the cello to the bass”

Between 2012 and 2018, a pilot study was carried out at the EMMDVO, which consisted of the cello students beginning to play the double bass a year later. As there was no specific material adapted to this new situation, different songs were composed, which the students then studied.

In the summer of 2019 we proposed to gather and edit all these compositions to finally bring to light, in 2020, the first volume (in English and Spanish) of this new teaching method for these two instruments.

A few months later, it was decided to start composing the second volume of this book, to which were added several exercises that complemented the songs composed in previous years.

In September 2020 the final version of both volumes was published, being sold in music stores and relevant stores online.



Ilustration SEQ Ilustración * ARABIC 1: *Covers of "From the cello to the bass" 1 and 2*

The first volume has 23 songs ordered progressively, based on their difficulty. The first 14 have lyrics for the student to sing before or whilst playing them. In this first volume, the contents required in the first-year cello and double bass programs of most conservatories in Spain are worked on: open strings, dynamics, pizzicato, basic musical language literacy, repetition signs, bowings, slurs and left hand first position.

The second volume is composed of 11 songs and a multitude of exercises adapted to both the cello and the double bass. The main contents to work on in this second part are extensions and changes of position, without taking away the importance of others, such as bow strokes or enharmonics.

The piano part of both books has been composed by Mr. Sergio González, with the idea of making simple arrangements that can be played by first-year students, favoring the possibility of collaboration between different departments.

The illustrations of the method were made by Ms. María Argentina Dionis, who is a professor of Musical Language and Auditory Education at the Professional Conservatory of Music of Santa Cruz de Tenerife, as well as a painter and illustrator.

IV. Conclusions and discussion

The teaching of the cello and the double bass both in Spain and in the rest of the world is carried out, to date, separately. None of the different existing methods that have been investigated combine the teaching of both instruments simultaneously.

The method presented in this research collects the compositions made during the pilot study that took place at EMMDVO, as well as different technical and interpretational indications. Its design focuses on filling the gap in the teaching-learning process of both instruments.

We can affirm that the research carried out in the municipality of La Orotava, Tenerife, constitutes a success, based on the high marks in both instruments obtained by the participating students. Other aspects of the project that were successful were: the significant increase in students and the development of the Cello and Double Bass school. All these factors have made it possible for us to obtain precise results in our study.

There is also a great acceptance by the teaching staff of Conservatories and Music Schools in Spain of this new methodology, with many students studying with this method in their respective teaching centers.

Acknowledgements

All this research has been carried out thanks to the unconditional support of the entire educational community of the Villa de la Orotava School of Music and Dance. Special thanks to the students, parents, teachers, directors and the Town Council of Villa de La Orotava for their invaluable help.

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Online lessons: a literature review about teaching and learning string instruments before COVID-19 pandemic[34]

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Abstract: This paper aims to identify research in the field of online teaching and learning of string instruments published between 2007 and 2019 and identify its implications for music education. The following questions were addressed: (i) What are the reasons given by the institutions for the development of online teaching and learning projects? (ii) What were the digital supports used in the actions reported in these researches? (iii) What were the challenges and characteristics of online teaching and learning of string instruments pointed out by these researches? (iv) What were the differences in methodological approaches described in the online string lessons compared to those taken in face-to-face lessons? (v) What were the main results found by these studies? This literature review focused on research developed in the following countries: Denmark, Australia, England, Turkey and United States of America (USA). The main results show that (i) the image capture angles are important for a good experience in online lessons and the choice of these angles depends on each string instrument (ii) the teachers involved in these studies used more constructivist teaching approaches compared to face-to-face lessons (iii) the better the software and the quality of internet used for web conferencing, the smaller the differences found by students when comparing face-to-face lessons with online ones (iv) technicians and sound engineers played an important role in institutional projects that intend to use online lessons as educational resource.
Keywords: teaching and learning of string instruments; online education; literature review.

1. Introduction

In 2020, due to the social distance and confinement measures adopted in many countries affected by the Covid-19 pandemic, many instrument teachers were forced to quickly adapt from the face-to-face teaching model to the model titled Emergency Remote Education (ERE). But prior to this period, some studies were dedicated to reporting the use of online tools for teaching and learning string instruments.

Before the XXI century, there were initiatives of distance teaching and learning musical instruments and voice. An example was the BBC radio program 'Singing Together' which started in 1939 and lasted for almost 60 years. According to Cameron (2020), the lessons took place on Monday mornings at 11.00 am in various schools across the UK when teachers turned on the radio and sang with their students.

To teach a musical instrument, the body's actions - posture, gesture, grip - are part of the content we want to develop with students. Due to this fact, in the context of distance education, the use of video is crucial in the assimilation of content by the instrument student.

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[34] Translation: Dora Utermohl de Queiroz. Translated under the organizer authorization of the "Anais da II Conferência Nacional do Encontro de Cordas Flausino Valle". Originally published under the reference: Queiroz, D. U. (2020). Aulas online: uma revisão de literatura sobre o ensino e aprendizagem de cordas friccionadas antes da pandemia da Covid-19. *Proceedings of the II National Conference of the Flausino Valle String Meeting: teaching strings in group, pedagogy and performance*. Editora Nepam. Rio Branco, Brasil.

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For this reason, due to the internet popularization and the development of web conferencing software, most of the research in this field dates back to the XXI century.

Therefore, this paper will present research published between 2007 and 2019 (before the Covid-19 pandemic) and developed in the following countries Denmark, Australia, England, Turkey and USA. The focus will be on teaching and learning processes specifically for string instruments. In this literature review the following databases was used: Online Knowledge Library (B-On), Institute of Education Resource Information Center (ERIC) and Scopus Preview.

2. Theoretical Framework

The first part is dedicated to the delineation of the two main contexts of this literature review.

2.1 Teaching and Learning of String Instruments

This research is in the field entitled Teaching and Learning of String Instruments. The area is based on familiarities related to this family of instruments[36].

Playing a string instrument requires the instrumentalist to have a series of skills specific to this family of instruments. One of these skills is, for example, the bow hold. In the specialized literature it is possible to find some research that focus on aspects transversal to all these instruments, such as: 1) technical and mechanical aspects, such as position change, vibrato, bow technique, tuning skills (Hopkins, 2018); 2) pedagogical perspectives of the main methods used in the string instruments initiation such as the Suzuki Method (1959), Rolland Method (1974) or Colourstring Method (1996) (Pontes, 2017; Ordo, 2017 & Mitchel, 1998); 3) teaching and learning in specific formats as in group or individual lessons (Santos, 2016; Ying, 2008); besides other researches that explore the use of improvisation during the lessons (Matos, 20014), or the development of creativity (Albuquerque, 2015).

2.2 Online Education

Distance Education (DE) is a teaching and learning modality used in several areas of knowledge since the 19th century. Many researchers sought to categorize in phases the development of DE based on the technological changes and theories of learning adopted in this modality (Heydenrych and Prinsloo, 2010). Moore and Kearsley (2012) divide it into five historical generations. So, the first DE generation used the letters as a medium of instruction, the second generation was mediated by radio and television. The third

[36] Some researches covered in this paper have also been dedicated to other instruments family. However, due to the specifics of string instruments, the data collected here are specifically related to string instruments.

generation, in turn, was not characterized by the adoption of another form of technology used in teaching and learning, but rather, it was marked by the institutionalization of DE courses, such as those offered by “open universities”. The fourth generation, started in 1980 with the first real-time distance interaction made possible by audio, video and computer teleconferencing, widely used in corporate training. Finally, for Moore and Kearsley (2012), the last generation is marked by online teaching and learning.

This latest generation is defined by the dissemination of new Digital Information and Communication Technologies (DICT), which make countless technological resources available to us. In this sense, the popularization of the internet has potentiated the use of DICT, and not only revolutionized several aspects of our lives, but also played an important role in the changes that occurred in DE, causing the growth of this modality, allowing the circulation of information and interaction between geographically dispersed individuals.

According to Gohn (2009), there are a multitude of terms to define “educational processes different from the so-called face-to-face systems.” (pp. 26-27). In the literature that addresses the educational modality where the student and teacher are most of the time physically distant from each other, we can find the use of the following terms to define this educational format: distance education, e-learning, virtual education, remote teaching and learning, online distance education, online teaching, open learning, mobile education, among other terms.

It was found in this literature review, that the authors used the following terms to define the modality: distance learning (Okan and Arapgirlioglu, 2019; Lancaster, 2007); online learning (King et al., 2019; Nymaz et al., 2017; Johnson et al., 2015) distributed music lessons or practice (Davies, 2015), real-time delivery of instrumental teaching (Lancaster, 2007), and telepresence (Levisen et al., 2013). Based on the Moore and Kearsley (2012) classification described above, as all these researches sought to understand the teaching and learning processes mediated by Digital Information and Communication Technologies (DICT) via Web, this paper will use the terms *online lessons* or *synchronous online lessons.* This work is in the field of *Online Teaching and Learning of String Instruments*.

3. Discussion

3.1 Reasons given by the institutions for the development of online teaching and learning projects

In some researches one of the justifications for adopting the online teaching and learning modality is to reduce the costs related to the displacement of teachers to enable the learning of instruments for students who could not otherwise develop an instrumental practice.

Okan and Arapgirlioglu (2019), who devoted themselves to researching violin distance learning for beginners in Turkey, claim that most students develop without access

to face-to-face arts education due to problems such as: transportation, tuition costs and lack of professionals. Thus, for individuals who have always been harmed by the lack of access to the study of artistic disciplines, simply because they live in areas far from large centers, online education can be a strategy to overcome this problem.

Some researches raised in this paper seek to find solutions to the lack of access to instrument learning in rural areas (Nymaz et al., 2017; Johnson et. al., 2015). The UK project called *Connect: Resound*[37], for example, is an initiative that intends to investigate "(...) how digital technologies can be used to provide music education and enrichment activities to children living in rurally isolated areas" (Nymaz et al., 2017, p. 2).

String teachers who, in addition to working as pedagogues, have a busy concert schedule also opt for synchronous online lessons. This is the case of the renowned violinist/violist Pinchas Zukerman who is one of the pioneers in the use of this type of teaching. Since 1995[38], Zukerman teaches violin classes for his students, via web conferencing while in touring (Davies, 2015).

Davies (2015), who carried out seven case studies seeking to understand the musicians' experience during performance, rehearsal and online synchronous lessons, reports that the subjects involved in the research reported that the advantages of the modality was time-saving, no travel costs, and the access to remote musicians and music tutors.

The online teaching and learning modality is also used as a way to promote institutional exchanges providing the internationalization of knowledge in participating educational institutions. The study by Levisem et al. (2013), for example, involved 3 institutions: *Royal Danish Academy of Music* (RDMA), *New World Symphony* in Miami and *Cleveland School of Music*.

3.2 Digital supports

All research raised in this literature review used synchronous communication tools and some enhanced teaching and learning through asynchronous communication tools[39].

Some authors dedicate their work to the testing of certain software or equipment and the implication of their use in learning processes and artistic production. This is the case of

[37] This program was developed by *North Yorkshire Music Action Zone* (NYMAZ), *University of Hull* and *UCAN Play*. The lessons was developed in 7 primary schools and started in November 2014 and ran until April 2015 (Johnson et al., 2015).

[38] Zukermann together with the director Marta Casals Istomin of The Manhattan School of Music, were responsible, in 1996, for the implementation in this institution of the first distance learning and teaching program of music in the USA (Manhattan, 2020).

[39] Online education can use communication tools: 1) synchronous, which are those that occur in real time, requiring both participants (teacher and student) to be online simultaneously, as in the case of the web conference, 2) or asynchronous, which are those in which the individuals are not online at the same time, such as forums, chats, where written content or video and audio files are shared.

Davies (2015) who sought to understand the effectiveness of using the transmission system called LoLa[40] (LOwLAtency) in musical performance and learning.

LoLa is a high-quality video conferencing system that allows musicians located remotely to play together in real time. It provides low latency in both image and sound transmission and is offered free of charge for academic and educational uses, however the system requires a 1 Gigabit clean path between locations, much higher path than those provided by commercial providers (Lola, 2020).

Davies (2015) explored how musicians experience latency, how they use the video element and how audiences view performances from a distance using LoLa.

Johson et al. (2015) considered the costs and financial viability of the England education sector for the choice of equipment and software. In this research, they used Skype in combination with the Roland VR-3EX video and audio mixer streamer, and 3 external cameras and microphones.

In Levisen et al. (2013) video and sound were transmitted using Internet2[41], which offers high transmission quality and little delay. Since 2002, the Manhattan School of Music has also used Internet2 in its Distance Learning Program (Manhattan, 2020).

Okan and Arapgirlioglu (2019) used an online learning environment where written, audio and video materials were made available to the students, as well as synchronous online classes once a week using a university system where the research was developed. In this literature review, the only work that reported the use of these two communication tools was that of these two authors, the others focused on synchronous online interactions through web conferencing platforms.

In this sense, it is interesting to note that the combined use of synchronous and asynchronous communication tools increases the possibilities of interaction and production of online content, allowing the teacher to indicate textual, visual, or aural materials that can be accessed by students at any time and any place.

When talking about online teaching and learning, the digital supports used are always a point addressed by researchers, because as they represent the mediation vehicle for the construction of knowledge in this modality, they play an important role in the educational processes that occur in this teaching format. Over the years, these mediation supports have developed and research that seeks to describe the use of these vehicles has become necessary.

[40] https://lola.conts.it/

[41] https://internet2.edu/

3.3 Challenges and characteristics of online teaching and learning of string instruments

One of the challenges reported in the researches is the delay in sound and image. Problems related to latency are reported more frequently in researches that used commercial internet providers in the online lessons. In this case, recurrent approaches of instrument teachers that occur in face-to-face lessons are affected. As reported by Johnson et al (2015): “The main challenge for all teachers was the inherent time delay using Skype: teachers were unable to count a beat alongside a pupil or to accompany them while playing (p.7).”

In research that used systems with low latency reported that most of the time the participants adapted well to the time delay and established a pace like that of the face-to-face lessons (Levisen et al., 2013; Lancaster, 2007). In this same sense, in one of the case studies carried out by Davies (2015), a cellist who participated in rehearsals and a performance together with a violinist using LoLa stated that “the togetherness and music-making did not feel any different from playing together in the same room.” (p.55).

Other musicians who participated in Davies' research (2015) said they were frustrated, as they did not have enough knowledge to solve eventual technical problems. In this sense, the author highlighted the benefits of having sound engineers with knowledge in the studio and in systems like LoLa available for projects like these. Levinsen et al. (2013) also point out that online lessons should include technicians, in order to facilitate the operation of equipment during the lessons and to avoid technical disturbances.

It was verified that the image capture angles are important for a good experience in the online lessons and that the choice of these angles depends on each instrument. For Lancaster (2007) it is important that the positioning of the camera supports the visual contact between student and teacher. For her, “interactivity and the building of a relationship between teacher and students is fundamental to the success of a program via videoconference” (p.14).

In Levisen et al (2013), the angle of image capture in cello lessons was the least challenging since the image capture was able to reproduce the same visual perspective as the face-to-face lessons of this instrument.

3.4 Differences in methodological approaches described in the online string lessons compared to those taken in face-to-face classes

Levisen et al. (2013) observed the same teachers working in both online and face-to-face lessons and noted that in online lessons, teachers adopted teaching practices with more constructivist approaches than in face-to-face lessons. According to these authors, given

the nature of this modality that makes impossible for the teacher to touch the student or write in his/her score, the student is encouraged, through “reflective dialogues” with the teacher, to formulate solutions autonomously.

Regarding communication, Levisen et. al. (2013) point out that in online lessons there is a substitution of non-verbal communication for dialogues loaded with metaphors and made explicit through gestures. The authors believe that this occurs to compensate the common acts that occur in face-to-face lessons already cited. From the pedagogical point of view, it is interesting for the teacher to be challenged to verbalize tacit knowledge. However, these authors warn that in teaching via web conferencing, knowledge that is difficult to translate into words may disappear from practice.

On the other hand, King et al. (2019), who explored the behavior of teachers in the *Connect Resound* project and compared it with their performance in face-to-face lessons, reported that in online lessons the percentage was lower in the category “Giving advice, instructions, information, or practice suggestions”. That is, in the online lessons the teachers spoke less than in the face-to-face lessons.

3.5. The main results found by these studies

Okan and Arapgirlioglu (2019) worked with violin beginners students. The main focus of these two authors was to compare distance learning with face-to-face through the application of face-to-face lessons in a control group and online lessons in an experimental group. The results of the study showed that there were no significant differences between students who received distance instruction and those who received it face-to-face.

In this perspective, Johnson et al. (2015), realized that the basic techniques aimed at beginning students could be successfully transmitted through online lessons. The teachers involved in this study also reported good levels of student concentration. The students and parents involved in this study stated that they preferred the classes to be face-to-face than online, but in the questionnaire 70.1% of the students said they liked the online lessons “very much” (p. 8).

The level of concentration and content absorption was also addressed by Orngreen et al. (2012) These authors state that the students involved in the study experienced a feeling of “hyper-focus” in online lessons. In this same sense, Pinchas Zukerman argue: “that the lessons via videoconference are so intense that his students get as much value from a thirty-minute lesson as they do from an hour-long traditional lesson” (Foley, 1996 apud Davies, 2015, p. 18).

Some authors declare substantial differences from one instrument to the next in online synchronous lessons. They point out that the class of each instrument implies specific

technical choices, camera angles, choice of microphones (due to the weaving of the instruments). These points directly influence the educational processes and suggest the need for research that further explore the needs of teachers and students of each string instrument when involved in this modality.

4. Final Considerations

Distance Education has, for many years, been used as a teaching and learning modality for theoretical areas of knowledge. In the XXI century, due to the development of digital media and the popularization of the internet, there has been an increase in projects that use these resources in the teaching and learning of musical instruments.

The researches raised in this literature review shows, using different data collection methods, that students involved in online teaching and learning modality demonstrated a very similar technical and musical development to those involved in face-to-face lessons.

The main challenges found refer to the lack of a superfast board band, which demonstrates that teaching and learning strategies must also be adapted to the technical limitations imposed by the connection possibilities and equipment used in the action researches. This occurred, for example, in researches that used platforms where teacher and student could not play at the same time without latency, in this case, those involved had to adapt.

It is important to point out that this teaching format goes beyond the choice of devices, software and platforms, it comes up against specific ways of building knowledge and approaches to content. Some characteristics related to pedagogical approaches, communication and behavior of teachers during online synchronous lessons are described in some of the works. The data collected in this literature review suggest that these characteristics need to be further explored in future researches.

The problem related to the online teaching and learning of musical instruments intensifies in front of the current moment in which the world is facing a pandemic generated by the Covid-19 outbreak. This feeling of estrangement is understandable and demonstrates the importance of promoting research and the consequent training of professionals qualified to work in this specific modality of teaching and learning. In this perspective, this year it will have a great impact in the field of online teaching and learning, in relation to the development of new software and equipment as well as teaching strategies in the area.

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PART 2

Coaching and Teaching Performance Practice and repertoire

Playing the Silence: Creating the Magic

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Abstract: Playing the Silence. In a decade of teaching professional players (many with severe playing injuries), the topic of silence and rests has come up surprisingly frequently, such that it has emerged as a major issue for many. These players from our leading orchestras are bringing the simplest, most delicate passages as sources of problems and causes of pain. As a result, a very specific tool box of technique has emerged that allows us to express the full musical value of silence in all its forms while in complete technical control, with physical ease and full expressive freedom.
Keywords: Playing injuries; rests; violin technique

Introduction

On a weekly basis I teach players at every level. At the top end of the spectrum I work with professional players who predominantly come with playing injuries. These cover a whole range of issues. There are severe cases of potentially career-ending magnitude such as dystonia, while other professional players bring passages that are uncomfortable, or they may experience a bothersome area of perpetual discomfort in their playing that they want to address. At the university where I work I see tertiary level students and at the opposite end of the spectrum I run a children's program with group classes and orchestras for 150 children. String Project is part of a national program in the United States called the National String Project Consortium. The NSPC has a dual mission to train student teachers in a hands-on environment for their entire university careers and to provide low-cost string education to children. There are approximately 40 String Project sites across the nation.
During the course of my work I was struck by the number of times professional players brought passages that look extremely simple on the page, often the softest moments such as the end of a second movement where the writing is more sparse.

The complaint is that such passages are a major cause of pain and discomfort because of the rests and softness. Players from our leading orchestras were saying, "I can't play the rests," and describe such passages as "terrifying," whether due to loss of control over the bow and the tone, a result of the pain being caused or both.

If you start to think about young players, you can see this problem in its elemental stages. How familiar is it to all of us to see and hear the awkward ending to a child playing a little piece? We hear the bow grinding to a halt on the string or ending in some abrupt upward lift that makes the audience feel uncomfortable and then relieved when the child finally puts their arm down. Or the awkward arm motion during a fermata of an intermediate

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student at a moment that should clearly be of maximum musical poignancy? We all know what it is like to be that audience member and recognize that experience, but we probably also know it first hand as the player on the stage.

Silence is there to serve a particular musical purpose; it is a vital part of the musical palette. We therefore need to learn to sculpt and color silence the same way we do tone. If we are going to sculpt silence, we need to realize that it is the negative of sound. It has a shape that is being created at its beginning by the end of one sound and a shape at its end that is created by the beginning of the next note, like the negative of a photograph. We need to know therefore, how we enter the silence and how we exit it if we are to start sculpting it (1. Entering and exiting the silence).

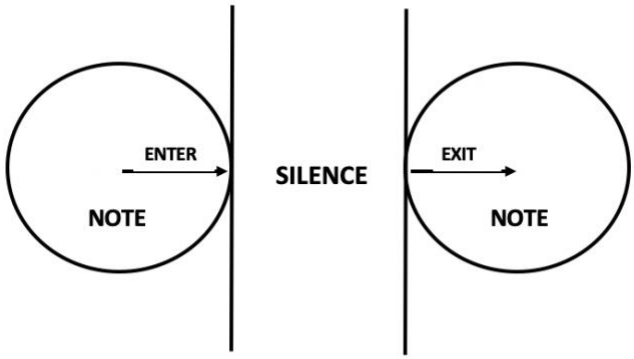

Figure 1. Entering and exiting the silence

We use silence in language all the time and we are profoundly sensitive to it not just in language but in our daily existence. It is easy to think of different types of silence that are familiar to us. Imagine yourself talking to someone and then you suddenly lose track of your thoughts and pause – this type of silence sounds like you are about to continue any minute. You finished the last word you were saying in such a way that it seems as if you were totally ready to continue when the next word comes to mind. By contrast, imagine the type of silence when you whisper a sentence and the end of the sentence is so soft that it becomes unnoticeably part of the atmosphere. There may be a delicate closure to what you just said or there may be intense expectation of what is to come. Another type of easily recognizable silence is the abrupt kind, when there is lots of noise going on and it suddenly stops, there is a frozen, shocked feel to the atmosphere. So sculpting silence and responding to sculpted silence, recognizing its message, is something we do all the time. But how many of us ever had a lesson on this topic or when we think about our technical toolbox, actually have identifiable tools to sculpt this major component of musical expression? I certainly did not

have such lessons and have yet to meet a player who did. What happens? We don't sculpt them, we fall into them like holes in the road and wonder why we are off track both musically and technically all of a sudden.

If silence serves such a unique musical purpose, it makes sense that it requires a particular set of tools to create and communicate its wide array of meanings.

Rests are in the staccato family

Most of us have a problematic sense of staccato, we just think "short." But if we turn our thinking around we realize that there is legato in sound or effect and there is physical legato. Physical legato is absolute, it means we can actually physically connect two notes, whether that is in the left hand or the right. If physical legato means physically being able to connect, it follows therefore that staccato is everything that is not that. Or put another way, everything else, from the tiniest of necessary separations such as crossing a string to play a 5^{th}, all the way to rests. Staccato is a huge spectrum of not physically glued together notes. Rests are like a blown-up version of staccato and are, therefore, also on the staccato spectrum. This is helpful because it starts to send our thinking in the correct direction.

Leaping and leaps

What is a leap and why use that word? A leap is anything that requires me to "let go", to release and go somewhere else. Our bows leap all the time but we call it "taking the bow off," when in actual fact it is exactly the same physical motion as leaping. We normally think of leaping with our legs but leaping just refers to sending yourself from one place to another with momentum, energy and propulsion.

As always, the answers to our technical issues lie on our everyday activities. However refined and specialized our technical movements may become on the instrument, they need to have their logic in the way our bodies work in daily life, otherwise we are employing alien movements in our playing which is a slippery, downward slope. Think about jumping over a stream while being on a walk. What happens?

1. You have to see the other side. If the other side of the stream was for some reason invisible to you, you would be very nervous about trying to jump over it.

2. You have to decide when to jump, if you hesitate, you will not make it. There is a "Prep – Go" moment, you aim, bend your knees and go.

3. You can wait before you make the leap or wait once you have arrived, but you cannot wait mid leap. You cannot change your mind in the middle of the jump.

4. You cannot change the speed of your jump and decide to jump slowly. You can walk up to the stream any speed you like and once on the other side continue at any speed

you like, tiptoe, run, amble, dance etc., but the leap is basically uniform due to the laws of propulsion, momentum and gravity.

This all sounds obvious and indeed is obvious, but what are our tendencies that get us into trouble playing?

1. We don't realize that sculpting rests is a two note or two moment activity and therefore we miss the leap off moment. The leap off moment may be the entire value of the note, or it may be very delicate and only happen at the end of a long note or it may even happen after the audible part of a note has happened, but we cannot go anywhere without it. There is no leap without a send-off.

2. We try and match the tempo of the music to the speed of the motion that creates the silence. This is a huge area for issues. We try (because we are thinking "musically") to travel through the air at the musical tempo but the body has its own speed requirements for successful motion. This is crucial. *The tempo of the music does not equal the speed of the body's movements.* They are obviously related, but a leap is a uniform motion that *must* happen within a small range of fast movement. We can control how we walk up to that moment and what we do once we have arrived, but the tempo of music does not equal speed of physical movement in a leap. The classic example is when the music is slow and soft and we try to match that in the air. You would get very wet jumping over a stream if you tried to slow down your leap across it.

This leads us to realize that we have two options when rests are concerned: When the rest is short enough we can, just like in the stream analogy, wire ourselves from the note that enters the rest, directly across to the note that comes after, or leap over the stream, one bank to the other; but, if the rest is longer, we need to wait somewhere and waiting in the air is not an option. We have to complete the leap by leaping into the silence where we can complete the physical motion and then leap out again to start afresh (2. Leaping into silence). We will look at both scenarios. The body very quickly learns to select the right one and, as there are only two options, if one feels bad you can quickly reorganize and use the other.

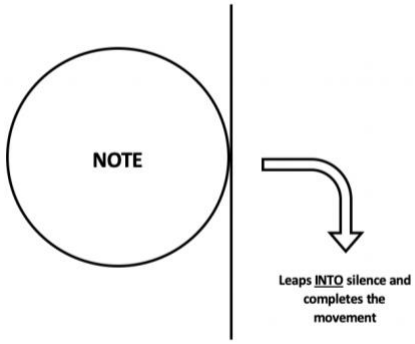

Figure 2. Leaping into silence

The following example is from Berlioz, *Romeo and Juliette* (3. Wired across notes or leaping into silence). It is an excerpt from the second violin part (end of the third movement) and contains both types of examples: a note being wired across to the next note/leaping directly over the next note or (due to the length of the rest) leaping into the silence and out again.

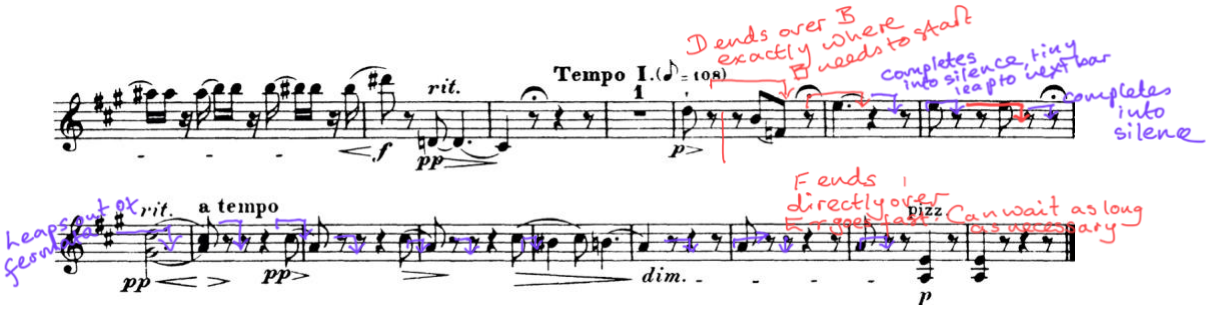

Figure 3. Wired across notes or leaping into silence (Berlioz, 1869/ca.1910)

While the music is soft and delicate, the rhythm of the leaps is precise in timing and amount. Each note has two options:

1. To leap DIRECTLY OVER the next note.

2. To leap INTO THE SILENCE and have a precise moment to exit/leap out to start again on the next note.

The red markings indicate the notes that leap directly over to the next note. The blue markings indicate the notes that have to leap into the silence and then out again. Compared to the overall tempo of the music and the gentle feel, these leap moments at first seem surprisingly active and fast, even when we know how to control the tone after the leap. Recognizing that the rhythm of the body *is not* the rhythm of the music but follows its own laws in order to express the music, is an important realization.

How do we know when it is right and when it is wrong? When the body feels “up,” or hovering, floating or suspended, we know it is wrong. We are not designed to do any of these things. We can create sounds that communicate such things but not by imitating such feelings in our playing apparatus. We need to feel “down,” and we are down everyday and night in our activities. Any up motion is a result a down motion. This does not mean collapsed, floppy or wobbly, but stable and present to the surface we are engaged with. We stand *down* on the floor, we sit *down* on a chair, the bow rests *down* on the strings.

What does it mean to leap *directly over* a note rather than *on* a note?

Waiting directly over a note means being in such close proximity (just shy of actually playing it) that there is already a profound connection with the note. This gives the bow arm the

stability to wait and play the note with the tone necessary for the musical expression. Once the bow arm is directly over the note, the only tiny remaining movement is to complete it in the final moment of playing. There is a crucial distinction between being OVER a note and being ON a note. Understanding this and being able to leap to OVER and then time the ON moment as desired is what enables us to obey the body's need for a specific timing in a leap and the music's demands for a particular type of sound.

In the next example from the Brahms A Major Sonata (4. Starting and ending from silence), the bow enters and exits from silence, so it leaps out of the silence to start the measure and back into the silence to end it. This feels like the bow arm has an imaginary pillar upon which to rest down during the silence, so that the arm is completely at ease and not hovering. There is a tiny spring off that imaginary pillar to start and then the arm completes the sound by coming to rest on the same imaginary pillar at the end. Both moments are precise rhythmic moments and we need to know exactly where within the rhythm those tiny moments will happen.

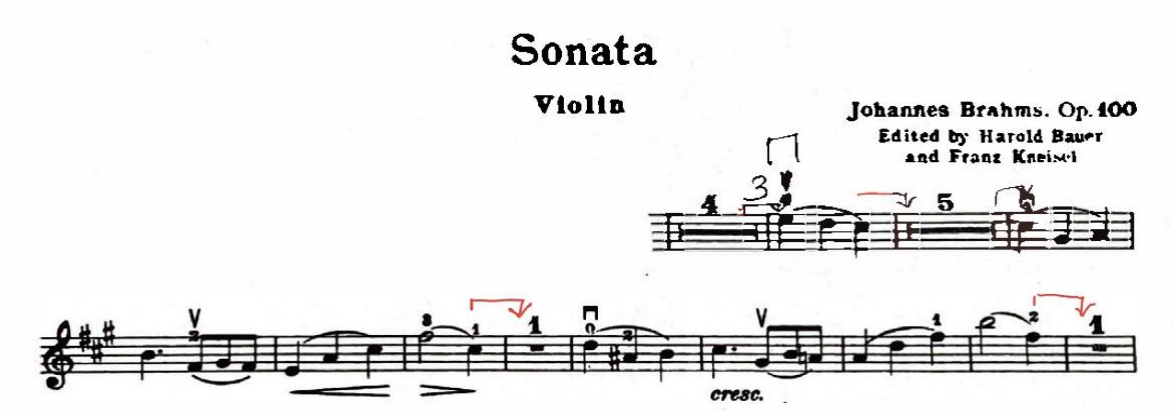

Figure 4. Starting and ending from silence (Brahms, 1887/1918)

Controlling the tone

Some questions now start to come to the fore. What role does the left-hand play? If you have to leap fast, how can you control the tone? This is of particular concern in delicate moments such as these orchestral passages require.

We often do leap early but we land with the note down or, in many cases, we actually start the left hand playing well in advance of the note needing to speak. This is particularly true in softer passages. However, there are some crucial elements here that can guide our thinking in a different direction:

1. The point of sound is when the *bottom* of the string reaches its contact point with the fingerboard, *not* when the finger itself does. The fingers (hand and forearm) are always

on the surface of the string (5. The point of sound). Of course, most of us have fingers broader than the string, so some of the flesh of the pad surrounds the string, but the logic of the point of sound remains. In many cases, we are trying to get the finger to the fingerboard not the string to the point of sound (see diagram below). The former offers us a whole range of options; the latter means we cannot move.

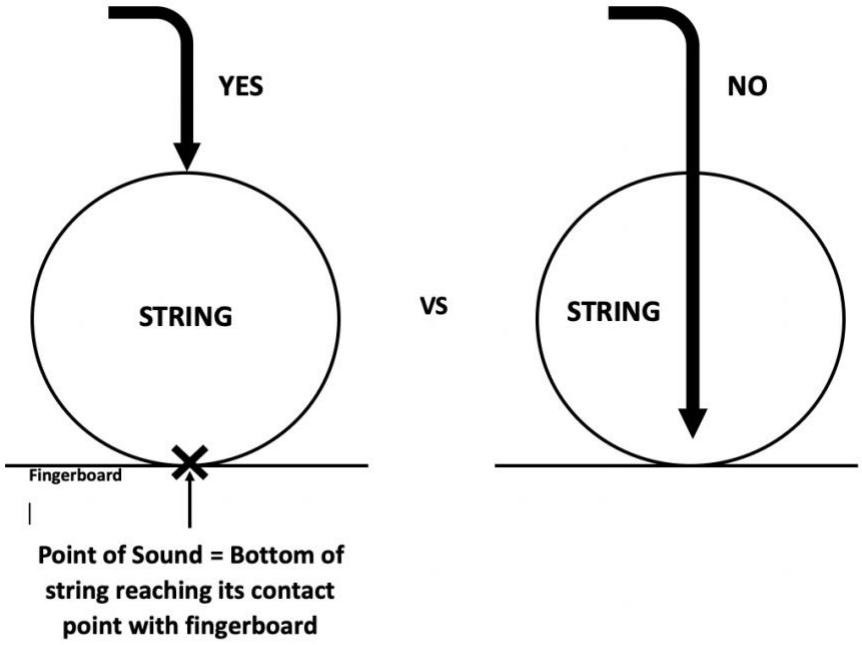

Figure 5. The point of sound

2. This opens up a whole new world of timing and sensitivity. From the surface of the string to the point of sound offers a miniscule-in-size, but monumental-in-effect range of possibilities for initiating the tone in different ways, thereby allowing the bow to give voice to an array of different sounds.

3. The left arm initiates the pitch from the tiny, gentle initial strike on the string and also cues the right arm to make its vertical landing before the bow can move left and right. Therefore, this moment of left arm reaching the point of sound becomes essential in our tool box to control and express silence. If we look at some examples, we can see this in action.

The example below, Haydn C Major Cello Concerto, 2nd Movement, Violin 1, is a classic orchestral moment of seeming nothingness that can become excruciating. What cues the bow to make its tiny moments of silence is the left arm gently releasing the point of sound just enough to be able to re-play the next note, with an ease that produces the almost nothing sound and gentle silence needed in such spots (6. Creating just enough release and re-play on the point of sound). It is impossible to exaggerate the idea of "just enough," we are really in the tiniest of fluctuations.

Developing the sensitivity in the left arm for the point of sound is an entirely different experience to holding the note down while the bow plays the notes and the silence. The former has rhythm, vitality, movement and propulsion, however microscopic it is; the latter is frozen, the upper arm will tighten fast and the entire playing apparatus will be tense.

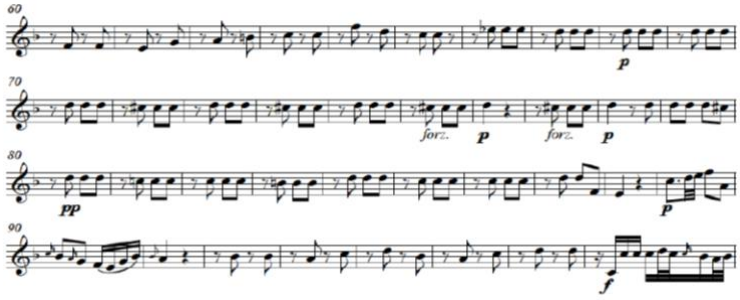

Figure 6. Creating just enough release and re-play on the point of sound. (Haydn, 1809/1963)

Imagine how you would play this on the piano. Feeling the key go down and up gives an enlarged idea of the sensation the left hand has on the string.

Solving subtler problems

Now we have a set of tools available that can be applied in less obvious ways. Fermatas and breath markings are often areas where we hover and feel suspended. The first example is the opening Violin 1 passage in Berlioz *Symphonie Fantastique*, which has been brought by many different players as a problematic passage (7. Fermatas and breath markings). The issue lies with the small fermatas, the repeated notes and the very small rests, all of which are musically there to give the breath in the passage.

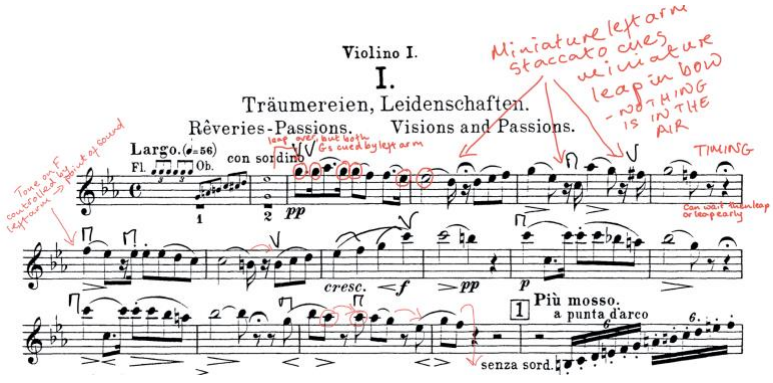

Figure 7. Fermatas and breath markings (Berlioz, 1869/ca.1910)

Using the left arm to gently cue the bow from the point of sound and its gentle rebounding back to the point of sound is enough to sculpt these moments, in addition to deciding how to enter and exit the silence and with what timing to make them feel comfortable.

It is perfectly possible to take these same ideas and match the requirements of a section leader or conductor. The above organization is just one version of how these tools can be applied. For example, in the fermata at the end of bar 6, a conductor may want the section to wait and then suddenly move to the following bar (bar 7). This is perfectly possible. The bow arm can complete the F immediately after the note where the rest begins and then leap out again at a chosen, precise rhythmic point just at the end of the fermata.

Using these tools in a wider context

These tools are not just for the soft and delicate moments but enable us to use silence as a major component of a piece of music, switching characters and types of silence in radical ways. In the example below, Appassionata Air by Karen Harmon, silence plays an almost equal role to the notes themselves. It is a piece for solo violin, so atmosphere is essential for creating contrast. The piece requires sudden changes in mood and color over the course of short silences. She marks the opening with a tempo marking of 93 and the mood marking is “Mysteriously.”

In order to achieve the effects, we have to look at the two arms separately and identify what each one is doing over the silence and then feel them in combination (interdependence of the two arms rather than independence). In the more abrupt moments, the bow often moves with great speed but is still cued by a very small repeating left arm that is delicately using the point of sound. While the left arm’s motion may be tiny, we still follow the leap principles and will be either going OVER the new note or completing the motion in the silence itself (8. Interdependence of the two arms creating silence).

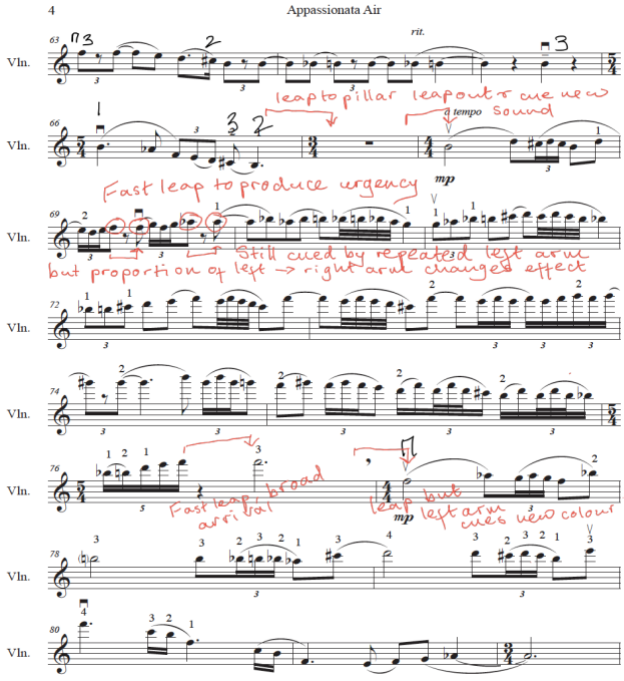

Figure 8. The interdependence of the two arms creating silence (Harmon, 2018)

For children

Most children instinctively understand the magic in music. They love having special moments pointed out to them and light up when they realize they are able to take part in such moments, whether they are magical or dramatic in character. They can feel them in a very tangible way through their playing, even in the earliest of stages of learning. One little girl exclaimed that the “One a-penny, two a-penny,” moment of Hot Cross Buns was her favorite bit. It is of course the climax to the song and she was correct, it is indeed the “best” bit. It is delightful to engage in the very essence of the music with small people in this way. The first piece the children learn in String Project is a little open string piece called, “The Donut Song.” It ends with two dramatic G string notes and the children finish the piece by landing the bow on their heads. This guarantees that the bow arm completes the final note with a true landing and rhythmic completion that is easy to recognize – or to stay with the original analogy, the final G is the near-side bank of the stream and the bow finishing on the head is the far-side bank of the stream. They cannot fail to complete the final note, the leap is complete and perfectly timed. This guarantees a lovely sound and invites the audience to clap at exactly the right moment. It gives the children a vivid sense of the tonal and physical logic that an ending has to have. The final note is a chamber music moment with the players being in an unusual ensemble made up of the last note, the silence and the audience’s clapping. Each ensemble member is invited to participate at exactly the right moment.

The children learn to do this in many different dynamics using words like Whispering Donuts, Frozen Donuts (ponticello), Big Donuts etc. to stimulate tonal imagination. They play in groups and on their own so they learn to feel these moments according to the mood and how to physically control them. There is no mistaking the physical freedom they gain from understanding these moments, it is evident in their sound and freedom of motion.

Starting a piece is another discussion that begins in these early days. There is a regular conversation about what happens when you walk onto a stage. Starting is also an ensemble moment but this time made up of the audience clapping in greeting, bowing to respond and then the Magic Silence. It is into this Magic Silence that we put our playing. The first step is to make them feel silence, so we practice Magic Silence – sitting totally silent for one minute. They recognize that each time we do this, it feels a little different. When asked how the silence felt, one very small child described the experience as being “mystical.” They know.

Once they recognize Magic Silence, it is simple to get them to start together and feel how to put their sound into the silence with a great deal of sensitivity and awareness.

Conclusion

There are a number of conclusions to draw from exploring the tool box for playing the silence.

First, the very fact that it is a set of tools means that we can all learn them and use them. This is a huge relief, it is not magic. The magician does not stand on stage and feel magical. He understands the tools that create the magic for the audience and works with those tools. As players, we have the same task. Playing is a physical craft and our musicianship should be our deep understanding/recognition of what is magical in the music and how to employ the physical craft of playing to communicate that. When first faced with this, some baulk at this realization as if it somehow destroys the very thing we want. But, if the body is not connected to the right physical tools, then thinking musical thoughts is rather like throwing mud at the wall. Maybe it will work and maybe it won't (we all know that feeling). For those experiencing pain or injury this becomes starkly clear. Rather than being a restriction on imagination, understanding the relationship of craft to magic via concrete tools refines and frees up the imagination for the simple reason that the body knows how to respond to the musical demands with ease and comfort. Such an understanding of this relationship does not have to wait until an injury takes hold. It can begin in week one, lesson one, piece number one for the very youngest players.

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Professional preparation of the violinist for orchestral activity

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Abstract: Orchestral activity is the main area of employment for young violinists after graduation. There are many high-level orchestras around the world today and level of performing art is so high that auditions in the orchestra, even in a small province, look like a serious international competition. The number of violinists per one place in a group (tutti) sometimes reaches 80-90 people! And an audition can last only 5-7 minutes per person. In connection with the current situation, the requirements for professional preparation of orchestra musicians in recent years have increased significantly. The article discusses the system of professional preparation of the violinist for orchestral activity, which can be used in the educational process in violin class, and in the future will contribute to the successful passage of auditions to professional orchestras.
Keywords: orchestra; professional preparation; orchestral excerpts; violin.

Introduction

There are many high-level orchestras around the world today. The level of performing art is so high that auditions in the orchestra, even in a small province, look like a serious international competition. The number of violinists per one place in a group (tutti) sometimes reaches 80-90 people! And an audition can last only 5-7 minutes per person. In connection with the current situation, the requirements for professional preparation of orchestra musicians in recent years have increased significantly. And this is not only perfect sound production, rhythm, intonation and possession of the bow technique, but also knowledge of a large orchestral repertoire, knowledge of the specifics of orchestral playing and understanding of conductor gesture.

Undoubtedly, the professional preparation of the orchestra violinist should be comprehensive and include several very important theoretical foundations of playing in orchestra, as well as sight-reading and practical study of orchestra difficulties. And teachers should help young musicians find a way to possession of the orchestral specifics.

Four aspects of orchestral activity

Based on personal experience (as a musician, who worked in the Philharmonic orchestra for 14 years), note the main points that should be given special attention in the process of education of the orchestral violinist. We can divide them into four aspects:

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	Aspects	*Components*
System	Technological	Possession the basic elements of violin technique, knowledge of the orchestral excepts
	Physiological	Sitting on a chair, body position, freedom of the shoulder girdle and arms
	Psychological	Concert excitement, self-control in extreme situations, performance of solo fragments.
	Specific skills required to work in the orchestra	Understanding the conductor's gesture, working in a group, orchestral etiquette

Table 1. Four aspects of orchestral activity

Certainly, there are many nuances that we encounter when working in an orchestra. Students should be introduced to at least the basic elements.

Most of these elements, students learn during the violin lessons, chamber music and orchestra lessons. However, some other elements, such as understanding the conductor's gesture or playing in a group, are put into practice directly in the orchestra.

Technological aspect

1. Professional technical base:

- Counting, steady tempo and rhythm. Counting in pauses, fluent reading of complex rhythms. Execution of the dotted rhythm. (A common mistake is turning it into a triplet. And triplets in two sixteenths and eighth. It's very helpful to use Ivan Galamian (1966) «Contemporary Violin Technique. Volume 1» that contains various kinds of bowing and rhythm patterns, for training complex rhythms).
- Execution of endings and interpretation of the note's duration depending on the style of the composition.
- Stylistic literacy. (In connection with the learning of each orchestral except, it is necessary to bear in mind the style features of this or its historical period).
- Possession of continuous legato, bow distribution, changing strings and bows. (It is necessary to know exactly which part of the bow a particular stroke is played in).
- Intonational exactness.
- The choice of competent fingering.
- Absence of unnecessary accents.
- Coordination.
- Listening control.

- Possession of musical terms – at least Italian and basic French and German. (The knowledge of terminology is developed in the violin class when performing pieces by various composers from different countries. It is important to draw students' attention to knowledge of terms).
- Correct performing of dynamic notation. Avoiding the tendency to crescendo during up bow or decrescendo on down bow unless needed in the musical context.
- Concentration of attention.
- Phrasing.

2. Possession of the sight-reading.

Fluency sight-reading is one of the main qualities of an orchestral musician. It saves time of home self-practicing and makes it easier to own the situation at crucial moments.

Physiological aspect of playing in the orchestra:

- Correct fit on the chair, body position.
- Freedom of the shoulder girdle and arms.
- Control over tension and relaxation.

Physiological aspect is an important factor in the education of a professional violinist.

If we pay attention to the specifics of orchestral activity, we will notice that rehearsals in the musical theater orchestra or in philharmonic orchestra can take from 4 to 8 hours of work per day, with quite a short break. This clearly causes a large load on the back muscles. With incorrect position of the body on the chair, we can also observe problems in the lower back, clamps in the shoulders, and pain in the hands.

This can also be associated with the execution, for example, of the repetitive movements of the right hand. For example, when the group of second violins is performing the waltz accompaniment, there is a big load on the shoulder muscles since the right hand must perform the same movements for a long time.

We can also note the clamps in the left shoulder. It often depends on the wrong position of the violinist behind the music stand at the left. To better see the sheet music, the violinist often leans forward and unknowingly extends his left shoulder somewhat forward and to the right. In this case, with a long stay in this position (sometimes for several years), violinists can get serious professional illnesses: scoliosis, clamps of various kinds, neck pain, headaches.

In order to avoid these problems, teachers should pay attention to the correct playing movements, right position of the body in a chair, and general arm position from the early steps of education of the violinist.

To educate the right playing movements today, several systems can be noted. For example, Feldenkrais method and Alexander technique. One of the most effective systems in Russia, from our perspective, is the system by Vladimir Mazel.

Vladimir Mazel – violinist, teacher, specialist in the treatment of professional illnesses of musicians. Born in Leningrad. He graduated from the Leningrad Conservatory in 1953 (his teacher was Professor Veniamin Sher, who in his turn studied with professor Korguev and Auer). For more than 25 years, he worked as a teacher in the violin and methodology class at the musical college of the Leningrad Conservatory named after Rimsky-Korsakov. He helped many violinists return to the profession.

He created a system of special exercises that contribute to the formation of a more enduring body of the musician and the education of the correct playing movements. This is reflected in his works «The Right Hand», «The Left Hand», «Theory and Practice of the Movement»[44] and several others.

Psychological aspects

- Concert excitement.
- Self-control in extreme situations.
- Performance of solo fragments.

An important quality of a good orchestral musician is stress resistance. A lot of moments while performing at stage, as well as the working moments in the orchestra rehearsal process, can be the cause of stress and excitement. These include performing solo, opening difficult places at the group of first or second violins, or a solo part in orchestra. One of the most difficult moments, from the psychological point of view, is solo in the orchestra found in some orchestra pieces. The main problem here is the fast switch from playing tutti to playing solo.

In such situations, musicians often feel insecure, and when the concert excitement is added to this, they start to clamp, make mistakes, miscalculate, and play in a pause.

Most of the situations above arise from the uncertainty of one's own part or excessive responsibility that musicians are put under.

The way out of this stressful situation is the absolute knowledge of one's own part and good technical base: developing the skill of psychological self-control on stage during exams and solo performances and as part of a chamber ensemble, quartet, and orchestra in the educational process.

[44] The book «Theory and Practice of the Movement» exists in English language by the name: «Motion is My Life».

Specific features of the orchestral playing

- Understanding of the conductor's gesture.

The development of this skill comes with experience. Many students learn it at the orchestra class. But if the University is small and provides only a small ensemble, then a young musician needs help explaining some of the basic but unusual conductor's gestures such as 5/8, 7/8, round motion and so on. Also, understanding the conductor's upbeat, that sets the tempo, the dynamic level, the character of the articulation and expression, is crucial.

- Playing in an ensemble, in a group, in a string quintet of the orchestra.

System: «Professional preparation of the violinist for orchestral activity»

As we can see, it is not that easy to prepare a student for a job at the professional orchestra. So, based on the foregoing and own experience, it was created a system «Professional preparation of the violinist for orchestral activity». This system is more directed towards the self-practicing of the student and could help them learn the main orchestral excepts, develop sight-reading skill and maintain a good performing form.

The system consists of two parts:

a) Theory (explanation of physiological aspect, style of composition, help with the choice of perspective fingerings).
b) Self - practicing.

In the theoretical part, the teacher plays an important role. They can explain the student the main moments of all aspects of orchestral activity that we discussed before. Plus, the professional can help with the choice of perspective fingerings, bowings, and other important musical elements in the orchestra fragments.

Self-practicing of the violinist should be organized in time. For example, we recommend using this timing of self-practicing.

	The task	*Timing*	*All time*
System	5 etudes – sight-reading with metronome: R. Kreutzer, P. Rode, J. Dont, C. Dancla	15 min.	60 min.
	Listening of 3 orchestral excerpts	10 min.	
	Learning 3 orchestral excerpts (15 min. per one)	35 min.	

Table 2. Timing of self-practicing

The first 15 minutes, the student practices sight-reading with metronome. Here, they should choose 5 etudes by Kreutzer, Rode, Dont, Dancla. The best way is to start with easy etudes and gradually try to play the difficult ones.

After that, there is the listening of 3 orchestral excerpts that the student will play at the next lesson. It is enough to spend 10 minutes for this section. As practice shows, it is better to use good records of well-known orchestras and conductors to understand character of the piece, correct tempo, articulation and so on.

Next step is practical learning of 3 orchestral excerpts from the symphony repertoire. Of course, study time depends on technical level of the violinist, but approximately it can be 15 minutes per one fragment.

Total time spent practicing will be about 60 minutes - 1 hour. So, as proven, it does not take too long. Time to time, students can find 1 hour for this kind of activity.

As a result, after 3,5 months (14 weeks) classes on this system, students get possession of the sight-reading, knowledge of a basic orchestral philharmonic repertoire studying 42 orchestral excerpts, understanding of the style and maintaining a good performing form.

After a small experiment that was made in violin class in Petrozavodsk State Glazunov Conservatory, we can say that this system works when there is a student highly motivated to find a job. For example, at the last course of conservatory a student start to understand that cannot find a job like a big soloist, and he starting to prepare himself for the orchestral activity. In this case, this system can help a lot because it organizes home self-work of the student, and the process can be fast.

In other cases, you can stretch this system for a longer period. Usually, students are focused in preparing large programs for exams and they do not have a lot of time to prepare orchestral excepts. Plus, sometimes during lessons, there is not enough time to discuss this material. It is especially difficult to use this system with students who only have a violin class once a week for 45 minutes. In this case, the effectiveness of the system depends directly on the students' desire to study.

Conclusion

The professional preparation of the orchestra violinist should be comprehensive and include several important theoretical foundations of playing in orchestra, that we discussed before. Using the system presented in this article can speed up the learning process.

However, regardless of using this system, it is very useful to include orchestral excerpts to the educational process as a technical material. By practicing them, students will develop their technical level while learning the symphonic repertoire. What are the orchestral difficulties? It is a very concentrated technical material in a short fragment.

Therefore, when we ask students to play it in class, we see their weaknesses and can help immediately. For example, we start learning Mendelsohn «Midsummer Night's Dream», or Beethoven Scherzo from Symphony №3 and we notice that our student has a problem with control and rhythmical spiccato: we can stop and explain him this bowing. And, step by step in each lesson, we can phase out a lot of our students' technical problems and prepare them for a successful job in the orchestra.

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Show don't tell: *Artivism* and social transformation around the fiddle in Galicia

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Abstract: This ethnomusicological study focuses on the dynamics that have been taking place around the fiddle in Galicia for the last twenty years. One of these dynamics was the foundation of the Cultural Association Galicia Fiddle in 2010. Since then, the fiddle in Galicia has been going through a process of interweaving, and as a consequence, it has developed an expansive course in different parts of the planet. Through this process, musicians from Galicia and other countries have been weaving a net of transnational interweaving around the processes of musical practice of the fiddle within the frame mark of traditional and folk music from Galicia. The development of the Galician fiddle as an expansive trajectory in different parts of the planet can be understood through the Planetarism concept in the sense of: "Interrelatedness that runs along smooth surfaces, comprises multitudes, and manifests movements" (Song, 2015). Besides, Planetarism also allowed understanding the artivism: the direct actions through music and arts that Galicia Fiddle Association has been employing with an ecological vision and horizontal policies and which foster relationships and the creation of shared spaces between professional and amateur musicians. With this research, I tried to present the role that music occupies in the transformation and the acquisition of meanings in the daily life of people and musical institutions. In order to develop this study, I used the ethnographic method through participant observation in concerts, festivals, courses, and congresses around the fiddle. Aware of the critical and questioning power of autoethnography, through it I intended to make visible the dominant and oppressive discourses that have been built around the violin for centuries and how in the context of Galicia Fiddle and the e-Trad in Vigo there is a set of intentions of change and the creation of alternative performance contexts, which are developed under horizontality policies.
Keywords: Fiddle; Planetarism; Artivism; Galicia Fiddle.
This ethnomusicological study focuses on the research of the expansive planetary dynamics, that have been taking place regarding the fiddle in Galicia (more specifically in the southern part of the province of Pontevedra), since approximately 2010.

Dynamics around the fiddle in Galicia

Alfonso Franco is a violinist, a folk violin teacher at the e-Trad of Vigo and the President of the Cultural Association Galicia Fiddle. He mentions that for centuries Galicia has had an important tradition around the fiddle, centered on the "blind violinists": people who used to go from party to party, visiting Galician and Asturian villages, telling stories while accompanying themselves on the violin. Florencio, "O cego dos Vilares" (1914-86) is currently considered by fiddlers as the last of the "blind violinists". His recordings have been a reference for the new generations of Galician violinists, in terms of repertoire and techniques. In the last 15 years some initiatives about Florencio dos Vilares took place, like a tribute CD performed by Pancho Álvarez (1998) and Florencio Proxecto (2012). However, in this occasion I will be focusing my attention on the direct actions that the Galicia Fiddle Association has been doing through music and arts, inside and outside of Galicia, to foster relationships and to create shared spaces between professional and amateur musicians.

In 2010, a group of teachers and students of the Municipal School of Folk and

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Traditional Music of Vigo (e-Trad) decided to establish a non-profit association called Galicia Fiddle. The professor Alfonso Franco has been the association's president since the beginning. He states that one of the main objectives of Galicia Fiddle is "To awaken and to keep the interest of current and former string students on popular music, in a way that they can enjoy it and their instruments in an alternative way"[46] (to the conservatory and the classical music learning). In this context, the word alternative is used according to the definition of Julie Lyon Lieberman: "A catch phrase for close to thirty folk, world, jazz and popular styles that feature strings" (Lieberman 2004, p. 5).

Professor Alfonso points out the existence of a close collaboration between Galicia Fiddle and the e-Trad and the fact that during all these years the latter has been facilitating the realization of joint activities.

At the beginning, Galicia Fiddle started its activity by organizing courses and concerts with outstanding musicians from the Spanish and international music scene. These activities took place in a rural house located in Xustáns, Pontecaldelas. Later, in 2012, the association created the San Simon Fiddle Camp, a summer course aimed to string students between 8 and 18 years old. Since then the course has been held annualy on San Simón Island in Redondela, Galicia, during the first week of July. Additionally, Encordass was created in 2015; Encordass is a string course for adults that is also conducted every year on the Island of San Simón, during the last weekend of June. These two courses coincide for one day (the first for the children and the last for the adults). In other words, each year, the Encordass' students welcome the San Simón Fiddle Camp's students upon their arrival to the island and play some songs together. At the end of the day, the children go to the dock to wave goodbye to the adults on their boat trip back-home. Afterwards, the children spend the whole week on the island, and on Saturday their parents and Encordass' students are invited to attend and participate in the final concert of San Simón Fiddle Camp.

Two years of fieldwork

In October 2013, some years after finishing my degree as a classical violinist, I started my violin folk studies with Professor Alfonso Franco at the e-Trad in Vigo. Shortly after, I gradually realized that the social dynamics which were taking place in those spaces transcended the mere learning and interpretation of folk violin. I noticed that there were a set of underlying values and processes which needed to be researched.

Since then, as a part of my fieldwork, I conducted interviews, took field notes, recorded videos and, above all, stayed in contact with the professors, the interpreters and the audience who attended the concerts and *foliadas*. The musicians of Galicia Fiddle have

[46] Information written by Alfonso Franco, included in one of the association's information brochures.

always been receptive to tell me more about their music and their culture. We have traveled and played together in fiddle courses in and outside of Galicia sharing informal conversations on many occasions on many topics around the violin. We often talk about my research as well and they have shown me their interest by asking me questions, giving me information, telling me stories and kindly answering my questions. However, some of them have shown some resistance to a formal, recorded interview, despite being assured that it will only be used in the context of the investigation.

Revival and Planetarism

Once I finished my Masters studies and as I was searching for a topic for my doctoral thesis, I remembered the previous fieldwork and the experiences I had lived with Galicia Fiddle. I reflected on my observations in both contexts (the e- Trad and Galicia Fiddle) and how there had been recurrent speeches about the revival of musical practices of the past, linked to performers - the blind violinists who toured the villages in the 19th century singing and playing the violin- and musical genres such as "traditional" music and Galician "folk" music. Not only do those speeches explain clearly the interest in reviving those practices of the past, but also made reference to other recurrent issues, such as: (i) taking responsibility for the sustainability of local social life and the associative mobilization to participate in a social movement which integrates the values of ecology; (ii) the resistance to the models of knowledge transmission in the formal teaching of classical music, the resistance to a proposal of musical learning and practice "by ear", and to replace the classroom (and the teacher-student relationship) with the meeting of musicians in contexts of coexistence.

Those situations which I saw in my fieldwork led me to ask myself if the fiddle in Galicia was going through a process of revitalization. I then continued my bibliographical research, which this time led me to authors such as Caroline Bithell and Juniper Hill, Tamara Livingston, Owe Rönstrom and Mark Slobin.

I continued working on my research following this point of view. As a matter of fact, in July 2018, when I went to the North Atlantic Fiddle Congress (NAFCO) held in Aberdeen, Scotland, to present a paper, this was the approach I outlined. Nonetheless, on that occasion I had the opportunity to personally meet and talk with Professor Mark Slobin. Having read his text ‘Reflection’ for the preparation of my paper, I had perceived his critical stance about the use that is made of the prefix ‘re’- specifically in the context of revival. Professor Slobin considers that these terms have been used in excess and should be given a break. On that occasion, prof. Slobin was the chairperson of my session, so, after the event, I took the opportunity to share with him my doubts about that terminology and how I had been applying it in my research until then. As I expected, in our conversation he kept

the line of thought already discussed in his article, suggesting me to look for alternatives to the option of the prefix ‘re‘(revival/revitalization), since he saw that the processes developed in my study went beyond what a revival involved.

From then on, I have continued my fieldwork with Galicia Fiddle, but I am also rethinking the theoretical model in which I wish to frame my study. At this moment I am working on the concept of "planetarity" (planetarism). One of the references which I am using at this moment is the book *The Planetary Turn*. Planetarism is presented as: “A new structure of awareness, as a methodical receptivity to the geothematics of planetariness characteristic of a fast expanding series of cultural formations” (Elias and Moraru, 2015). These authors differentiate and offer the option of planetarism opposed to globalization, arguing that the concept of globalization revolves around three main semantic areas: internationalization, multinationalism and transnationalism, where each has its own political, environmental and ethical implications. In addition, they present planetarism as more effective in terms of consideration of the ethical, cultural and political implications that arise from planetary interconnectivity, as well as regarding the planetary coexistence, from an ecological perspective. According to Min Hyoung Song (author of one of the chapters of the book), Globalization tends to separate, hierarchize and criminalize. On the other hand, Song presents planetarism as: "Planetarity, then, might be thought of as a different order of connection, an interrelatedness that runs along smooth surfaces, comprises crowds, and manifests movements” (Song, 2015).

Afterwards, I found some weak points in the application of the concept of revival to my research. Besides those inconveniences mentioned by prof. Slobin, I felt that “revival” was strongly making reference to local actions. On the contrary, I could see that the course of events in Galicia Fiddle has an expansive trajectory in different parts of the planet. I strongly believe this concept of planetarism allows me to adequately address the dynamics of global interconnectedness which I had observed in Galicia Fiddle.

This expansive process of Galicia Fiddle began with the travels of Professor Alfonso Franco to countries such as Scotland, USA and Canada to give lectures on the music of the blind violinists. Later, Alfonso and his sons Claudia and Hugo taught courses and played concerts with their group Acoustic Trio. In the last three years they have traveled to China, Mexico and Costa Rica to teach both teachers and students pieces of Galician traditional music, as well as to practice with them the repertoire and the techniques of the blind violinists. In each activity, they give informative talks about Galician traditions and cultures, and about the role that the fiddle is developing in Galicia. Apart from this, Alfonso and his sons take some time on each trip to share with the local musicians: to play with them, to learn about their music and cultures, and to cultivate new professional relationships and friendships.

Furthermore, since Galicia Fiddle's foundation in 2010, the association has offered, approximately three times a year, a great variety of courses and concerts, through which the members have been in contact with high-level musicians and teachers within the international folk scene, such as Alasdair Fraser and Nataly Hass, Darol Anger and Amy Phelps, Mike Block and Hanneke Cassel, Rushad Eggleston, Jacky Molard, Laura Risk, Cassey Driessen, among many others.

This process extends among students residing in Galicia on a regular basis and international students who have participated in any of the courses. For example, in July 2014 the San Simón Fiddle Camp was twinned with the *Mike Block Fiddle Camp* which was being held that week in Florida, USA. The Galician violinist Elena Troncoso attended the Mike Block Fiddle Camp, accompanied by Pablo Taboada, member of the Board of Directors of Galicia Fiddle, while Eleanor, a cello student from the USA, attended the San Simón Fiddle Camp. Elena, Pablo and Eleanor were in Florida for the first week, then the three of them travelled to Galicia and taught traditional songs to teachers and students of both camps in a video call via Skype[47].

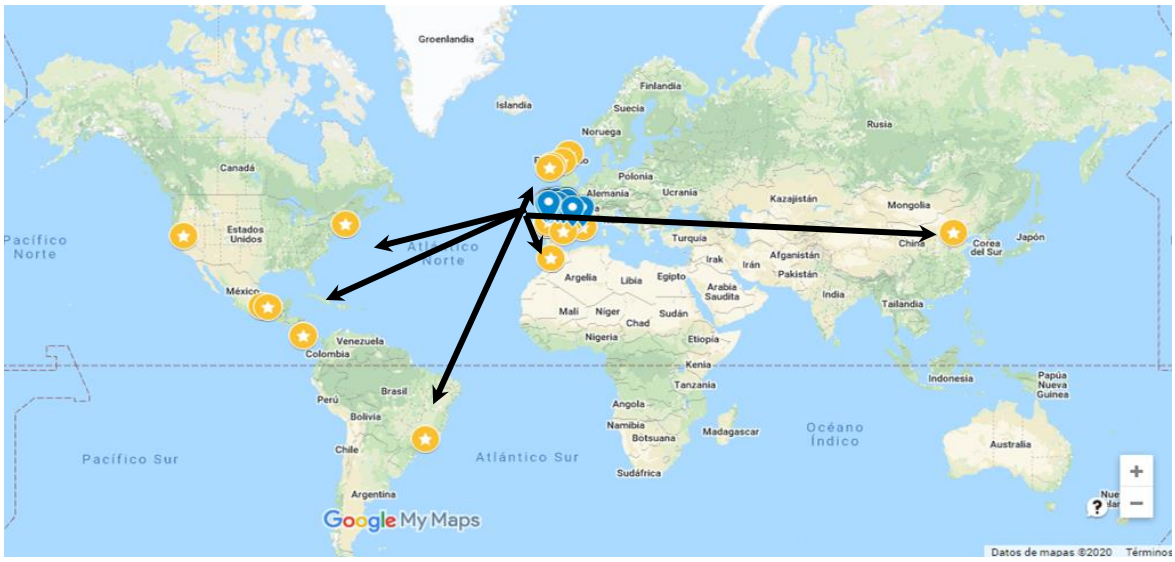
By the same token, the summer courses Encordass and San Simón Fiddle Camp have dedicated their last three editions to the music and culture of different countries: China, Mexico and the Arab world. The international teachers who came to work at San Simón Fiddle Camp were accompanied by their families and some students, who also had an active participation in the courses either as musicians or as transmitters of their culture. I firmly believe that with these actions Galicia Fiddle creates expansive cultural and geographic contexts, which find a place within the definition of planetarism that, I presented earlier. This made possible for people of all cultures and traditions involved to interact under horizontal policies. In addition, children and adults learn together from each other; They get immersed in the environment of a music course where not only do they play music from Galicia and other parts of the planet, but they also learn about the Mexican tradition of the "Day of the Dead"

or practice Tai Chi with a Chinese teacher in the middle of the forest. In the last five years, Professor Alfonso Franco has played and taught the traditional music of Galicia in Portugal, Canada, China, Costa Rica and Mexico. In January 2017, in collaboration with the Xunta de Galicia and the Lar- Galego Association of Costa Rica, Alfonso and I conducted a course in San José, Costa Rica. We called it Tropical Fiddle. We had an approximate enrollment of 40 children and 20 adults, among whom were both professional and amateur musicians. For a week, these students had the opportunity to get in touch with

[47] https://www.elcorreogallego.es/hemeroteca/musica-raiz-fiddle-asulagan-maxia-illa-san-simon-unen-galicia-florida-EECG880657

traditional Galician dances, traditions and music and to share with Alfonso and his sons some of the Costa Rican traditions in terms of music, dances and food.

These expansive policies in Galicia Fiddle's activities have also covered the work of some students of the e-Trad and Galicia Fiddle, who have come from other countries specifically to learn how to play the music of Galicia. This is the case of Daniel Caton, a bluegrass guitarist from the USA. Also, Tomohiro Yoshikawa was a guitar student at the e-Trad from Osaka, Japan. "Tomo", as he is known among his peers, has taken Galician music to Japan. While traveling there in the summer 2018, he organized foliadas and concerts with Japanese musicians. In September 2018, he played a concert of Galician music in Japan, with a group of four musicians playing traditional instruments of Galicia: bagpipe, tambourine, flute and guitar[48].



1. Galicia Fiddle's planetary dinamics map

Unha festa non se acaba sen a muiñeira de Chantada... Rethinking the concepts.

In his study about Transculturality, Wolfgang Welsch criticizes the traditional concept of single cultures and offers the concept of Transculturalism instead of interculturality and multiculturality. He argues that those concepts are inefficient to describe contemporary cultures. For Welsch, "Cultures today are extremely interconnected and entangled with each other. Lifestyles no longer end at the borders of national cultures, but go beyond these, are found in the same way in other cultures" (Welsch, 1999, p.4). This brings to my mind an experience I had in Frutillar, Chile, last January. While I was sitting in a café's terrace, I started to hear the particular sound of a Galician bagpipe. At first, being so far away from

[48] Video of a rehearsal available at: https://www.youtube.com/watch?v=xC6eVWpHNjY

Galicia, I thought I had misheard it, that the song was just in my mind. Shortly after that, the notes of Muiñeira de Chantada got clear to my ear. In no time, I left the table and ran to the Frutillar pier, where the sound was coming from. There I found *Pedro*[49], a Chilean bagpiper, a Galician traditional music enthusiast playing, in a little village in Chile, one of the most well-known Galician songs, with an authentic Galician bagpipe. Some days later, I took my violin to the pier and Pedro and I played some Galician songs together such as Rianxeira, Muiñeira de Pontesampaio and of course Muiñeira de Chantada. Moreover, we were able to talk about his previous trips to Galicia, his love for Galician music and the similarities he had found between some Chilean and Galician musics. At that moment, in Chile, I remembered clearly the words of Antonio Rodríguez Miranda, the General Secretary of Emigration of Galicia: “Galicia is a community that transcends geographical borders”; and it also brought me to Martin Stokes, who argues that “Diasporas make a virtue out of a necessity, imagining both the historical facts of their global dispersal as well as the cultural bonds that continue to unite them (no matter how tenuous)” (Stokes, 2007, p. 4).

In this occasion, I was able to play with Pedro thanks to my formation in folk violin at the e-Trad and Galicia Fiddle. I know the songs he played from the foliadas, concerts and courses I attended in all these years. When I started my experiences in these contexts, I could not possibly think that something like that would happen to me. But at that moment, I really felt on my own skin how that network of planetary contacts around the globe, which Galicia Fiddle is continuously seeking to expand, was also being knitted around me.

I consider this experience as a part of the modern dynamics that take place in folk music. That brings me on to Owe Ronström, who mentions that: "the horizons and labor markets for folk musicians expanded from the local and regional to the transnational and global"(Ronström, 2014, p. 50). Anyway, getting back to the planetarism concept, I feel that it allows us to expand even more our perception of the planetary dynamics that are taking place around the fiddle in Galicia in the 20th century. Just as the authors mention:

Planetary: our moment. A way of being and a way of measuring time, space and culture in the human sciences and on the planet at large […] This moment involves, more than any other geosocial shifts of the modern era, spectacular spatial-cultural reconfigurations on a global scale (Elias and Moraru vii, 2015).

[49] Pedro Pablo Muñoz Silva

Figure 2. Prof. Alfonso Franco, president of Galicia Fiddle with Zhantao Lin, Er-hu professor at *Encordass* and *San Simón Fiddle Camp 2016*. San Simón Island, Galicia. July 2016.

Figure 3. Palestinian and Moroccan teachers working with students at *Encordass 2018*. San Simón Island, Galicia. July, 2018

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Teaching and learning a musical instrument at retirement age: a case study

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Abstract: According to the World Health Organization (WHO), European population is rapidly ageing and the number of "over 60" will reach the 25% of the population in 2050. It is then imperative to promote the overall wellbeing of such individuals, through different actions, including cultural activities. Several projects proved the paramount importance of making music for the promotion of wellbeing in older population. However, research inquiring the didactical relationship between teacher and retired adults learning a string instrument in the context of individual classes is lacking. Our case study will follow a young cello teacher and his retired student during 7 lessons. Based on clinical observation, qualitative analysis traces didactical approaches and aims at the discovery of didactical modeling for this peculiar teaching. Discussion of results will focus on: (i) differences from and similarities with models for teaching younger population; (ii) conceptions and needs of teaching/learning at retirement age; and (iii) improvement of string teaching directed to older students.
Keywords: retired students; string teaching; beginners; didactic.

Introduction

According to the United Nations Population Fund (UNFPA) "the world is ageing rapidly. People aged 60 and older make up 12.3 per cent of the global population, and by 2050, that number will rise to almost 22 per cent"[51]. Europe seems to foster a particularly important percentage of older population. According to the World Health Organization (WHO), "its median age [European population] is already the highest in the world, and the proportion of people aged 65 and older is forecast to increase form 14% in 2010 to 25% in 2050"[52]. Both UNFPA and WHO stress the importance to consider this data as a set of both challenges and opportunities, and they claim the effort to work for promoting sustained wellbeing for senior citizens. Active ageing is considered a focal point of wellbeing, and among actions and recommendations, cultural activities are found as important contributions to seniors' wellbeing (WHO, 2002). Music making is among cultural activities that are considered to promote wellbeing in senior citizens. An important body of research is developing, concerning the contribution to music making to the overall wellbeing of people at retirement age. In the UK, the project *Active Ageing with Music*, part of the vast project *Music for Life*, investigated several aspects of making music with and for senior people, including instrumental and vocal activities, (Creech et al., 2015; Creech et al., 2014; Lamont et Murray et al., 2018; Hallam et Creech, 2016)

[50] Author's contact: operacion_tango@yahoo.com
[51] (https://www.unfpa.org/ageing)
[52] (https://www.euro.who.int/en/health-topics/Life-stages/healthy-ageing)

and interventions in Homes for retired people (Pedrazzani & al., 2017). However, all these studies focus on group lessons, and individual lessons seems to be less investigated in teaching seniors. In Switzerland, where our research took place, there are few opportunities for older citizens to join group instrumental lessons as beginners. In fact, the majority of music schools feature individual classes and group lessons are reserved for later addition. Although teaching seniors has become important to teacher's training programs (e.g. *Certificate of Advanced Studies in Musikgeragogik* in Luzern, *Rhythm for Life* in London), the vast majority of teachers are not trained to work in an individual class setting with older people. A need to better know how to teach elderly seems to be of paramount importance to better suit this peculiar population.

Research questions

- What are the representations of teaching a retired student for a string teacher and how do they change over time with experience?
- How is the lesson conceived and how does it unfold? Is the lesson similar or different from a lesson with younger students/a younger population? Is the repertoire similar or different?
- Is the student actively participating during the lesson or not, and are there signs of improved wellbeing?

Method of investigation

Participants are a retired beginner female cello student and her young male cello professor. Lessons are private and take place at the student's house.

Protocol

One semi-structured interview (Quivy & Campenhoudt, 1995; Vermersch, 2011) was conducted with both teacher and student, and audiotaped. This interview was called *ante*, because it occurred before lessons. The aim of these two interviews was to:

- Gain knowledge of teacher's representations on working with retired students and differences/similarities he found in teaching cello to younger people;
- Understand the student's motivation for learning a new musical instrument at a retirement age, likes/dislikes and resources/difficulties about instrumental practice.

A body of 7 lessons was videotaped. After these lessons, a semi-structured interview was conducted with teacher and student, and audiotaped. These interviews will be called *post*, because they took place after the lessons. The aim of these interviews

was to understand the evolution of representation of instrumental learning and teaching over time.

Since this article focuses on teaching, the interviews with the student will not be analyzed here.

Method of analysis

This research is a case study. The data will be analyzed following qualitative methods, framed by the clinical approach in didactic (Leutenegger, 2000 & 2009). Leutenegger (2000) defines the clinical approach as follows: Il ne s'agit pas d'étudier « cliniquement » des cas d'élèves ou éventuellement des cas d'enseignants, mais de créer une « clinique des systèmes ». […] Le propos est ici très différent : l'élève est l'une des instances d'un système comprenant une autre instance humaine, l'enseignant, et des savoirs respectivement à enseigner et à apprendre et c'est bien l'étude de ce système de relations ternaires en situation didactique – et non des sujets particuliers – qui est abordé de façon clinique.[53] (p. 218)

As this theoretical frame studies the didactical action in terms of entitles and not in terms of individuals, it allows a broader approach and a better generalization.

Meaningful discourse and/or action will be extrapolated from data, in order to answer our research questions.

Results

During the interview *ante*, the teacher stated that the overall structure of his lesson would be very similar to the one given to younger students. It would follow the scheme warm-up/studies/musical pieces. This result helps to confirm recent research (Mili & et al., 2014; Mili et al., 2017). Repertoire and didactical strategies would also be very similar with younger students. However, the teacher stressed the importance to get acquainted to the retired student, in order to better tailor the lessons to his/her needs and desires. He also pointed the importance of the ageing body, which causes, in his opinnion, stiffness during playing. He discussed several differences he found between younger students – such as the feeling – and retired students – to be limited in learning and to show more autonomy in home practice. Again, recent research confirms his statements (Creech et al., 2014). Concerning desired repertoire to be played, he stated that retired students prefer classical

[53] It is not the question here to "clinically" study pupils' cases or possibly teachers' cases, but to create a "clinic of systems". The purpose is here very different: the pupil is one of the entities of a system including another human entity, the teacher and a set of knowledge respectively to be taught and learned. It is indeed the study of this ternary set of relationships in a didactical situation – and not of particular subjects – that is approached in a clinical manner. (Our translation).

repertoire, while younger ones show preference for repertoire stemming from the media, such as movies and commercials.

The observation of lessons confirmed to the teacher the importance of becoming acquainted with the student. In fact, all lessons started with a rather long introductory dialogue. Only lesson 7 (L7) stands out with respect of timing devoted to introduction of the lesson. This is not surprising if we consider that this lesson is the only one featuring a duo. For this lesson the teacher arranged to have another of his retired cello student and the two women played previously prepared duos.

Concerning the structure warm-up/studies/musical pieces (Mili & al., 2013; Mili et al., 2017), we can observe a certain flexibility. The teacher, during the introductory dialogue, asks the student if she has already played and if there is need for a warm-up. As a result, scale is played only if warm-up is necessary. On a didactical point of view, this means that both teacher and student consider the study of scales mainly for this purpose and a lot less for learning or practicing other musical and/or technical challenges such as intonation, bow distribution, etc. Moreover, the structure of lessons often followed the student's desires.

Almost every time the teacher asked the student what she wanted to start with. Musical pieces came from classical repertoire (Adagio from Chopin's cello sonata, Menuet from Bach's first cello suite). Table 1 summarizes these findings.

Lessons (L)	Time	Scale
L1	08'22	no
L2	05'39	yes
L3	08'16	yes
L4	04'54	no
L5	08'28	yes
L6	06'29	yes
L7	02'07	yes

Table 1. Time devoted to introductory dialogue and tuning, presence of scales. Left: lessons' number; middle: time devoted to introductory dialogue and tuning; right: presence or absence of scales.

Technical work focused on sound production, in order to perform dynamics and timbres, and shifting, to enhance physical flexibility. There was no teacher's intervention on the performing

body of the student (e.g. helping to draw the bow, adjust fingers, etc.) and very scarce work on intonation. Almost all repertoire was selected in order to be played in duo with the teacher, and the student played several studies/pieces during each lesson. During lessons, the teacher talked abundantly, playing on his cello to demonstrate cello techniques, dynamics, phrasing and strategies for home practice.

In terms of student's participation, findings show an active participation on her part. Student participated to teacher's verbal and instrumental demonstrations almost interrupting the teacher with her playing. During lessons, student shared strategies and difficulties found on home practice, she expressed likes and dislikes in terms of repertoire, and actively participated to the organization and unfolding of the lesson. Table 2 show examples of these interventions as active participation.

Strategies/difficulties in home practice	Likes/dislikes	Organization/unfolding of lesson
L1 (04'10) S: Here the difficulty is the rhythm, maybe I have to get organized to get a metronome L2 (05'13) S: So, usually I play C major scale, then the scale of the piece I want to play	L5 (01:03'17) S: yes, I like these (duos) better. Perhaps I will ask a friend who plays bass flute [to play them with me] L7 (03'56) S: and then you gave me Beatle's Let it Be, but I don't want to play it without accompaniment (…) we talked about what I like to play and thinking about it, this is not what I prefer	L2 (29'56) S: so, let's make this piece. L3 (05'42) S: today I want to play these pieces and then start something different.

Table 2. Examples of student's active participation. Left: student's statements in terms of strategies/difficulties found in home practice; middle: student's statements in terms of likes/dislikes; right: student's statements in terms of organization/unfolding of the lesson. (Our translation).

During the interview *post*, the teacher stated that his student progressed slower than expected, that he had to adjust the organization and unfolding of the lessons to the student's desires and to use verbal strategies on musical imagination to enhance physical engagement on her part. He stated that he felt the need, during lessons, to allow

time for rest for his student. He valued the experience positively, stating that it opened a range of questions, such as finding more pertinent repertoire, and better adapt techniques to the ageing body. For the latter point, he noticed that skin becomes drier, but the flesh of fingers gets softer, making it more difficult for calluses to form, and joints get stiffer with age. Adjustments include a more systematic use of shifting (instead of extensions), adapted left hand position (using more the pulp of fingers) and bow grip (thumb less curved). Overall, he stressed the importance of getting acquainted with the person and to fulfill the need for compassion and distraction from past traumas of retired students.

Conclusions

This study sheds light on peculiarities concerning teaching a string instrument to beginner retired students.

The teacher changed his representation of teaching retired students in general and beginner retired students in particular. From a first image of an overall similar teaching compared to younger students, he gained knowledge of the importance of pedagogical adaptations (e.g. importance of student's needs and desires; fulfill the need for compassion and distraction) and didactical approaches (e.g. adapt cello techniques, choose appropriate repertoire). Some of our findings confirm the shift of perspective of young teachers toward teaching to retired students (Perkins, Aufegger & Williamon, 2015).

Lessons showed few similarities with those provided to younger students, according to research. However, the differences are striking. We summarize these differences in table 3.

Retired students	Younger students
Dialogue	Teachers talks (Lartigot, 1999)
Student listen, teacher plays	Teacher listen, student plays (Lartigot, 1999 ; Batezat-Batelier, 2017)
Repertoire tailored for student likes	Repertoire tailored for student progress (Bellu, forthcoming)
Student plays little	Student plays most of the lesson (Schumacher, 2009)
Work on interpretive elements (sound production and shifting)	Work on technical elements (Rickenmann, Marquez Cuesta & Bellu, 2019)

Table 3. Differences between lessons with retired students and younger population. Left: elements of lessons with retired student stemming from the present research; elements of lessons with children according to our findings according to other research findings.

Signs of student's wellbeing are noticeable in her active participation in terms of playing during the teacher's explanations, in taking responsibility for choice of repertoire, unfolding of lesson and in manifesting likes and dislikes.

The implications of this research lie in teacher's training. In fact, this study shows the importance of knowing and apply several key points in teaching retired students. We summarize here below those key points as recommendations stemming from this study:

- On relationship. Get acquainted to the student, show empathy, fulfill the need for compassion and distraction, cover desired repertoire, promote student's participation;
- On lesson organization and unfolding. Consider physical tiredness and allow time for rest, play with student, take into account student's desires in terms of what material to cover during lessons and at what time of each lesson;
- On didactical approach. Adapt techniques and repertoire to the ageing body and concentrate more on recreational activities than on progress.

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Joseph Joachim's Performing Aesthetics in the Nineteenth Century

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Abstract: Joseph Joachim is regarded highly in the Romantic German School. He is one of the top solo violinists in Europe, especially in the circle of Mendelssohn, Schumann and Brahms. He devotes himself to recall the love of the works of Bach. His close friendship with Brahms certainly influences Brahms' string music. His performing aesthetics and approaches are valuable resources for players to understand and interpret Romantic German strings repertoires. As interpretation is strongly associated with the presentation of music in its audible form, the problem is how to understand, and to execute performing elements based on historical evidence. In this article, both written and recorded evidence are examined. These materials include Louis Spohr's *Violinschule* and Joachim and Moser's *Violinschule*, as well as Joachim's discography, *Romance* in C, *Hungarian Dances* No. 1 and No.2, and Bach's unaccompanied Sonata No. 1, BWV 1001. Three performing elements, including vibrato, portamento and rhythmic adjustment, are analysed. The aesthetic approaches to these three elements in the nineteenth-century challenges modern audible experience. In the nineteenth-century German School, the use of vibrato is rather limited and restricted in a disciplined manner. On the contrary, the employment of portamento is used more freely compared to modern performance. The rhythmic adjustment in the German School is more flexible and usually associated with dynamics and accent markings. In summary, this article aims to analyse Joachim's performing style in the late nineteenth century and demonstrate the changes in performing fashion in the early twentieth century. This article also addresses the differences between the German and the Franco-Belgian Schools; furthermore, it explains how these performing approaches can be used when interpreting Joachim's viola compositions.
Keywords: Joachim; Romantic; German School; vibrato; portamento

A Journey of Exploring Joseph Joachim

Joseph Joachim (1831–1907) is a Hungarian/Jewish violinist, violist, conductor, composer and teacher. A close friend of Brahms and Schumann's family, Joachim is also one of Mendelssohn's favourite interpreters. His dedication recalls the love towards Bach's works (Fuller Maitland, 1907). Joachim's interpretation and aesthetics have a strong influence in the late Romantic-German School. This German tradition remains influential in the early twentieth century. Joachim's student, Leopold Auer, is the father of the Russian School of violin playing. Auer's students, such as Mischa Elman, Jascha Heifetz, Nathan Milstein, Toscha Seidel, Efrem Zimbalist, and Oscar Shumsky, are notable virtuoso violinists in the twentieth century.

Ways to research

In order to reveal the sound that might have been produced in the late nineteenth-century German School, it is necessary to obtain primary sources, secondary literature, and recordings related to Joachim. Moser-Joachim's *Violinschule*, which was published in

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1905, provides a fundamental resource to trace the links related to him. In his *Violinschule*, Louis Spohr's opinions are highly valued by Joachim. As a pupil of Spohr, Ferdinand David's fingerings provide useful information reflecting the tone production and tone-colour perspectives.

Meanwhile, Joachim's historical recordings documented the musical history of the German School in sound and revealed Joachim's aesthetics and his taste of musical style. Furthermore, being a student of Joachim, Leopold Auer's perseverance stands for the last generation of the old German fashion and foresees the changing performing style in the early twentieth century.

The use of vibrato in German School

There are three performing elements that will be examined here, starting from vibrato, then portamento and finally, the rhythmic flexibility. Is it appropriate to use vibrato when playing nineteenth-century German music? The answer is yes. But the way that vibrato has been used is quite different from modern time.

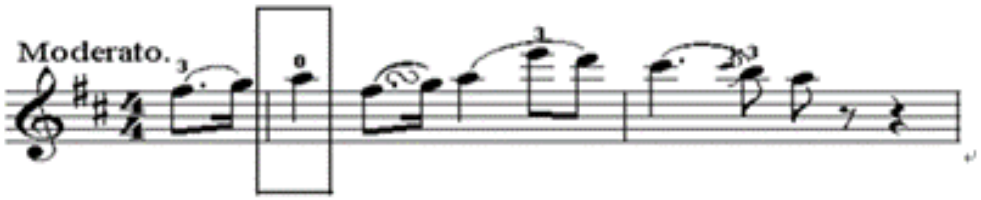
In the Romantic period, the pure tone is considered by the majority of the musicians as a fundamental element for sound production. The German School is more conservative towards the use of vibrato. The vibrato is only used as a decoration to colour and embellish the tone. Just as Joachim and Moser stated that "A violinist whose taste is refined and healthy will always recognise the steady tone as the ruling one, and will use the vibrato only where the expression seems to demand it" (Joachim & Moser, 1905b, 96a). From the letter Joachim wrote to Hungarian violinist, Franz von Vescey in 1904, Joachim stressed the importance of keeping the pure tone. He noted that "only use vibrato when you wish to lay particular stress on a note, which your feeling will suggest" (Joachim, personal communication, November 20, 1904).

Ferdinand David's edition: pure tone and natural harmonics

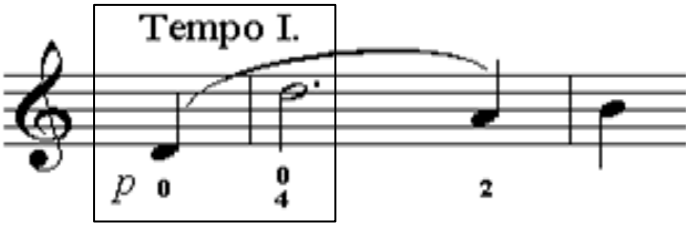
In the same principle, there is no harm to enjoy more open strings and natural harmonics in playing where it is appropriate, since the effect of natural harmonics and open strings are considered as equivalent as pressed notes. However, one needs to consider whether the tonal colour of the open strings or harmonics notes are consistent with the rest of the notes in the same phrase when deciding stylist fingerings.

Few excerpts from Joachim and Moser's *Violinschule* are evidence showing natural harmonics, and open strings are extensively used in the German tradition (Joachim & Moser, 1905b, 92a). The first example shows that Joachim used Pierre

Rode's excerpts to explain the use of portamento. But this excerpt also reveals the indication of natural harmonic a'' on the A string (Example 1).



Example 1. Joachim and Moser, *Violinschule*, by Pierre Rode.



Example 2. Beethoven, Violin Sonata in A, Op. 47, Mov.1, ed. Ferdinand David.

Ferdinand David's fingering also serves as evidence that the frequent employment of the open strings and natural harmonics is not foreign to nineteenth-century performers (Brown, 1994, p. 139). David's fingering starts the d' on an open string, and then another none pressed note has been used, which is the natural harmonic d'' on the D string (Example 2).

Indications of open strings

Similarly, Joachim gave few indications of natural harmonic-a'', harmonic-d'', and harmonic-g' of the third movement of his composition, *Hebrew Melodies f*or viola and piano, Op. 9 (Example 3). The fingering indications on the long notes g' and c', which appeared at the end of the phrase is particularly interesting from modern players' point of view. Instead of choosing the third finger as pressed notes with vibrato for both g' and c', Joachim indicated the employment of natural harmonic g' and c'. These are clear evidence that Joachim favours the pure and clean sound to serve those long ending notes.

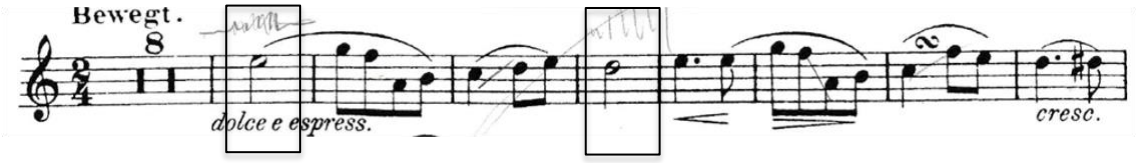
Example 3. Joachim, *Hebrew Melodies* for viola and piano, Op. 9*,* Mov. 3.

How to execute vibrato with style

Knowing Joachim's preference of pure tone as primary sound production, the second question is how to execute vibrato only as an embellishment in the 'Joachim's' style. There are two points here needed considering; firstly, the location of vibrato, and secondly, the speed of vibrato.

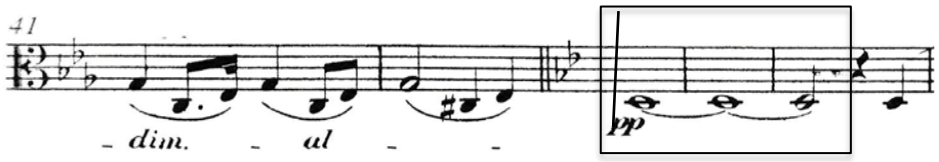
Location of vibrato

From the fashion that Joachim demonstrates in his *Romanze* recording in 1903, one can notice that the vibrato is only served for expressive purposes, selectively employed on specific long and sustained notes for sound variation, and on accentuated notes for emphasising purposes. The modern idea of continuous vibrato is never in his mind and beyond his imagination. Example 4 is from Joachim's recording, *Romanze*. In this recording, Joachim employed vibrato on the e" of the opening theme where it was marked *dolce e express*., and then three bars later on the d". Both long notes start from and end with pure sound. The vibrato only has been employed in the middle range of the notes as an ornament (Example 4).



Example 4. Joachim, *Romanze*.

Example 5 is an excerpt from the first movement of Joachim's *Hebrew Melodies* for viola and piano. The long note lasts for six beats long. Players can apply a bit of vibrato to decorate the sound (Example 5). But the employment of vibrato should be executed with caution like the way Joachim demonstrated in his recording. The note should start without vibrato then only use the vibrato in the middle section, and then should return to pure sound near the end of the note.



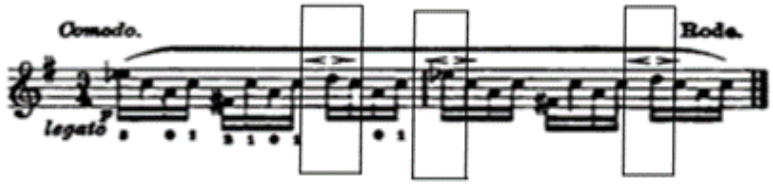
Example 5. Joachim, *Hebrew Melodies,* Mov. 1.

Accentuated notes

Another place that players are invited to use vibrato is where the accented notes are. Joachim and Moser valued Spohr's indications of the appropriate employment of vibrato. In musical notation, "[vibrato] is employed … in strongly accenting notes marked with ***fz*** or **>**" (Joachim & Moser, 1905b, p. 96). One of the fundamental purposes of vibrato in the late nineteenth century is to emphasise specific effects, such as the climax of the piece or important harmonic notes, so should be employed "where the expression seems to demand it" (Joachim & Moser, 1905b, p. 96a).

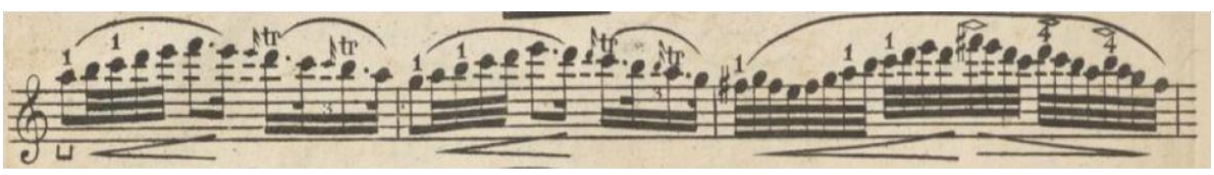
The hair-pin marking sign is also an indication to employ vibrato. Rode's third *Caprice* was given as an example in the *Violinschule* to demonstrate that the vibrato can be used on short notes (Example 6). Joachim and Moser (1905c) advised:

The close shake [vibrato], however, is not employed for the beautifying of notes of longer duration in the slow movement, but also in the fleeting course of passages that are to be rapidly played. Rodehas indeed made a specialty of this, and has indicated its use by the mark <> in many of his compositions, even on semiquavers and semi-demisemiquavers" (p. 7)



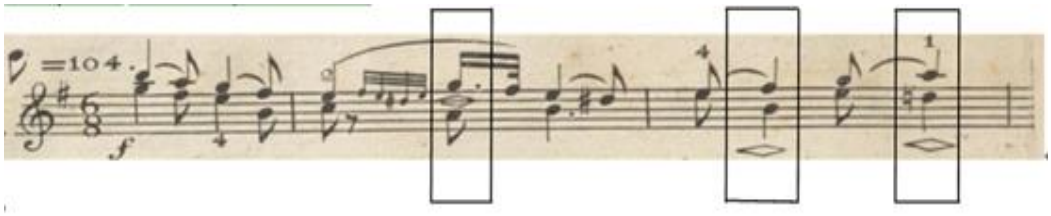
Example 6. Rode*, Caprice*, No. 3.

An excerpt from the C*antabile* of Rode's *Caprice*, No.1 indicates that the vibrato can be used on semi-demisemiquavers (Example 7). One can notice that the use of vibrato here is mainly on high notes as a decoration of the sound. Joachim and Moser acknowledged Spohr's opinion that the vibrato is an imitation of singers. They indicated that "concerning Spohr says: The singer in the performance of passionate movements, or when forcing his voice to its highest pitch, produces a certain tremulous sound resembling the vibrations of a powerfully struck bell. This, with many other peculiarities of the human voice, the Violinist can closely imitate" (Joachim & Moser, 1905b, p. 96).

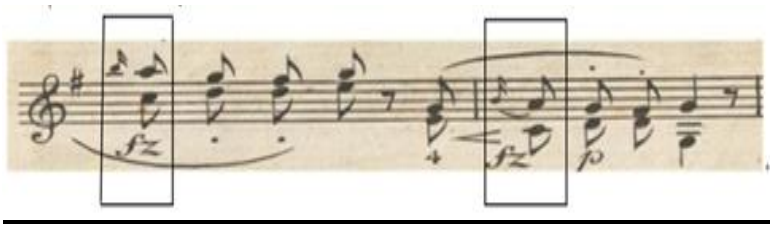


Example 7. Rode, *Caprice*, No. 1

Two more exciting examples can be found in Rode's *Caprice*, No. 4. The <> sign appears on the double stops suggesting Rode uses the vibrato not only on double stops but also on the weak beats (Example 8). Example 9 is also from the same *Caprice*. An *fz* sign is added on the quavers of two descending phrases (Example 9). In this occasion, vibrato can be used on these double stops with a little bit more bow pressure, to emphasise the metrical accent of the duple compound meter of this *Siciliana* as the *fz* falls on the strong beats in bars 12-13. This selective use of vibrato enhances the melodic line and increases the flow of the melody. Furthermore, it creates a slight rhythmic adjustment.

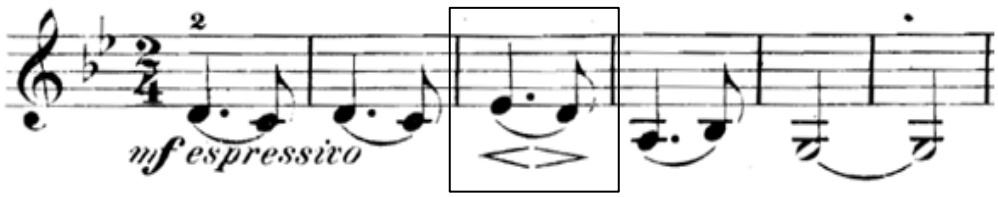


Example 8. Rode, *Caprice*, No. 4.



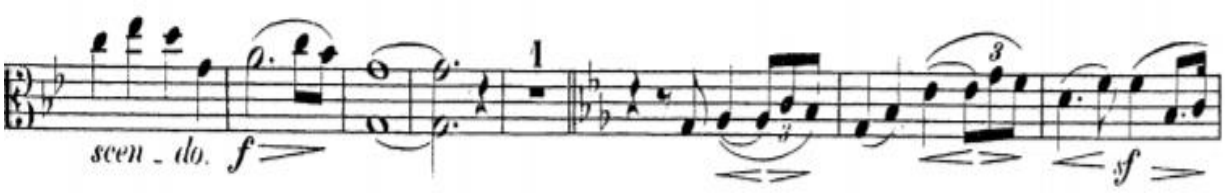
Example 9. Rode, *Caprice*, No. 4.

From both printed scores and Joachim's recordings, it's not difficult to notice that Joachim is indeed quite specific about where he wants the effect of vibrato. Joachim's edition/transcription of Brahms' *Hungarian Dance*, No. 1 contains the <> sign marked on the e-flat', which is the highest note of the opening theme (Example 10). Systematically, Joachim also used the vibrato on this e-flat' in his 1903 recording.

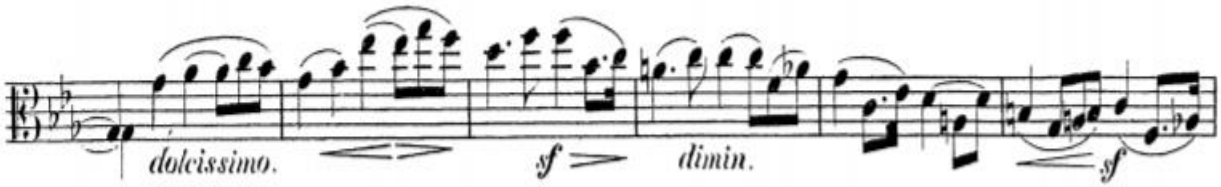


Example 10. Brahms, *Hungarian Dance*, No.1, ed. Joachim.

Few more examples here demonstrate that the vibrato can be applied to Joachim's viola music in the same principal. Both examples 11 and 12 are excerpts from the first movement of Joachim's *Hebrew Melodies*. The *sf* sign is regularly marked on the higher and sustained notes along with the hair-pin markings (Example 11 & 12). Another hair-pin sign is added on the e-flat'' in bar 54 of the third movement of Joachim's *Hebrew Melodies*. Again, the e-flat'' is the highest note of the phrase (Example 13). From all these examples above, one can observe Joachim's preference of linking the highest note of the phrase with vibrato to embellish the tone.



Example 11. Joachim, *Hebrew Melodies,* Mov. 1.



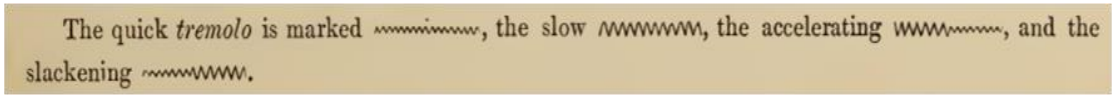
Example 12. Joachim, *Hebrew Melodies,* Mov. 1.

Example 13. Joachim, *Hebrew Melodies,* Mov. 3.

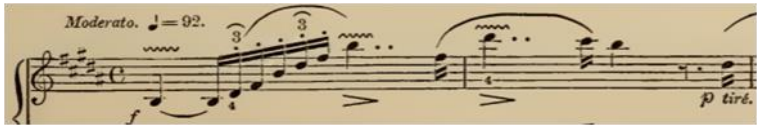
The speed of Joachim's vibrato

Carl Flesch's treatise, *The Art of Violin Playing*, which is published in 1923, conveys the fundamental differences between modern and nineteenth-century vibrato in terms of speed and oscillation. Flesch stated that "Joachim's medium of expression … consisted of a very quick and close tremolo [Vibrato]" (Flesch, 1924, p. 94). Joachim's vibrato is performed with significant control in terms of keeping the oscillation smaller and speed faster so that the range of pitch changes is relatively reserved compared with the modern type of vibrato. Clive Brown (1999) also points out that there is enough evidence towards a faster kind of vibrato in the nineteenth century, and properly contrasting with a fairly slow type in the eighteenth century.

Despite the general view of a narrower type of vibrato used by Joachim, both Spohr and Joachim specified four different types of vibrato according to different musical contexts. Spohr used different wavering lines to illustrate the speed and oscillation (Example 14). Spohr also indicated how to apply these four different types of vibrato, in example No. 65 of his 1832 *Violinschule*, in which the Tremolo [vibrato] is divided into 1. quick 2. slow 3. accelerating, and 4. slackening (Spohr, 1978, p. 163). The fast vibrato is mainly used on notes marked with *f* and accents (Example 15). The slow vibrato is suitable on long notes in soft passages (Example 16). The accelerating vibrato is used along with a *crescendo* sign (Example 17) while the slackening vibrato is employed with a *diminuendo* sign (Example 18).

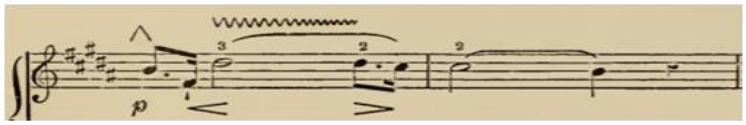


Example 14. Spohr, *Violinschule*, four types of vibrato.



Example 15. Spohr, *Violinschule*, quick vibrato.

Example 16. Spohr, *Violinschule*, slow vibrato.



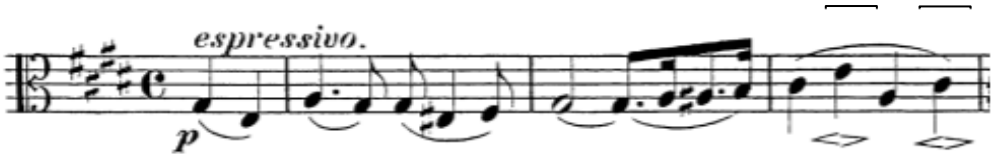
Example 17. Spohr, *Violinschule*, accelerating vibrato.

Example 18. Spohr, *Violinschule*, slackening vibrato.

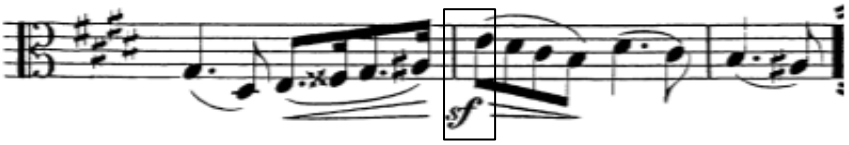
Examples of different types of vibrato used in viola music

Few more examples from Joachim's *Variations* for viola and piano, Op. 10 are given to illustrate that players can apply various speeds and intensities of vibrato to one piece. The fast

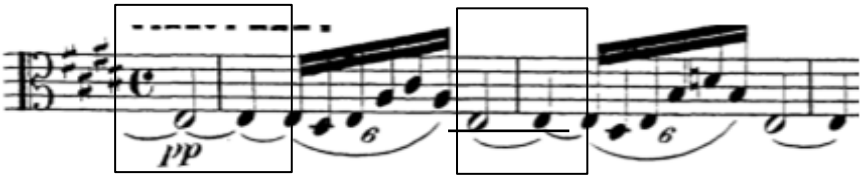
vibrato can be used on both e' and c-sharp' in bar 4 of the variation II (Example 19), then later on e' in bar 8 in the same variation (Example 20). The slower vibrato can be employed on long notes e' marked with *pp* in bars 1-4 in variation III as sound embellishment (Example 21).



Example 19. Joachim, *Variations* for viola and piano, Op. 10, fast vibrato.

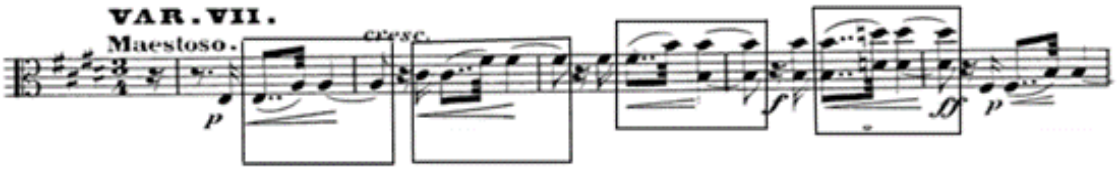


Example 20. Joachim, *Variations* for viola and piano, Op. 10, fast vibrato.

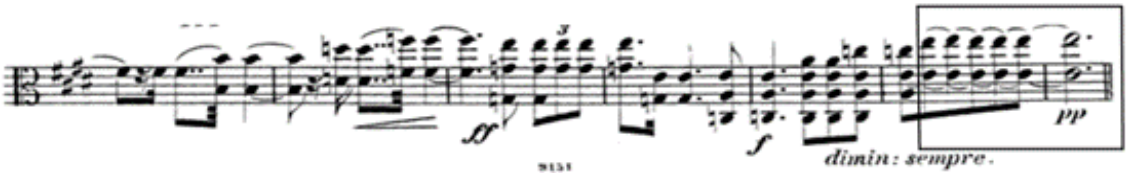


Example 21. Joachim, *Variations* for viola and piano, Op. 10, slow vibrato.

Two additional examples here illustrate that both accelerating and slackening types of vibrato can be used in variation VII of Joachim's *Variations* for viola and piano, Op. 10. In the opening passage, there are four crescendo signs marked in every bar and for four bars in a row to push the dynamics from *p* to *ff*. The accelerating vibrato can be used on over-dotted quavers and on the long notes to build up the climax of the phrase (Example 22). On the contrary, the slackening vibrato can be used on double stops e' and e'' along with the diminuendo sign to bring the dynamics down from *f* to *pp*, and to finish the variation VII (Example 23).



Example 22. Joachim, *Variations* for viola and piano, Op. 10, accelerating vibrato.



Example 23. Joachim, *Variations* for viola and piano, Op. 10, slackening vibrato.

The approaches and perspectives towards vibrato are passed on from Spohr to Joachim and are firmly rooted in the nineteenth-century German School. However, the fashion of using vibrato seems to change in the early twentieth century. In 1921, just sixteen years after the publication of Joachim and Moser's *Violinschule*, Leopold Auer admitted that the fashion in violin playing has changed, with the more frequent use of vibrato. Auer noted in his book that "the excessive vibrato is a habit for which I have no tolerance, and I always fight against it when I observe it in my pupils- though often, I must admit, without success" (Auer, 1921, p. 24). Auer's students enjoy using continuous vibrato with great pleasure, even on the fast passages. The oscillation of vibrato also starts to become wilder after the first decade of the twentieth century.

Portamento

Portamento is an audible effect of a sliding connection between two notes. Contrasting with the attitude towards vibrato, the employment of the portamento is much more frequent and permanent in the nineteenth century. In the German School, the effect of gliding from one note to another is an expressive device. It is used "if two notes [are] occurring in a melodic progression…[which serves as] a connecting bridge of sound" (Joachim & Moser, 1905, p. 92). Joachim and Moser regarded portamento as a "kind of position-changing which is perceptible to the ear and auxiliary to artistic expression on the violin" (Joachim & Moser, 1905, p. 92).

Portamento and singing

Both Spohr and Joachim associated strings portamento strongly with signing. Portamento was regarded "as a means borrowed from [a] human voice" (Joachim & Moser, 1905b, p. 92). Spohr noted that "the power of gliding from one note to another which is peculiar to the human voice" (Spohr, 1978, p.119). Joachim and Moser also considered that the portamento should be similar as "in signing when the slur is placed over two notes which are meant to be sung on one syllable…for the sake of musical expression" (Joachim & Moser, 1905b, p. 92).

Both German and Franco-Belgian Schools value the artistic use of portamento in string playing. Nevertheless, both Schools execute portamento very differently. The effect of portamento is a fundamental factor to determine the character of the repertoires. How the portamento should be performed involves the issue of the distinction between approaches of the German and Franco-Belgian Schools. Therefore, it is necessary to review the division of three basic types of portamento.

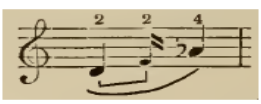
Carl Flesch divided portamento into three major categories systematically. There are 1. the most direct one finger slide, 2. the *B-portamento*, and 3. the *L-portamento* (Flesch, 1924).

The German School favours the B-portamento. They emphasise the value of the *B-portamento*, considering it to be the most 'tasteful' type. Indeed, Joachim and Flesch cited the trend towards the broader use of the *L-portamento* as the result of bad taste. Nevertheless, the use of the *B-portamento* declines dramatically during the early twentieth century as the usage of the *L-portamento,* and other types become more widespread.

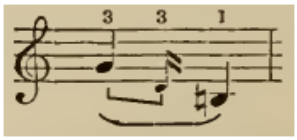
Examples of portamento used by Spohr

The German School seems to have a particular way to execute this expressive device. Spohr's indications of the proper fingering then became the model of the German portamento. In their *Violinschule*, Joachim and Moser (1905) adopted Spohr's theory and specified the artistic mastery of portamento.

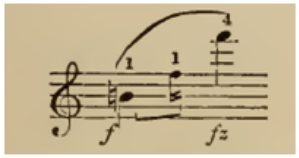
Spohr (1978) indicated that the portamento could be used on both ascending and descending passages. Example 24 shows the second finger is used to slide from d' to f'. After reaching the new position, a-flat' is placed down with the fourth finger (Example 24). Example 25 illustrates the descending passage, in which the third finger is used on the g' then on the d' before reaching the b-natural (Example 25). Example 26 indicates the *B-portamento* can be used in conjunction with accentuations. The portamento bridges a gap of a large interval of a diminished compound fifth (Example 26). The effect of portamento serves as glue, making the leap more musical. Spohr (1978) also indicated the slide should be made with skilful management of the bow, and the effect of *sforzando* will become powerful.



Example 24. Spohr, *Violinschule*, ascending passage.



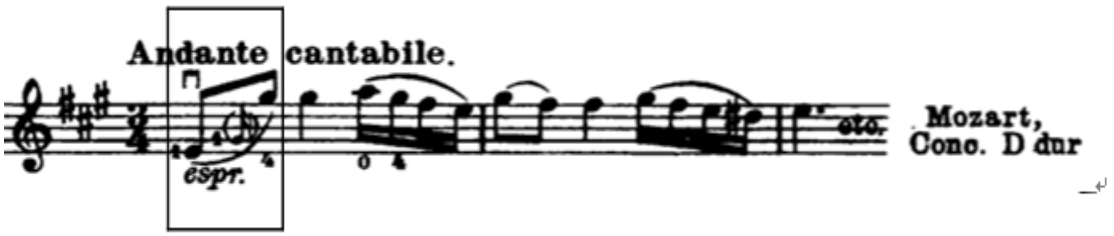
Example 25. Spohr, *Violinschule*, descending passage.



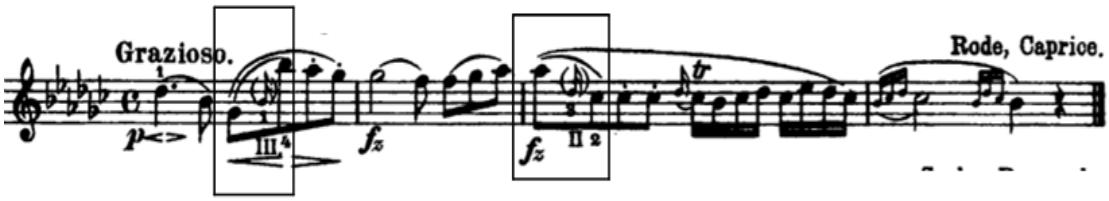
Example 26. Spohr, *Violinschule*, *ascending passage with a sforzando.*

Joachim and Moser carried on the tradition of the German portamento. Still, they also gave warning that players should not exceed the usages, and the effect must be done with moderation. They warned that "the use of portamento must never overstep the limits of the beautiful and degenerate into a whine, as if the intention were to caricature the peculiarities of certain wandering street musicians" (Joachim & Moser, 1905b, pp. 93-93a).

Two more examples here are clear evidence that Joachim and Moser still favour the *B-portamento*. Both examples show that the portamento is executed by the previous finger, and can be used in ascending and descending passages within the same bow stroke (Examples 27 & 28).



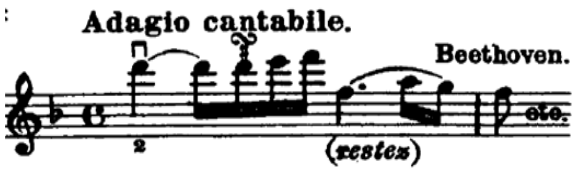
Example 27. Joachim-Moser, *Violinschule*, Violin Concerto in D, Mov. 2, by W. A. Mozart.



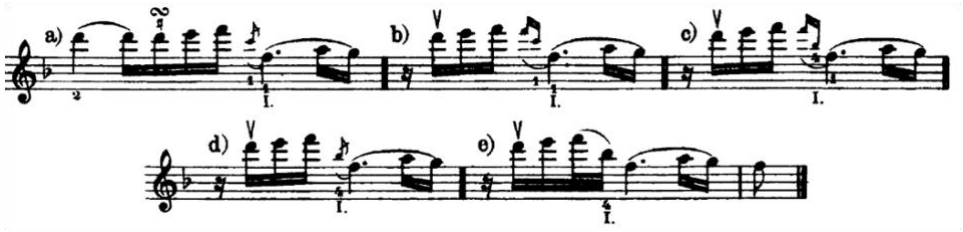
Example 28. Joachim-Moser, *Violinschule*, *Caprice*, No. 13, by P. Rode.

Portamento in changing bow strokes

Taking the step further, Joachim and Moser pointed out the portamento can be used in between the changes of the bow stroke. They wrote that "anyone who is truly musical will at once admit that, in spite of the interval of the octave being separated by the change of bow stroke, the two F" and F"' in this passage are closely related and must be drawn together with as little break as possible" (Joachim & Moser, 1905b, p. 94). Again, they instructed players to cooperate the use of bow to make sure that the portamento is executed smoothly and naturally. Joachim and Moser gave examples of the correct and faulty usages of portamento. Examples a, b, c, d are to be condemned (Examples 29 & 30).



Example 29. Joachim-Moser, *Violinschule*.

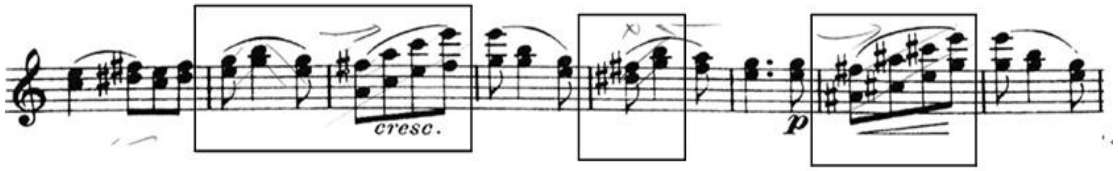


Example 30. Joachim-Moser, *Violinschule*.

Joachim did not limit his portamento within the same bow strokes, but extended the usage between changing bow strokes. Example 31 is from the opening theme of Brahms' *Hungarian Dance*, No. 1. A portamento is used in bar 3 when two notes are under the same bow stroke. Then two more slides were used later in bars 8-9. The slide occurred in bars 8 to 9 is in between two separate bow strokes, and the slide in bar 9 is within the same bow stroke (Examples 31).

Example 32 is from Joachim's *Romaze* recording, in which the slides occurred in between the double stops. Joachim used portamento as a 'super glue' for the double stops but mainly in ascending passages, leaving the descending passages relatively clean (Examples 32). The use of portamento on double stops in descending passages is purposely avoided. Joachim's execution of portamento is with artistic thoughts in mind, rather than a technical fault.

Example 31. Brahms, *Hungarian Dance*, No. 1.

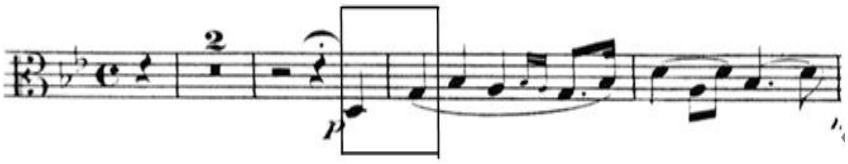


Example 32. Joachim, *Romanze*.

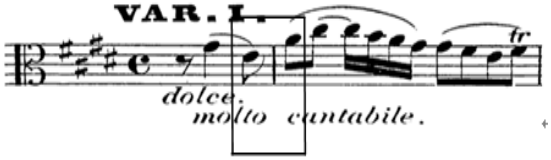
Joachim also adjusted the number of portamento according to different characters of each piece. From Joachim's recordings, one can see that Joachim used more portamento on passionate pieces, such as Brahms' *Hungarian Dances*, No. 1, No. 2 and *Romanze*. His playing of J. S. Bach's unaccompanied Sonata, No. 1, BWV1001 contains far less portamento. In order to execute portamento musically, Joachim encouraged pupils "to train his taste and judgment by frequent comparison of right with wrong, of what is natural with what is affected." (Joachim & Moser, 1905b, p. 95).

Examples of different types of portamento used in viola music

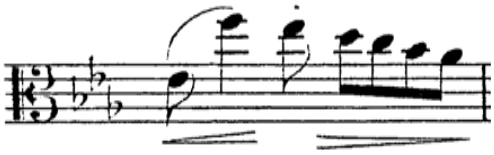
When encountering the choices of fingerings, players can use Joachim's instruction and examples from his playing to interpret his viola works. Both examples 33 and 34 illustrate that the portamento can take place between two different bow strokes (Examples 33 & 34). The employment of the *B-portamento* can be used to connect the large interval from e-flat' to f '' by using the first finger to slide up to g' on the D string (Examples 35). The high note f'' is marked with a hair-pin sign, and players can apply a fast vibrato to decorate the note. Example 36 demonstrates the employment of portamento on double stops in an ascending passage (Examples 36).



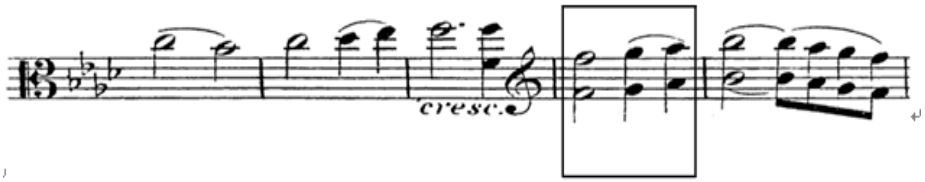
Example 33. Joachim, *Hebrew Melodies*, Mov. 1



Example 34. Joachim, Variations, Var. I.



Example 35. Joachim, *Hebrew Melodies*, Mov. 1.



Example 36. Joachim, *Hebrew Melodies*, Mov. 2.

The fashion of using portamento seems to decrease significantly after the Second World War. There was a short period when vibrato and portamento were used side by side extensively, not only in string playing but also in singing. However, the use of portamento has gone out of fashion near the 1950s, while vibrato seems to secure its position and becomes the primary tone production in modern string playing.

Tempo and Rhythm

Both written literature and recorded evidence have addressed the issue of tempo fluctuation and rhythmic flexibility in the Romantic period. Joachim and Moser (1905c) also stated that "It is not sufficient to play the notes correctly", and suggested that a musical performer could free the tempo "for the sake of expression" (p. 16). Spohr (1978) also suggested that players should use this type of expression if a player is driven by his emotion, but needs to do it with moderation and control.

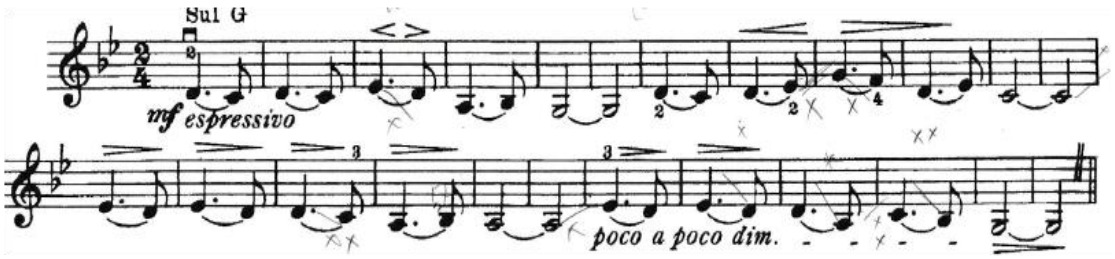
The German School is more restrained with the tempo fluctuation in general. However, both Spohr and Joachim allow certain types of usages. Three common rhythmic approaches are examined here. 1. Accelerando & Rallentando, 2. Accent markings, and 3. Dotted rhythm.

Tempo fluctuation involves an adjustment in speed, with the phrasing not restrained or interrupted by the actual bar line. This device increases the music flow and makes the interpretation more musical rather than mechanical. Joachim criticised Vieuxtemps' playing that "like so many of the Franco-Belgian School in recent time – he adhered too strictly to the lifeless printed notes when playing the classics" (Brown & Stowell, 1994, p. 49). The type of 'tempo rubato' Joachim referred to is the 'classic' type of 'tempo rubato' which "occurs when accompaniment remains steady, while the melodic line is modified for a more or less extended passage," as Brown observed (1999, p.378). This type of rhythmic adjustment is done without modifying the basic pulse of the piece and will allow melodies to flow above the regular accompaniment. This kind of 'disorder' in rhythm was considered to be artistic, used as an expressive device by the German School, and can be heard in many Joachim's recordings.

Accelerando & rallentando

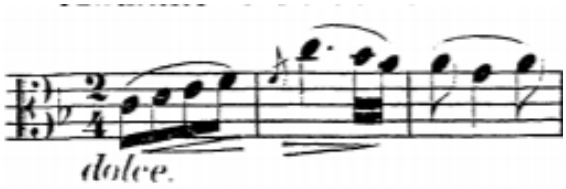
For instance, Joachim enjoyed slowing down and rushing ahead in his *Hungarian Dances,* No.1 and No. 2. The character of the folk songs is particularly suitable for players to use tempo fluctuation.

The modification of tempo is usually associated with changes of expression or dynamic markings. In Joachim's playing, he speeded up the passage where is marked with a *crescendo*. On the contrary, *diminuendo* is mainly associated with descending passages, in which a slight slackening of speed loosens the musical tension (Example 37). The type of rushing and paying back of the 'stolen' time is very effective as it could move the human's emotion significantly.

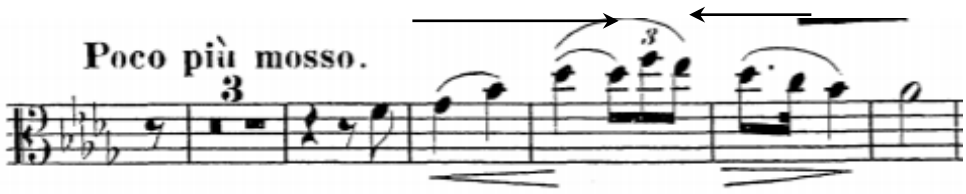


Example 37. Brahms, *Hungarian Dance*, No. 1.

Examples 38 and 39 illustrate that the effect of *accelerando* and *rallentando* can be used along with the *crescendo* and *diminuendo* markings in Joachim's *Hebrew Melodies* (Examples 38 & 39).



Example 38. Joachim, *Hebrew Melodies,* Mov. 3.



Example 39. Joachim, *Hebrew Melodies,* Mov. 3.

Accent markings

Lingering on the accented notes was another common practice in the German School. The example can be found when Joachim and Moser described the function of the sign <> used in Rode's *Caprices*. As mentioned before, the sign <> can be used as a means to indicate the employment of vibrato. It can also be used to suggest the use of rhythmic adjustment. Joachim and Moser have stressed the necessity of the bow pressure and the regaining the lost time (Brown, 1999, p. 398). Joachim and Moser (1905c) noted:

Here the close shake necessitates not only a slight lingering on the notes marked <>, bu the bow should also support the vibration by a soft pressure on the string. The time lost on the vibrated note must be regained from the notes that follow, so that the processing takes place without in any way interrupting the rhythmic flow of the passage. (p.7).

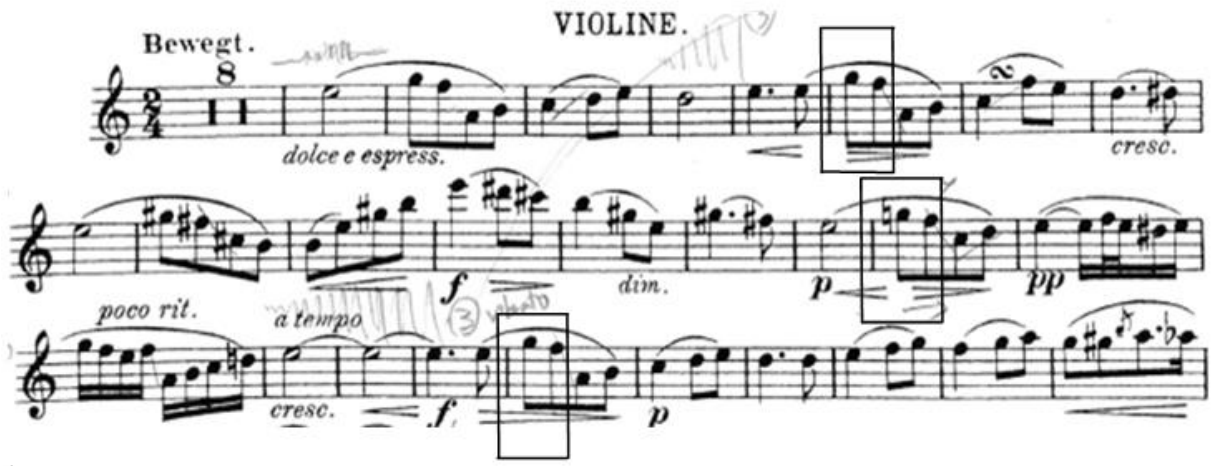
Joachim pointed out that the rhythmical changes were allowed, but also indicated that the overall tempo should be steady without altering the pulse of the music. For instance, players can linger a bit longer on the e-flat'' making the dotted crotchets become slightly over-dotted with extra bow pressure and vibrato. Then players can hurry the semiquavers to 'payback' the time (Example 40).

Example 40. Joachim, *Hebrew Melodies,* Mov. 3.

Dotted and unequal note value

This kind of rhythmic flexibility makes notes of equal length unequal with slightly dotted. Joachim seldom played as notated rhythmically, but transformed the written text with variety (Milsom, 2003, p.176). In nineteenth-century practice, performers were expected to allow a certain degree of rhythmic liberty for expressive purposes. In Joachim's *Romanze* recordings, few quavers were played with slightly dotted rhythm.

There is one particular example that illustrates the way that Joachim played in the opening theme of his *Romaze* recording. The opening theme has been presented three times in the first section of the piece. The pair of quavers g'' and f'' in bars 14, 24, and 30 are played with different rhythmic adjustment. The first pair in bar 14 was played in strict time, while the second pair in bar 24 was slightly dotted. When the theme be presented on the third time, the g'' of the last pair of quavers in bar 30 was played not only with vibrato but also with longer duration. Joachim then shortened the f'' to compensate the time (Example 41).



Example 41. Joachim, *Romance*.

Conclusion

The purpose of this article is not to define what is the 'correct' and what is the 'wrong' interpretation. Through studying those composers and players, we can see the performing aesthetics and fashion changes from time to time, from centuries to centuries and from schools to schools. What seems right nowadays might be regarded wrong after a few years.

Regarding the historical style or what we called 'traditional style', Auer (1921) wrote that "style, however, is incidental to its period. It changes but does not develop". Auer valued the individual artistic approaches and stated that "lack of imagination … is so

often the enemy of all beauty" (1921, p. 80). Joachim (1905c) considered that the artistic personality "stands higher that [than] any school" (p. 33). The real value of art comes from the individualities of each musician. Performances can reflect the life journey of each musician. Real artists transform these experiences, emotions and characters, into touching and thoughtful playing.

Therefore, my view is to use those historical pieces of evidence to review my playing. At the same time, I have been trying to see how I can use those materials to enrich my playing and interpretation.

An ideal interpretation should still be creative and soulful while keeping the history in mind. The endless searching for ultimate beauty in life is the true spirit of art, just as Schumann's wrote that "to be musical means that you have music not only in your fingers but also in your head and in your heart" (Joachim & Moser, 1905c, p.6).

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The Importance of Mozart and Haydn in Gaining the Identity of Viola as Solo Instrument

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Abstract: Viola is a string instrument that took its closest form to the present one in the classical period, even though the roots are based on the viol family. In the Baroque period, J.S. Bach gave a more important place to the viola in the counterpoint structure. But later in the rococo style, which emerged and continued in the late 17th century, unlike the entire counterpoint, other parts accompanied a single solo part. This negatively affected the development of viola music. The emergence of the string quartet form is very important in the process of gaining the solo identity of the viola. The composers showed that this instrument could go beyond accompaniment by starting to give the viola more importance in chamber music. Specially Wolfgang Amadeus Mozart and Joseph Haydn used a viola in chamber music. Mozart and Haydn were among the first composers to realize the potential of the viola. Mozart gave the viola important responsibilities not only in chamber music but also in orchestra parts. The Sinfonia Concertante (K297b), which he composed for Violin,Viola and Orchestra in 1779, is very important as it is the first work where violin and viola are seen equally in solo parts. In Haydn's op.33 quartets, the viola is more prominent than ever before. This presentation explains not only the importance of Mozart and Haydn in the process of achieving the viola's solo identity by giving importance to the viola but also how this process affected viola education.
***Keywords**:* Viola, Chamber music, Haydn, Mozart

The History of Viola

Getting to know an instrument closely to play it and embrace is very important. The viola roots go back a long way. It is an instrument that later gained its solo identity. To better know the viola, which is categorized a member of violin family, we need to know the instrument family and its early ancestors.

1-The Viol Family

Viol family, formed in the 15th century and widely used until the 18th century in the Renaissance - Baroque period, is an instrument family.. There are many members of different sizes in the viol family and they are instruments with frats.The violin family has emerged in recent times with the viol family. These two instrument families, which were widely used in the centuries that followed each other, had a great musical impact on the period. Although the viol family, which is accepted as the ancestor of the violin family, later acquired a serious group and solo repertoire, it was not used in this way in its first periods, but was mostly used for purposes such as accompaniment to dances (Nelson, 2003).

Viols were used primarily for ensemble and consort music. The Consort is a small group of instruments and usually consists of a single instrument family. Consorts of viols

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used to perform in private homes and small halls in the 16th and 17th centuries. The fact that the viols sound less than that of the violin family has caused it to be insufficient for a concert in a large hall or to be effective in a large orchestra. Therefore, with the developing instrument making technique, viols gradually leave their place to the violin family. Despite this, some communities are still vocalizing works written for the viol family (Bahar, 2018, p.37).

There are two important sections of the family: braccios and gambas.Viola da gamba, which comes from the word "gamba" meaning "leg" in Italian, is the name given to instruments played based on the leg. These are Renaissance period instruments. In viola, which is divided into three as Soprano, Tenor and Bass, the gambas have 6 or 7 strings. These instruments, with frets on the keys, have straight backs. The bow is held with the inner part of the hand up, pushing forward on strong hits, pulling back on weak hits. These instruments, whose chords vary according to the piece being performed, are played with a kind of “finger trick” technique. For this reason, many solo works written for these instruments, whose notation is quite complex, cannot be played.

Figure 1. Viola da gamba, Met Museum archive, labeler Richard Meales.

Many important works were composed for the viola da gamba, which is very popular in European countries, and whose technical difficulties are recognized even today. Among them J.S. Bach's works stand out. It is thought that the 3 violas, which is said to be written for the voice of Prince Leopold of Kötchen, designed the gamba sonata and 6 cello suites for viola da gamba (Bahar, 2018).

"Braccio" means "arm" in Italian. These instruments are shown, among others, directly as the predecessor of the violin because the way they are played is very similar; although there are 3-string examples, they have generally four-strings and are tuned in

fifths. These instruments were first mentioned in detail in the book "Syntagma Musicum", by the musicologist Michael Praetorus in 1619 (Alapınar, 2003, p.13).

Figure 2. Viola da braccio, Met Museum archive.

One of the most important instruments of the viol family is Viola Pomposa because its form is so close to viola. It is taller than the viola used today and tuned in the C-G-D-A-E pattern, as if a thin mi string was added to the viola. It is designed and ordered by J.S.Bach, built by Hoffman. It is said that Hoffman, an important instrument maker of the 18th century, also made many other instruments designed by J.S. Bach (Paolinyi, 2010).

The Viol family, which has members such as Lira da Braccio, Violetta and Viola Bastarda, lost its popularity over time, and the violin family with higher technical capacity took its place.

2-The Violin Family

There are four members of the violin family. Members of the violin family have obvious differences over the commonly used viol family immediately preceding it. They have 4 strings, while viols usually have six strings. The strings of members of the violin family are tuned in fifths, whereas viols are usually tuned in thirds or fourths.

According to one theory, it is suggested that the first violin was made by Leonardo da Vinci (1452-1519). It is believed that Leonardo designed “f” holes of the violin in the name of symbolizing Franz, the King of France, but there is no clear evidence (Alapınar, 2003).

At that time, violins symbolized nobility, while violin family was not in that position yet. Viols were instruments used by noble, virtuous gentlemen to spend time, while the violin family was only used for dance music (De Fer, 1556: p.62-63).

The violin family has undergone many changes during its historical development. It has been seen since its emergence that it has attracted the attention of professional musicians, not amateur musicians, perhaps due to some technical details such as having no frets.

Professional musicians, instrument makers and composers have had a great influence on the development of these instruments.

Musical Development of Viola

The viola, which was used to play accompaniment parties at the beginning, has been overshadowed by the violin. Therefore, it took time for having a solo repertoire of its own. Claudio Monteverdi, one of the important composers of the late Renaissance and early baroque period, gave place to two viola parties in the orchestration of his opera "Il Ritorni di Ulisse". After this work, it is seen that many other composers also included two viola parties in their orchestrations.

It is known that composers mostly wrote parties in which different instruments could be played in chamber music works of the 16th century. The first known work to be published, specifically featuring the viola, was the "Sonata piano forte," published in 1597, composed by Italian composer and organist Giovanni Gabrieli (1554 / 1557–1612) (Bahar, 2018).

Although the viola did not have a place as a solo instrument in the 17th century, some composers composed solo works for it. Viola was prominently featured in Johann Sebastian Bach's “Brandenburg Concertos” for the first time. While there are 3 different viola parts in the concerto number 3, 2 solo parts of the 6th concerto were written for viola, and the accompaniment party also included 2 different viola parts.

The Importance of Mozart and Haydn in the Musical Development of the Viola

The classical period is a very important period for the development of viola music. Composers such as Hoffmeister and Stamitz, known today for their very important contribution to the viola repertoire, composed concertos for viola during this period. However, the most important milestone in the development of viola music is the emergence of the string quartet form.

In the history of music, many bands have been formed with different combinations, but the combination of 2 violins, 1 viola and 1 cello that we address in this section, since it is the combination in which the harmony form can best be reflected, has an important place in classical music both in terms of composition technique and vocalization. The emergence of the stringed quartet form is also very important in terms of recognizing the characteristic features of the viola and gaining its solo identity.

In the middle of the 18th century, the serious and magnificent structure in baroque music began to change. With the rococo style in music, the accompaniment party became more transparent, which prevented the development of viola music (Say, 2001).

The development of viola music in the late 18th century in terms of a new beginning. In symphonic and chamber music, the viola is now almost equal to other instruments. Undoubtedly, the two most important composers in this development are Mozart and Haydn.

Mozart and Haydn were two very close friends and musicians who appreciated each other. Haydn always appreciated Mozart's musical talent. Mozart treated Haydn and his music with loving attention. Haydn was a really important and famous composer, while Mozart was the rising star of the classical music world. Mozart used to mention that he had learned how to write string quartets from Haydn, often calling him his teacher (Robbins Landon, 1988).

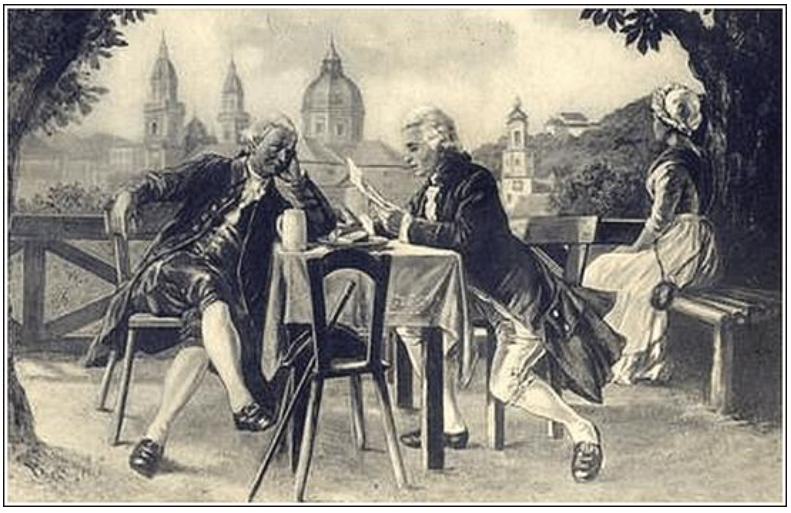

Figure 3. J. Haydn with Mozart by v. Janschiek.

In order to understand the importance of these composers for the development of viola music, some of their works should be examined. It is known that many composers lived at the end of the 18th century choose to play viol as playing viola was not seen as a profession. Viola players were expected to continue some other work like tuning

harpsichord. Specht, who was a member of Haydn's orchestra as a viola player was also tuning harpsicord. Because the viola parties were easy, the musicians who were not very good played the viola. Even though some composers started to understand the capacity of viola, it was still the less important instrument (Nelson, 2003).

Viola started to gain its solo identity when Mozart and Haydn, who were very important composers for the string quartet form, gave the viola a more important place in their works. While the violin was at the forefront in chamber music, as seen on the rococo style, J.Haydn also emphasized other instruments. In order to understand the importance of these two composers, it is necessary to examine some of their works.

1- J. Haydn op.33 no.2 String Quartet

Haydn composed many works in string quartet form. He gave really important roles not only to viola, but also to violoncello. After composing op.20 quartets he stopped composing string quartet works for about 10 years. In 1781 he started to compose string quartets again and we can clearly see on his works that he gave an important role to viola, enabling it to gain independent lines. For example in the third movement of Haydn's op. 33 no.2 string quartet, the viola had a solo line never heard before.

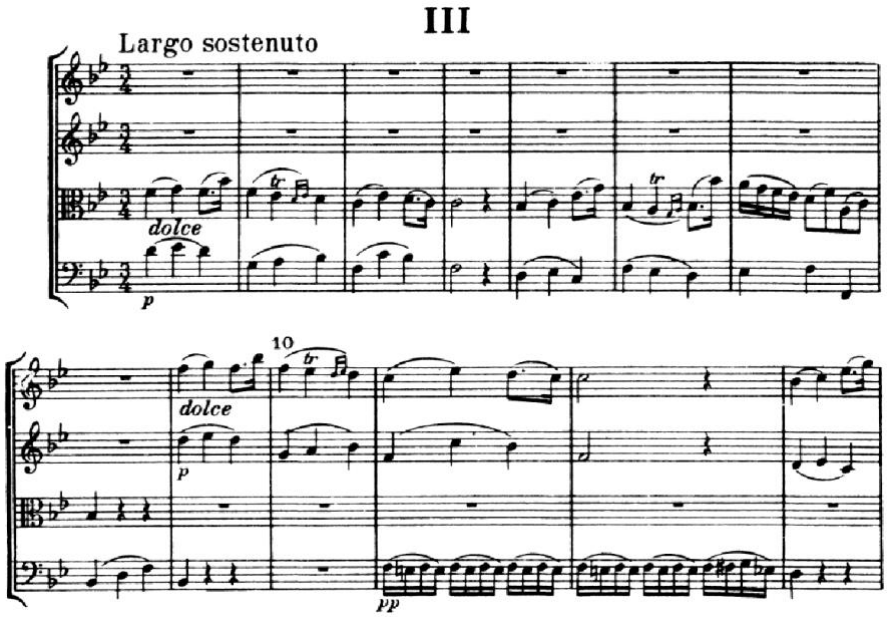

Figure 4. J. Haydn Quartet op.33 no.2. 3. Movement first 13 bars.

2- W.A. Mozart Sinfonia Concertante K.297b

Mozart's Sinfonia Concertante is really important for viola history because it was the first time the viola had same difficulty and responsibility with the violin as a solo instrument.

Also The viola, which did not pass the third position until then, had the opportunity to show and improve itself technically.

We can clearly see that the solo parts are really close to each other.

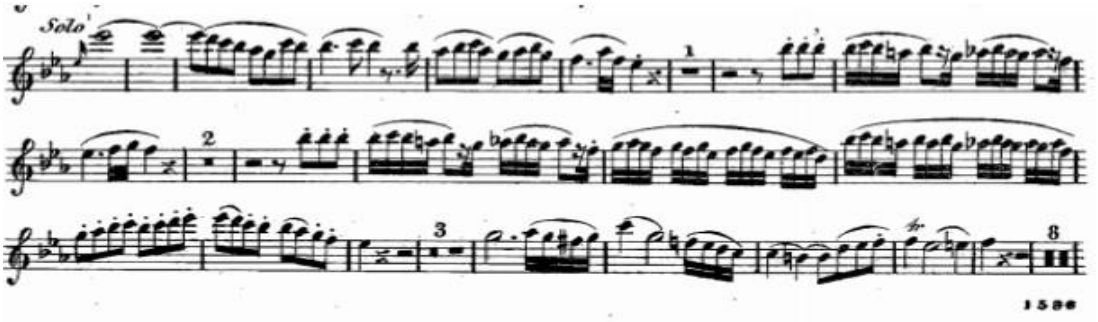

Figure 5. W.A.Mozart Sinfonia Concertante 1. Movement solo violin part, 72.-106. Bars.

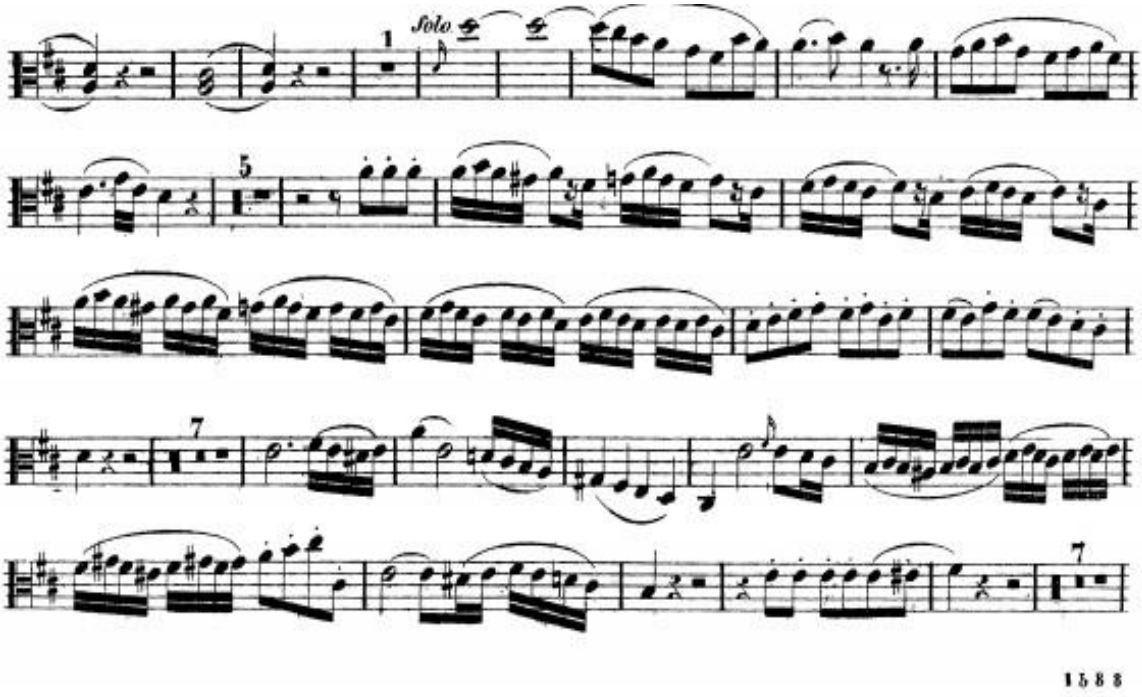

Figure 6. W.A.Mozart Sinfonia Concertante 1. Movement solo viola part, 68.-114. Bars.

Although no difficult works were written for viola, Mozart used it in the solo parts of this piece. However solo viola part is written in D major instead of E♭ major, to be played with the scordatura technique in order to achieve a brighter tone. It is not common for modern instruments (Bahar, 2018).

Mozart also used double viola parts (divisi) in other works, especially in orchestra. For example, there are double viola parts in Sinfonia Concertante orchestration, Salzburg Symphonies, at the beginning of 40th Symphony.

3- W.A. Mozart Trio “Kegelstatt” K.498

Mozart often composed chamber music works within the framework of his social relations to play together as a social activity. One of them is “Kegelstatt”, composed in 1786. The name of the piece refers to skittles game. “Kegelstatt” for K. 498 first appears in Ludwig von Köchel’s 1862 thematic catalog (Klorman, 2016).

The trio was first played in Jacquin family’s house. Mozart played viola, Franziska von Jacquin piano and Anton Stadler played clarinet. They were all close friends. Mozart also dedicated Clarinet concerto and clarinet quintet to Stadler.

In the first edition, published by Artaria in 1788, the clarinet part transcribed for violin. Clarinet was still a new instrument. Mozart was the first composer who composed a chamber music piece for this combination of instruments. Also trio has really impressive showy viola parts, important and not easy lines, both as technically and musically for the classical period.

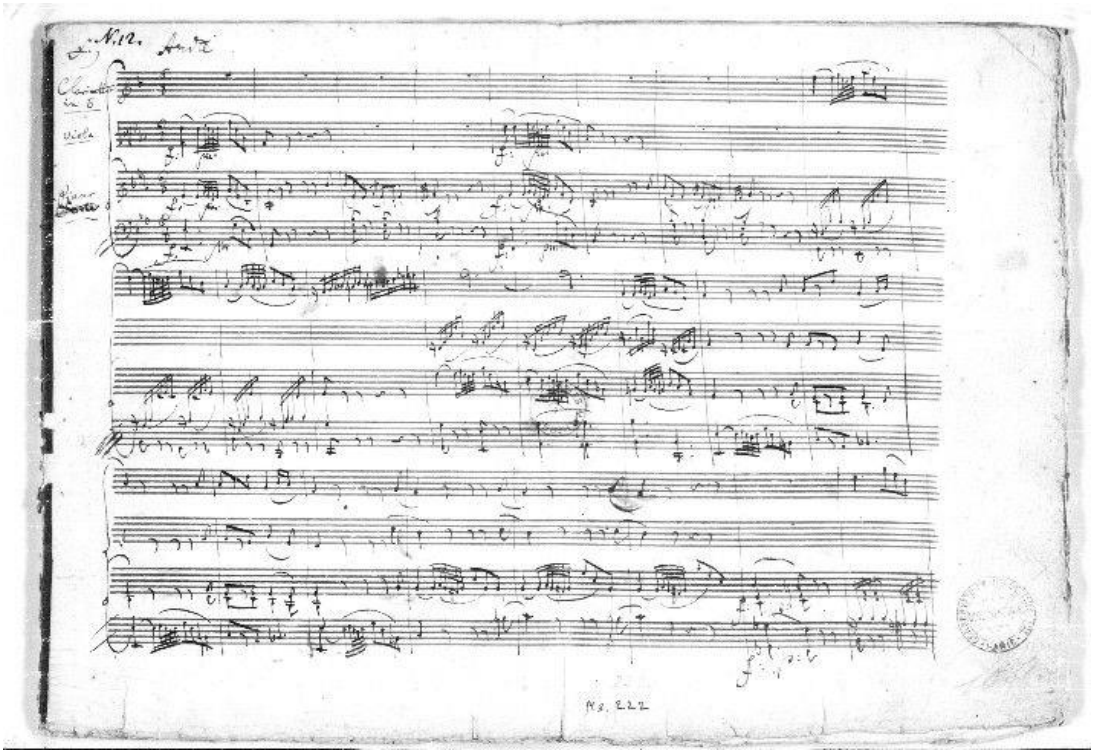

Figure 7. W.A.Mozart “Kegelstatt” Trio, first page autograph.

Result

In order to understand the process of an instrument gaining its solo identity, it is necessary to know its development in the historical process. It is an instrument that later gained its solo identity, which is categorized as a member of violin family.

When you ask anyone to state who is the most important composer for viola music, probably you will hear the names of Bartok, Walton or Hindemith. Of course they

composed really important pieces for viola, but when you look at the history of music, you can see that Haydn and Mozart composed some of the milestones for viola music. Also, during my research, I understood better how chamber music, specially string quartet form, is important for viola.

In the classical period, playing only viola was not a job, as it didn't make enough money to live. Mozart and Haydn were the first two composers who gave a more important role and musical lines to the viola when comparing with other composers.

10 years after his op.20 string quartets, Haydn used the viola, giving it more important role and musical phrases in his op.33 quartets.

Mozart composed “Kegelstatt” trio (K498) for viola, clarinet and piano in order to play with his close company. He was the first composer who composed a chamber music piece for this combination of instruments. It is not possible to see that kind of solistic lines composed for viola in classical period chamber music works. Also in his Symphonie Concertante (K297b), it was the first time viola had the same responsibility as the violin and more difficulty position than the 3rd.

Mozart and Haydn were among the first composers to realize the potential of viola. With the influence of these developments in the classical period and these two composers, step by step viola gained its solo identity.

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The onomatopoeic effects (imitation / evocation) in the work of Flausino Valle (1894-1954): a case study on the use of the *Alla Guitarra* technique

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Abstract: This article is the result of a PhD in progress. It aims to highlight some uses of the *Alla Guitarra* technique in the work "26 Prelúdios Característicos e Concertantes" by the Brazilian composer / poet / violinist Flausino Valle (1894-1954). Flausino Valle was an important figure in the first half of the twentieth century in the Minas Gerais and in the Brazilian musical scene. He worked as violinist in silent movie orchestras, radio violinist, composer, teacher at "Conservatório Mineiro de Música", and a writer with three published books. He achieved worldwide repercussion when one of his Preludes was recorded by the internationally renowned violinist Jascha Heiftz (1901- 1987), and thus other great violinists had access to his work. In this article we propose, based on Vasconcellos' (2013) concept of Hybridization of the Instrumental Technique (HTI), an analysis of the interpretative and performance options identified in the use of the *Alla Guitarra* technique in Valle's work, as well as the choices made from experimentation and from access of extra-musical content related to Valle. As a methodology we present interpretative possibilities, within the methodological concept of Practice as Research - PaR and semiology analysis as proposed by Nattiez. In conclusion, we point out that the onomatopoeic effects (imitation / evocation) resulting from the combination of several techniques found in the Preludes of Valle, with a special focus on the imitation / evocation of the "viola caipira" using the *Alla Guitarra* technique, generate a demand for more interpretive questions, from stage positioning to the physical gesture, that encourages the interpreter to propose creative possibilities.
Keywords: violin; artistic investigation; Brazilian violin; Flausino Valle; alla guitarra technique

Flausino dos Reis Rodrigues Valle - biographical aspects

Flausino Rodrigues Valle (1894-1954) was born in the city of Barbacena, Minas Gerais State, and became a silent movie orchestra player at the beginning of the XXth century in the city of Belo Horizonte. As a person of multiple talents, he also developed activities of composer, arranger, writer, poet, lawyer, and folklorist.

In his work as a professor and folklorist, Valle became known by two books that he wrote, one of them about the Brazilian Folklore and the other one a collection of his poems. His main work as a composer are the Preludes for solo violin titled *26 Characteristic and Concert Preludes for Violin Alone.* The Russian-American violinist Jascha Heifetz performed *Prelude n. 15 – Ao Pé da Fogueira* (*At the Bonfire*) and also wrote a piano accompaniment, which in turn helped to make it nationally and internationally known, being performed also by well-known violinists such as Isaac Stern, Itzhak Perlman and many others to this day.

Villa Lobos said that when he had the opportunity to listen to our artist for the first

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time, in his apartment in Rio, he soon understood that the occasion had to do with an extraordinary revelation in art. He was fascinated with Flausino Valle´s technique, completely personal, strong, vibrant, filled with contagious emotion. Setting aside all academic learning, Flausino Valle, in truth, invented his own personal way of playing the violin, being able in this manner to find a personal expression proper to his temperament.

The following quotation, from the article *Flausino Valle: the New Paganini*, which appeared in the newspaper *Diário da Tarde* (from the city of Belo Horizonte) in October 8, 1947, written by music critic Celso Brant, shows the impact that Valle's music caused on the renowned composer Heitor Villa Lobos (1887-1959). Soon afterwards Brant himself explained the reason for this comparison between Valle and Paganini:When conceptualizing Flausino Valle as “the new Paganini”, it was not the intention of this respected Brazilian composer to establish a close parallel between the artistry of both individuals. They both have another point of identity in common: the fact that each created his own proper technique, entirely ignoring traditional formulas of academic treatises. Like Paganini, who in his own time was the victim of harsh criticism by old fashioned musicologists that behaved like old stubborn guardians of all technical taboos, it is only natural that now there are those who, unable to understand the extraordinary significance of Flausino Valle´s work, see in it only a type of artistic mystification.

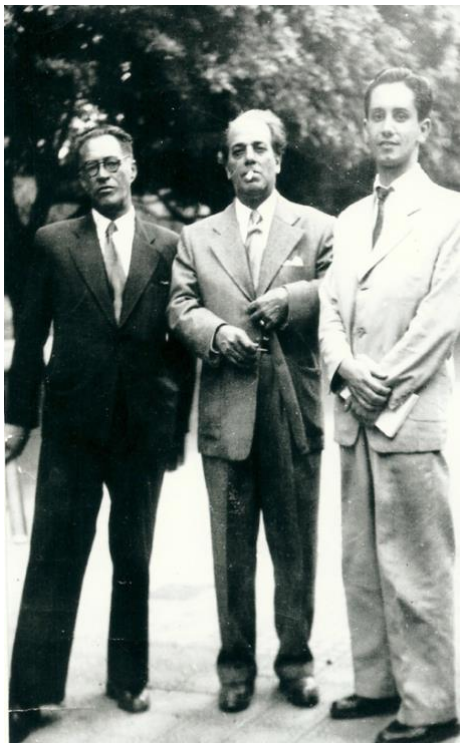
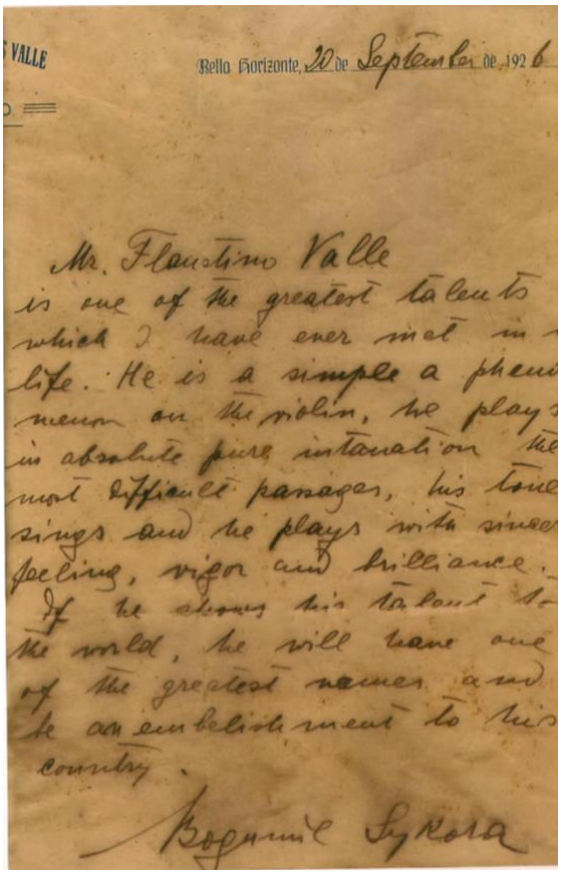


Figure 1: From left to right - Flausino Valle, Villa-lobos and the musical critic Celso Brant in 1947. Source: Valle’s family archive

Valle was not only praised by Villa-Lobos and other Brazilian composers, but by

other artists that visited Brazil as well and who came in touch with Valle's talent. During his visit to Brazil, the Polish cellist and composer Bogumil Sykora leaves his impression at the occasion in which he met Valle on September 20, 1926:Bello Horizonte, September 20, 1926

Mr. Flausino Valle is one of the greatest talents who I have ever met in my life. He is a simple a phenomenon on the violin, he plays in absolute pure intonation the most difficult passages, his tone sings and he plays with sincere feeling, vigor and brilliance. If he shows his talent to the world, he will have one of the greatest names and be an embellishment to his country.


VALLE

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country.

Bogumil Sykora

Figure 2: Document written by Bogumil Sykora in which he leaves his impressions about Valle. *Source*: Valle's family archive.

The Preludes for Solo Violin

The Preludes are short musical pieces in which the virtuosic aspects of the traditional violin language are explored for a great range of effects. Besides the various resources of the traditional violin technique, Valle also explored the possibility of new timbres and the use of techniques employed by other instruments, getting his inspiration from the Brazilian folk music, from the music of the Brazilian-African culture, from the State of Minas rural

tradition, from the sounds of nature and also themes borrowed from the Romantic Period of Western Music History.

Valle aimed to show that the violin could be an autonomous and sovereign music instrument, that is, it would not need a harmonic accompaniment. This becomes obvious if one examines these Preludes and their enormous variety of applied techniques, such as double stops, natural and artificial harmonics, pizzicatos, left hand pizzicatos and the use of the *alla guitarra* technique.

Valle's originality resides in the way that he groups the existing techniques in order to bring to fruition the final product of his creative process.

The main characteristics of the preludes are:

a) The violin is treated as an autonomous instrument, independent from harmonic accompaniment: Valle seeks to enhance in his Preludes the melodic aspect accompanied by harmony, which he does by combining a wide variety of instrumental techniques to have a harmonic sense.
b) Pedagogical purposes: Valle composed the Preludes with the intention that they would be adopted in the conservatories as a method of studying extended techniques. This fact is proved by the letters that he wrote to the musicologist Curt Lange, as shown by the researches of Frésca (2008).
c) Influence of Brazilian musical folklore: there is a strong influence on the description of characteristic moments of popular festivities in the formal structure of the preludes. Another relevant fact is the strong influence of the Brazilian folk guitar. Valle was a violinist and as well as guitar player, which is shown by a record made by him that we found through the doctoral research. Evidences of his proximity with the Brazilian folk guitar can also be found in some of his poetries.
d) Evocation / Imitation of voices from Nature (Catalog of Imitation of Voices from Nature): A striking feature is the imitation and evocation of the sounds of nature in the Preludes. Valle wrote a Catalog of Imitations of Voices from Nature in which he transcribes to the score the imitation of various sounds around him – such as cats, dogs and various types of birds.

It is possible to analyze these imitations and evocations present in Valle's work through the semiology proposed by Nattiez (2002). This author proposes three levels of semiotic analysis: poietic, neutral and esthetic. In the poietic level one analyzes creative aspects, as well as the ambient in which the composer lived and that could influence the creation process – therefore in this level, the analyst can take in consideration patterns that are present in a determinate piece or elements of the social or historical environment of the composer. The neutral level is concerned with the physical "trace" itself, like a score, for example. Finally, the esthetic level has to deal with the reception, of the understanding of the listener. There

is a certain agreement among the semiology researchers that both the poietic and the esthetic level analysis depart from the neutral level. In this article we will focus mainly on the analysis of the poietic level.

Descriptive Nationalism in Valle's Preludes

Valle is influenced by his social environment and in his works he refers to many festivities, rituals and traditions of Brazil. In one prelude (Prelude n. 1, *Batuque*), for instance, he describes a type of dance called *batuque* on the violin using a group of instrumental techniques and a specific musical form.

Mário de Andrade (1989, p. 53) describes the *batuque* dance as consisting on an introduction or prelude known as *baixão* performed by a folk guitar player. The dance would consist in two musical sections, A and B, described by the author: Upon forming a circle, according to a description at hand, there jumps into it two or three couples, man and women and then the fun begins. The dance consists of a calm waggling of the body, accompanied by a slow movement of feet, head and arms. These movements get faster as the music becomes more vivacious and enrapturing and in no time it is possible to admire a prodigious swaying of hips that it seems almost impossible to be performed without being put out of joint by those who try it (Andrade, 1989, p.53).

This description makes evident Valle's knowledge of the *batuque* since he coherently follows the movement details of the dance. The pizzicato introduction represents the so-called *baixão* that is performed by the folk guitar player in the traditional dance. Afterwards, there is the first moment when the dancing couple begin to dance, represented by section A, and the second moment, represented by section A', the prelude adopts a *prestissimo* tempo adding to it the left hand *pizzicati* and *ricochet* bowing.

Special violin effects Evocation / Imitation of voices from Nature (Catalog of Imitation of Voices from Nature)

In the prelude *A Porteira da Fazenda (The Farm Gate)* one finds the use of extended techniques used by Valle to allow two imitations: the gate and the *viola caipira* (rural folk guitar):

Figure 3: Imitation in *A Porteira da Fazenda* (The Farm Gate) Source: author's edition

In this prelude, the effect of opening and the closing of the gate on the violin is described in his Catalogue of Imitation of Voices from Nature, which claims for the necessity of interpretation of his instructions:

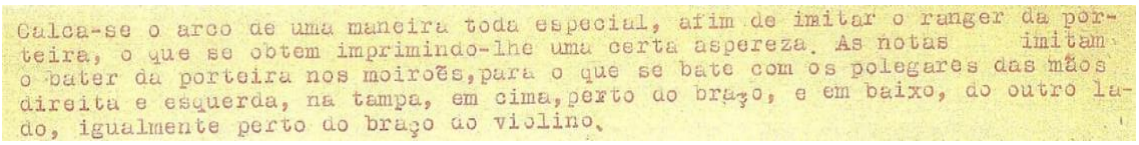
Calca-se o arco de uma maneira toda especial, afim de imitar o ranger da porteira, o que se obtem imprimindo-lhe uma certa aspereza. As notas imitam o bater da porteira nos moirões, para o que se bate com os polegares das mãos direita e esquerda, na tampa, em cima, perto do braço, e em baixo, do outro lado, igualmente perto do braço do violino.

Figure 4: Instructions from Valle – “One presses the bow hair in a special manner, so to imitate the harsh squeaking of a closing farm gate. The notes indicate the hitting of the gate against the fence posts, the effect obtained by hitting the right and left thumbs, on the top of the instrument, next to the fingerboard, in likewise manner at the bottom next to the neck”. *Source: Valle’s manuscript*

The effect suggested by the composer results in a harsh sound produced by the excessive pressure of the bow on the string (*overpressure*). The use of the overpressure with the full horsehair on the area closer to the fingerboard will generate noises that are similar to that of a squeaking farm gate.

The *glissando* technique here has the connotation of the movement of the opening and closing of the gate. He does not utilize the *glissando* effect proper in the music, but in the spirit of the symbolism that precedes and finishes the music. Therefore, Valle suggests a slow *glissando* showing an uncommon approach in the violin repertoire with an intention different from the one commonly at use.

Finally, the composer adopts a percussion technique to symbolize the hitting of the gate on the supporting posts.

The detailed manner in which he asks the sound should be produced shows us that the composer knew exactly what he wanted because of the wide range of timbre possibilities available as the performer taps the top or the bottom parts of the instrument. One can use the palm of the hand, the first knuckle of the fingers, the tip of the fingers, the left or the right hand thumb that characterize different techniques, each with distinct resulting sound effects.

Influence of the Brazilian Folk Guitar / *Alla guitarra* Technique in Valle’s Preludes

Inside the concept of Extended Techniques, the combinations of already existing techniques are defined by Vasconcellos (2013, p. 41) as Hybridization of Instrumental Technique (Hibridização da Técnica Instrumental), which brings into discussion aspects such as the “realization of the gesture in the space”, “realization of the gesture in the

time" and "planning of space-time". That said, the hybridization as seem by Vasconcellos consists in the: process of transformation of the evolution of instrumental techniques, with characteristics of the mixture of two distinctive technics, resulting in one technique which keeps characteristics of those who originated it. Therefore, we have:

- The hybridization of two or more instrumental techniques implies in the combined application of such technique in a determinate space and a determinate time.
- We call the corporal realization of the gestures in a determinate gesture at a determinate part of the instrument *spatial realization of the gesture*.
- We call the realization of determinate techniques through a determinate time *temporal realization of the gesture*.
- The realization and the planning of time-space in the integrated use of different technical resources in process of hybridization. Therefore, the main condition for the elements to hybridize is their combined and integrated realization in the performance. That hybridized realization implies in fluency and in the domination of the time-space.

There are still additional details pertinent to the prelude *A Porteira da Fazenda*. In the specific bar in which there is the *a la guitarra* effect, one identifies the influence of the *batuque* rhythm of rural guitar (*batuque de viola*). Aware of such influence it is possible to conclude that the rhythm must be performed with accents on the last sixteenth notes of the first beat of the bar. It is possible that such information should be obvious to those familiar with the Brazilian "rural guitar" style or this specific music genre and for this reason Valle did not indicate these accents on the score.[2]

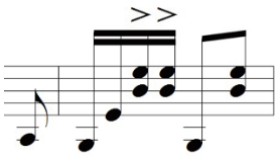

Figure 5: The *Batuque* Rhythm of rural guitar (*batuque de viola)*
Source: author's edition

In the Prelude VII – *Sonhando* (Dreaming), Valle indicates specific fingerings for the *alla guitarra*. In this piece it also occurs the imitation of the Brazilian folk guitar. Valle demands that this prelude should be played "sem auxílio do arco" (without the aid of the bow), which could reinforce the indication that, since the music entirely without the bow, the position of the violinist should be the one of the *alla guitarra.* He points out each fingering: "D" for the right hand; "E" for the left hand; "P" for thumb and "M" for medium finger.

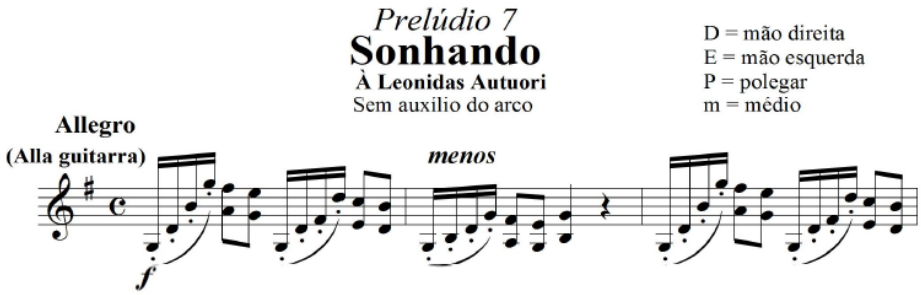

Figure 6: Specific fingerings to play *Alla Guitarra*
Source: author's edition

Casinha Pequenina (Tiny house) is a Valle's arrangement of the Brazilian popular song with the same name, where Valle also demands to be played "sem arco" (without bow). This piece uses many chords and double stops, as well as a melodic dynamic of "questions and answers", all of which bring into mind Valle's view of the violin as an autonomous instrument.

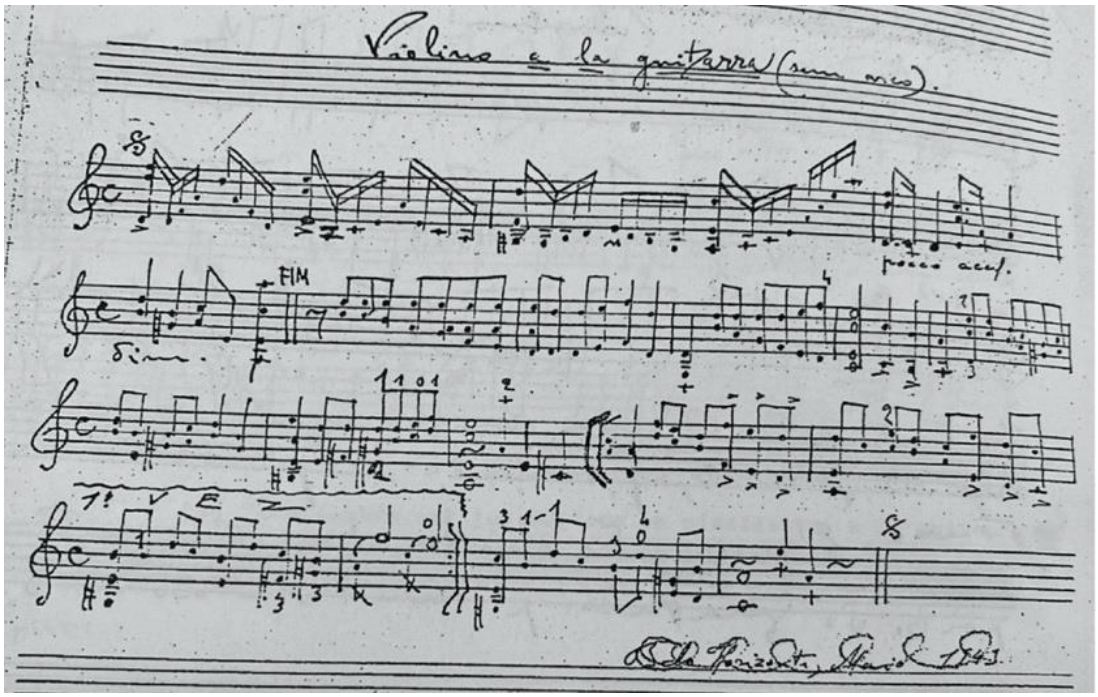

Figure 7: A Casinha Pequenina (Tiny house) arrangement – *Alla Guitarra*
Source: Valle family's catalog

In the Prelude XII – *Canto da Inhuma* (The song of the Inhuma) Valle uses the writing in two pentagrams. This prelude consists of a tribute that Valle composed for the Folk guitar players, who have a tradition that consists on imitating the bird *inhuma* in their guitars. That is why we say that this Prelude is an "imitation of the imitation".

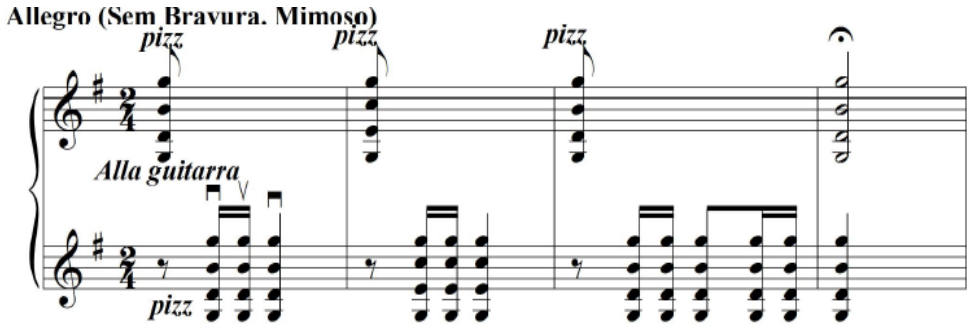

Figure 8: *Alla guitarra* written in two pentagrams in the Prelude *Canto da Inhuma*
Source: author's edition

In the Prelude XVII – *Viola Destemida* ("Fearlerss Brazilian folk guitar") Valle uses bow strokes and left hand *pizzicati* to evocate the guitar. In the introduction the left hand pizzicato evokes the guitar player in the action of fingering the guitar:

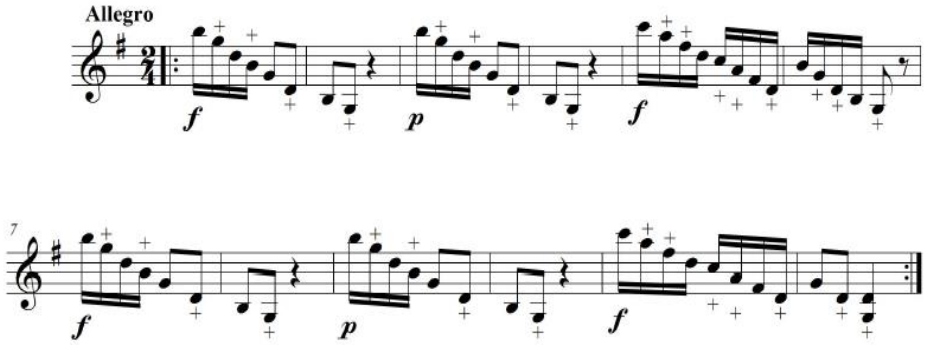

Figure 9: Evocation of the Brazilian folk guitar through left hand pizzicato
Source: author's edition

In the same prelude, on its second session, Valle refers to the *rasqueado* through the *jeté* bow stroke. The *rasqueado* is a technique found in the Brazilian folk guitar which consists of playing all the strings with an open hand and open fingers.

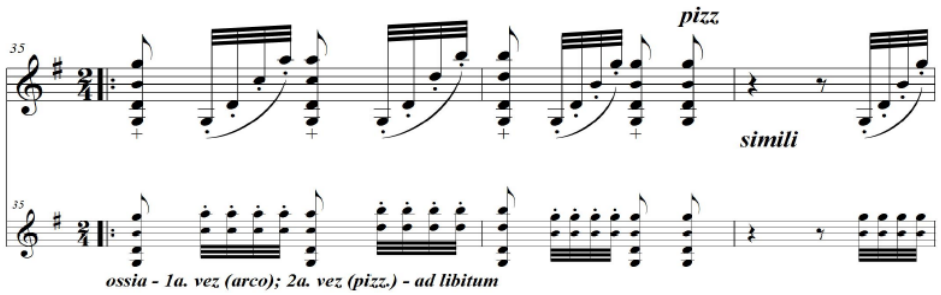

Figure 10: Evocation of Brazilian folk guitar - *rasqueado* technique (upper pentagram).
Source: author's edition

Final considerations

One finds in Valle's musical pieces representations of scenes from the Brazil's countryside, its festivities, daily affairs of the rural tradition, chant of various Brazilian birds and the description of nature sceneries described through the art of violin playing.

The imitation/evocation of the Brazilian folk guitar is very present in many of Valle's Preludes and its understanding by the performer provides an interpretation of these preludes more in tune with the composer's intentions. For this comprehension it is of great importance to know that Valle himself was a guitar player and had a close familiarity with its technique and traditions, which he tries to reproduce on the violin. Additional evidences of this proximity can be found on a Valle's recording as well as on some of his poetries.

Valle's preludes and short pieces are of great value for the violin music in general and the Brazilian music in particular, for he explores and appreciates aspects of Brazilian cultural traditions, rituals and festivities, composing for his instrument in a very particular way.

The aspects described here are some preliminary results of my doctoral research. As future results, I intend clarify these and other aspects of Valle's music as well as to present solutions for various hypothesis that these peculiar interpretative and performance matters in this work point to (imitation/evocation; use of the *alla guitarra* technique), using a set of methodologies that belong to the concept of Practice as Research (PaR).

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PART 3

Famous Pedagogues and methods

Otakar Ševčík: His Method and Legacy

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Abstract: In discussing Otakar Ševčík's method, we often come across the opinion that it is limited solely to violin technique. The purpose of my paper is to refute this belief by explaining the complexity of the method as well as its functionality based on a combination of both aspects, the technical with the psychological one. My ultimate goal is to return the method to its initial purpose and use, as Ševčík had originally intended. The description of the method reveals the scientific principle that Ševčík used to develop a massive system of exercises resembling a computer program with thousands of combinations. The work on the method took place over three creative periods. The first and second phases (Opuses 1-15) see the construction of the technical bases while the third one (Opuses 16-26) focuses on interpretation. Here the method reached its final goal. Due to the vastness of study material, the only problem of applying the method is making the right choice of specific exercises to sort out a specific problem. Greater understanding of the complexity of the method could be a hint for violin teachers seeking for better results with students at all levels.This paper is structured in four chapters: Ševčík's biography, a review of stages of development that led Ševčík from a child prodigy to an acclaimed virtuoso, and to his following transformation into an esteemed and worldwide known teacher, conductor, composer and author of a revolutionary method; the method and its scientific principle, an exploration of the method from its birth to its final form by describing its technical and psychological aspects depending on each other and leading to the fusion of both; Opponents and supporters, the criticism by Henry Marteau and Leopold Auer. Carl Flesch and David Oistrach as supporters and the text of a personal letter defending the method sent to Ševčík by Carl Flesch; The 26 Opuses with a detailed description.
Keywords: Ševčík, violin technique, string methods.

Biography

Otakar Ševčík was born in 1852 in Horažďovice, a small town in western Bohemia. He was the 2nd of 7 children, of whom he was the only male. His father was an organist and a choir master who had also studied violin following Spohr's method. He soon made his son sing in the church choir and the 5-year-old boy showed an extraordinary talent. At the age of 6 he started studying the piano and a year later, also the violin. His father was an extremely strict and demanding teacher, his son's musical education was predominated by diligence and perseverance. These were the principles that Ševčík stuck to throughout his long life.

In 1864, at the age of 12, he did brilliantly in the entrance exam to the Prague Conservatory. A year later, he gave his first public concert and received his first review in a national newspaper. Critics referred to him as a new prodigy. This gave the boy a powerful motivation and he decided to study to his fullest potential. At the age of 15, he already completed all of 24 Paganini's caprices along with the 1st concerto in D major. He studied in the class of Antonín Bennewitz who was a well-known expert on the virtuosic repertoire.

Ševčík graduated in 1870 at the age of 18 with Beethoven's concerto as his graduation performance and got his first job as concertmaster and teacher at Mozarteum in Salzburg. There he continued to perform as a soloist, playing with great success the concerti by Paganini, Ernst and Vieuxtemps. He also founded his string quartet, which was compared to the well-known Florentine Quartet. At the age of 20 he was predicted to have a great concert career. Nevertheless, despite all his success, Ševčík was not pleased with himself, judging himself as imperfect. He decided to study all the Conservatory material again, but he was still not satisfied with the results. He began to think about finding a way to achieve greater precision and self-confidence. So, he had two priorities: technical perfection and psychological tranquility. That is where the idea of a new method was born, but at that point Ševčík's aim was to improve himself, he was not yet thinking of a method for others.

In 1875, he went on a concert tour in Russia. After playing in several cities, he arrived for a recital in Moscow and there he received a proposal from the Kiev Imperial Music School to take over the direction of the new main violin class. Suddenly, his pedagogical vocation came to the fore and prompted him to accept the proposal. This was a big turning point in Ševčík's life. He stayed in Kiev for 17 long years transforming himself from an acclaimed virtuoso into an esteemed and worldwide known teacher, conductor, composer and author of numerous textbooks for teaching the violin. In this long period between the ages of 23 and 40 years, he began to develop his project for a new method that he would devote himself to for the rest of his life. And now, it was addressed to others.

The first results of the method tested at the Kiev Conservatory were so positive that Ševčík decided to publish his Op.1 at his own expense. From that moment on, his method began to spread out across Russia. At that point, the Russian violin school, dominated by Leopold Auer in St. Petersburg had been influenced by it and this led to antagonism between the two giants.

Ševčík left Kiev in 1892 at the age of 40, when he was appointed professor at the Prague Conservatory. According to a long tradition, he presented himself to the public playing Vieuxtemp's first concerto with great success. Although probably, the most significant recognition he ever received, was a year later, in 1893, at his highly anticipated concert in the famous Bösendorf Hall in Vienna. He performed Bach's Chaconne, Paganini's 1st concerto and Ernst's Othello Phantasy. In the audience there was Eduard Hanslik, a famous music critic, known and feared for his strictness with the performers. Nonetheless, Hanslik wrote a review full of praises, particularly highlighting Ševčík's technical perfection, which was a rare phenomenon. At that time, the technical level of execution was not remarkably high, except for a very few big names. The

performers were expected to present a personal interpretation with a personal tone, as well as to show a great skill at improvising. With Ševčík came a big turning point, he significantly raised the technical expectations.

Returning to his life, we know that he performed until 1898, when he was 46. Then he withdrew from the stage devoting himself to teaching and working on other volumes of his method. I In 1900, the London publisher Bosworth acquired the rights to publish the method and from that moment on it spread out all over the world. Consequently, numerous students of all ages from all parts of the world began to flock to Prague to study with Ševčík. In order to meet the demand, in 1906 he asked for a leave of absence at the Conservatory and he set up his own private school called The Foreigner's Colony. He moved to Písek, a small town in southern Bohemia where he set up in a hotel, living in one room and giving lessons in another for 10 hours a day. In addition, in 1909 he accepted another prestigious post at the Vienna Academy of Music. He worked tirelessly to reconcile both activities. Soon after the end of the 1st world war, he was again appointed professor at the Prague Conservatory. He returned full of enthusiasm but found himself in a hostile environment. He had to defend himself against the attacks of some colleagues who questioned the effectiveness of his method. Disappointed and after two years of heated discussions, he decided to leave Prague and accepted new assignments in America. He taught at Conservatories in Ithaca, Chicago, New York and Boston.

Back home in 1923, he completed his method with analytical studies for great violin concerti. Here the method reached his final goal which is the focus on interpretation.

At that point of his life, he was a famous man throughout the music world. Due to his best-selling publications he became a millionaire, but he kept on working and staying far from social life and from any gossip. His only form of leisure was to take long walks often for 20 kilometers a day. Only occasionally he would spend the evening at the hotel's restaurant discussing with his students. At the age of 80, when he still had 88 students, he went to England against the doctor's advice for a 3-month master class. Back home, he fell into a depression from which he never recovered. He died in 1934 at the age of 81. Thousands of people arrived from several countries to attend his funeral.

Method

Ševčík's method has the power of systematically applied knowledge. It is based on scientific principles. Each step is carefully thought out and the exercise system resembles a computer program with thousands of combinations. The idea of such a principle came to Ševčík's mind when he recalled a mnemonic aid he had learnt at school

as a child. It consists of dividing a small sentence into segments. You start from the first word repeating it three times, likewise with the second and third word. Then you start from the end combining two words still repeating them three times while returning to the beginning. Finally, you repeat the whole sentence three times. Example: 'The die is cast'. So: the die, the die, the die, is, is, is, cast, cast, cast; is cast, is cast, is cast; the die is cast, the die is cast, the die is cast. Ševčík described it mathematically as 1+1=2, 2+1=3, 3+1=4. He decided to base his method on this principle developing it through numerous variants. In fact, the 6 volumes of op.2 contain 4000 variants of all bow strokes.

This, however, was only the technical side of the method to which we must add the psychological side, which means, the psychological condition of his creator. Since the age of 19, Ševčík suffered from an eye disease on his left eye, which caused him acute pain. He could only distract himself by engaging mentally and took refuge in intense work as the only way to cope with physical suffering. He underwent two operations without success and in 1894, at the age of 42, he had to face the surgical removal of his eye. As a curious fact, we also know that he was a heavy smoker, getting through 100 cigarettes a day in the Russian period.

Returning to the method, we can see that its birth was not at all random, but the result of a combination of several factors. Let us recap them briefly: first of all, there was Ševčík's great violin talent brought to the highest level, then we have the diligence and perseverance imposed by his father and instilled through his musical training and finally, there is Ševčík's methodical and self-critical character as well as the courage to seek for unconventional solutions. Considering Ševčík's health problem, we get an almost complete picture of what became the driving force for the method. I say "almost" complete because we still must add the world violin scene at that time. Before Ševčík, there were just a few big names such as Paganini, Wieniawski, Joachim and Ernst. These violinists achieved fame thanks to their exceptional talent, to an excellent musical intuition and to refined taste. With Ševčík came a big change. His method allowed not just the most talented players, but also mid-range violinists to reach levels they never could have aspired to previously. Thus, orchestras were improving, and a new generation of violinists grew more aware of the way of studying. But above all, **technique stopped being an exclusive objective and became just a means.** Ševčík's goal was to improve technique to the point of not even having to think of it while performing. His method teaches firstly to build the solid technical foundations, secondly to proceed with the analysis of the piece and finally to focus just on the musical phrase. Following this path, you find yourself with a reliable technique that leads during the performance to self-confidence and allows to concentrate just on the expression. And here is the clue to the

success of Ševčík's method: a happy union of both factors, the technical with the psychological merged into one.

Supporters and opponents

Like many innovators, Ševčík also had to face some fierce opposition. His method was criticized for the large amount of time-consuming exercises and for an alleged monotony. As for this, only 4 of the 26 opuses - those concentrated on the left-hand articulation - had to be studied mechanically. Regarding the other volumes, Ševčík used to invite his students to always seek for the musical direction even in a single bar of op.2 as well as of op.8. As for time spent studying, it was known that Ševčík's students used to practice from 6 to 10 hours a day. But they did not study extremely hard because it was imposed on them by their master but rather because of enthusiasm to see themselves finally improving quickly. The studying atmosphere around Ševčík had a magic quality, there was no desire for distractions.

Yet, apart from studying hours deemed excessive, some opponents were convinced that the method was thought to focus only on technique. This criticism was a result of not understanding the complexity of the method as well as of the lack of ability to apply it individually. Ševčík was gifted by great intuition in identifying his pupils shortcomings quickly and in choosing from the vast material the specific exercises to overcome the defect. No student studied all the volumes, it would have been impossible. At the top of it, Ševčík used to carefully build his pupils' ability to practice on their own by inviting them to a healthy self-criticism. Thus, his students learnt to evaluate themselves objectively in a constructive way and to get self-confidence. Once the lessons were over, they returned home able to solve technical problems by themselves.

From the historical sources we learn that the growing success of the method resulted in envy at the Prague Conservatory. Ševčík was accused of choosing only the best students who would have succeeded even without his method. But the worst accusations came from certain colleagues who labelled Ševčík a mass-producer of robot violinists. This was really a low blow, although, on the other side, it was an acknowledgement of the technical efficacy of the method, which was a great success in itself, but it was not what Ševčík had intended and he was bitterly disappointed. Subsequently, he decided to leave Prague.

The strongest opponents of Ševčík were Henri Marteau, a supporter of Joachim's school, and Leopold Auer, considered the founder of the Russian violin school. Henri Marteau over the years changed his mind and admitted publicly that he had been mistaken about Ševčík's method. Leopold Auer did not change his hostile attitude, but

his best students when participating in international competitions, used to declare in their CVs that they had used Ševčík's materials in their studies. After graduating with Leopold Auer, some of them continued their studies with Ševčík, for example Efrem Zimbalist.

Among the renowned supporters there are Carl Flesch, David Oistrach and Salvatore Accardo. Carl Flesch sent a personal letter to Ševčík, in which the text read as follows: "Honoured Master, I on purpose dedicated a lot of space to you in my book The Art of violin playing, because I want to silent forever rumours about the lack of effectiveness of your method which I consider an epochal work. I also published an article in Allgemeine Zeitung where I declare that any failure of the method is only due to its incorrect application and not to the work itself. Illustrious Master, I assure you, as long as I live, I will strive to increase the popularity of your method, since, applied in a fair way, it led to an improvement of myself as well as of all my students." Signed: "your indirect pupil."

The 26 Opuses

The work of the method took place over three creative periods. The 1st and 2nd phases see the construction of the technical bases, while the 3rd one focuses on interpretation.

The first period, so-called the Russian one, ended in 1900.

Op.1 in 4 volumes is called The School of violin technique, it develops the left hand.

Op.2 in 6 volumes is The School of bowing technique, it develops the right hand.

The first two opuses represent a unique phenomenon in violin pedagogical literature. Previously, the functions of both the left and right hand, had never been examined separately in such depth and with such a systematically processed material. No one before or since has succeeded in creating a work as comprehensive as this.

Op.3 contains 40 short Variations, here both hands are combined in their functionality.

Op.4 has the left-hand-finger expansion exercises.

Op.5 is a manuscript containin preparatory studies for Dont's 24 Caprices op.35

Op.6 in 7 volumes is The Violin school for beginners.

Op.7 in 2 volumes has exercises for trills.

Op.8 is about position changes.

Op.9 is the preparation for double stops.

Op.10 which closes the Russian period, has The Bohemian dances, 7 pieces in the style of Paganini, based on motifs of Czech folk songs. Here we discover how good of a composer Ševčík was. In a letter sent to a friend in Prague, Ševčík revealed feeling

nostalgic for his homeland and to have consoled himself by composing the dances. It is a real pity that we have only this as testimony to Ševčík's talent as a composer.

The 2nd period ranges from 1912 to 1923.

Op.11 is called The School of Intonation, which goes beyond technique, developing harmonic perception as well.

Opuses 12 to 15 were called The School of Virtuoso; they were never published due to a personal decision by the publisher Harms. The only manuscript had been in the archive for years and when the firm was absorbed in 1929 by Warner Bros in New York, it could no longer be found. The subjects covered were double stops, arpeggios with modulations, chords, harmonics and pizzicato.

The third period runs from 1923 onwards. It starts with Op.16 in 2 volumes called The School of Interpretation; it has studies for 45 pieces and famous encores.

Opuses 17 to 21 contain the analytical studies for great violin concerti by Wieniawski, Brahms, Tchaikovsky, Paganini and Mendelssohn. Ševčík also created an unusual version for 3 instruments: the solo violin with the accompaniment by the 2nd violin and the piano.

Op.22 addresses position changes in single and double stops.

Op.23 is about the chromatics in all positions. There are only manuscripts of these two opuses.

Op.24 was published in 2005 in Prague, it contains the left hand pizzicato with simultaneous right-hand bow technique.

The op.25 has studies on the Joachim's Cadenza for the Brahms concerto.

The last op.26 contains analytical studies for 42 Kreutzer's Etudes.

The progression of all volumes could be compared to a mosaic that is built up with mathematical perfection gradually increasing in difficulty until we get a complete picture of everything. In fact, the 26 opuses contain all the elements necessary to reach the full mastery of the violin. At this point, we can only confirm the previous remark that the criticisms came from those who had only a partial knowledge and vision of the method. Even the best method, if not applied the right way, might turn out to be mediocre or even worse. The effectiveness of Ševčík's method depends on its proper use which requires the knowledge of all volumes. Without Ševčík's pedagogical work, the history of violin teaching would not be complete**.**

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String methods and pedagogies: Assumptions, perceptions and reality

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Abstract: It is commonly accepted that the way teachers interact with their students when providing instructions is associated with the pedagogies teachers follow. This interaction includes guiding students' movements, modelling, asking them to imagine what they are supposed to do or repeat a certain exercise, and giving them oral instructions.
In order to understand to what extent assumptions correspond to real teaching practice, I developed an experimental study with a sample of 19 teachers and 88 students from the UK, the USA and Spain, who claimed to follow 5 different approaches. Data collected in the case study through lesson observation, interviews and questionnaires, show how teachers are sometimes unaware of their own procedures and not always consistent with the habits traditionally associated with their pedagogies.
To conclude, I compare pedagogies and teachers' procedures, emphasizing those aspects related to successful teaching. I determine that this study not only confirms the presence in violin teachers' methods of procedures considered as efficient by literature, but also brings to light differences in teachers' habits depending more on their level of expertise than on their pedagogies. These outcomes open new lines for further research, which might help teachers to improve their effectiveness.
Keywords: String Pedagogy, Motor Learning, practice.

Introduction

Over the last 30 years I have been fortunate to meet hundred of string teachers with different backgrounds, who work in a wide range of contexts. Some of them, who claim to profess different methods, approaches and pedagogies, stand out by their artistry and the strong abilities of their students. I have also had the chance to get familiar with some of the most popular string pedagogies and tendencies by completing trainings and integrating them in my teaching practice, namely: Shinichi Suzuki's Method, Mimi Zweig's Pedagogy, Rolland Pedagogy, Kato Havas' New Approach and the Franco-Belgian School.

As a result of these experiences, and as part of my doctoral studies, I designed an experimental study in order to find out what effective teachers have in common, and if efficacy can be associated with a certain pedagogy (Forcada, 2015). I worked with a sample of 19 teachers and 88 students representing the following pedagogies: Suzuki, Rolland, Zweig and the so-called traditional method, as well as a group of teachers introduced by myself on the fundamentals of Motor Learning[58] next to some other principles from Music Psychology. Teachers and students represented three countries,

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[58] 'Any of the processes related to the acquisition and retention of skills associated with movement. They are influenced by practice, experience, and memory' (Medical Dictionary, 2009).

namely: The UK, The USA and Spain. They worked in different environments, from private studios to the university, as well as music schools and conservatoires.

In this paper, I would like to further analyse the data collected to understand to what extend teachers' procedures correspond with the ones that are usually associated with the pedagogies they claim. Although this apparent lack of consistency did not show any connection with teachers' effectiveness, findings leaded to new questions on teaching practices and their consistency with the pedagogical and scientific literature, as follows:

- Are teachers' procedures consistent with the pedagogies they claim?
- Is teachers' practice consistent with the scientific literature on *practice*?
- To what extent can scientific knowledge accelerate teachers' progress?

The methodology of this study focuses on *practice*, understood as the set of strategies that teachers can consider in order to send instructions to their students and provoke learning (these strategies will be enumerated and described in the next section). Through observation, I will check the frequency and length of each type of practice taking place at each lesson. Data will be represented in graphics and tables, so different pedagogies as well as teachers' procedures can be easily compared. A further description of the methodology can be found in the 'Experimental study' section.

There is abundant literature related to the most popular string pedagogies as well as to practice. Next section begins with the definition of practice and continues with a description of the types of practice considered in this paper. Another section covering pedagogies claimed by the participants in the experimental study will follow, next to a description of the experimental study, a discussion of the data and the final conclusions.

Practice

Far from the mere repetition of an exercise or a piece, the definition of practice has a more specific meaning in Psychology. This frequently involves action taken by either the teacher or the student to provoke learning as shown in S.G.

Nielsen's definition: "Activity that relates to intended goals" (Nielsen, 1999).

Some of these activities do not imply student's physical participation but, under this definition, they might still be considered as practice. In this paper we are considering five types of practice, namely: Physical, cognitive, modelled, guided and imagined. A further description of each type of practice follows in the next paragraphs.

Physical practice

Considering that changes provoked by experience are relatively permanent, as they need regular rehearsal to remain for a long time (Lawther, 1968), it makes sense to

accept that the acquisition of motor skills is intrinsically dependant on physical repetitions, as stated by Keel and Summers (1976): “Motor Learning is a process of storing information in long-term memory through the exercise or repetition of motor tasks”. However, frequency and length of the repetitions depend on many factors, including the characteristics of the students and the motor task they are trying to learn. Therefore, teachers might benefit from a deeper understanding of Motor Learning principles in order to optimize their students’ learning process.

Cognitive practice

Teachers frequently use the aural channel in order to transmit knowledge and instructions to their students. Although it is commonly accepted that the content of the instructions should be tailored to the age and level of each student and the complexity of the instructions is related to students’ maturity, Lehmann (2007) warns teachers from an excessive use of complex explanations, as they can overwhelm or create confusion. Duke and Simons (2006) are consistent with Lehmann, associating short instructions with effective teaching: “Teacher activity episodes are generally very brief… Teachers state their feedback and directives succinctly and straightforwardly”. This is something that might need to be emphasized to student teachers, as they “… talk too much and do not let the students play enough” (Goolsby, 1996).

Modelled practice

Another way to provoke learning at the music lessons is the use of physical presentations of the techniques and musical fragments that students are trying to learn. Teachers usually perform examples with their instruments, although thanks to the easy access to technology, students can also watch video recordings of all sorts of performers, from amateurs to the most respected soloists. In this sense, it is important to clarify that models might not all have the same impact in students’ progress, as Zubiaur (2003) states: “The closer the model to the student, the more effective the learning” (p.?). Therefore, teachers might have a greater impact in students than international stars, and the best model might be another student with similar level and age. This makes group lessons a perfect scenario to take advantage of modelled practice, as students can be exposed to the influence of both the teacher and other piers.

Guided practice

The correspondence between learning and repetitions stated by Keel and Summers (see the section on physical practice), might lead to believe that the number of repetitions

needed to acquire a certain motor skill can be lower or higher depending on the quality of those repetitions. In order to facilitate good quality repetitions, teachers can either manipulate their students physically or use external marks such as stickers, guiding their motions.

The use of external marks is encouraged by music pedagogues such as Suzuki or Rolland, and widely used in the field of sports (Target & Cathelineau, 2002).

Imagined practice

Some music teachers might initially question the use of mental representation of motor skills in absence of physical movement as a way to provoke learning. However, there is scientific evidence that imagined practice can have a significant impact on the acquisition of motor skills.

Certain situations can maximise this impact, as stated by educationalists such as Barrett and Hallam (2002), as well as Cahn (2008):When learners have had some prior experience with the task or canexpress the task verbally; if the task is simple; if mental practice is combined with physical practice; in the first stages of learning a task; when learners have been trained in mental practice, and, if the sessions of mental practice are brief. (Forcada, 2015, p. 19)

Nonetheless, experts agree on the effectiveness of the imagined practice as a complement of the other types of practice, but not as a substitute (Singer, 1986; Cahn, 2008).

Pedagogies

Numerous eminent pedagogues have enriched the field of String Pedagogy in the 20th Century. Their contributions cover all aspects of string teaching, from the fundamentals to the highest level of technique, next to psychological processes such as stage fright, learning processes and personal interactions. Due to their popularity, four methods and pedagogies that originate from the last century have been considered in this paper, namely: Suzuki Method, Rolland Pedagogy, Zweig Pedagogy and the so called Traditional Method.

Among all teaching methods, Suzuki is arguably the favourite of those who teach young children. Instead, Rolland's Pedagogy is not associated with any age of level in specific, yet it is considered as a set of tools that can be applied by any string teacher, independently of the method he/she might be using. Zweig's pedagogy is the most eclectic of these approaches, as her ideas come from diverse sources such as Kodaly, Galamian, Suzuki and Rolland, among others. Finally, the expression "traditional method" is an

umbrella covering some of the most relevant traditions in string teaching, such as the Franco-Belgian and the Russian schools. However, these might also be, sometimes, claimed by teachers who have not undertaken formal training in any specific method.

Suzuki method

The method created by the Japanese Shinichi Suzuki is one of the most popular systems to teach young children. There are branches in most countries, with easy access to teacher training programs. The worldwide network of teachers, students and parents look after the quality of the method, encouraging communication among its members.

Suzuki's philosophy put the child at the centre of the teaching process, emphasising the importance of parents and teachers providing the child with a positive environment (Suzuki, 1983). In this sense, children's motivation is considered as the main foundation for a long-term commitment, as stated by the violin pedagogue William Starr: "Suzuki still regards the problem of motivation as the principal problem for parents and teachers" (Starr, 1976, p. 9).

Technical principles are also very well defined and they cover not only string technique, like the use of staccato as the first bow stroke, but also aspects related to the structure and contents of the lessons. Evelyn Hermann (1981) shows some of these key principles, such as keeping lessons short, focusing on only one point in each lesson; the benefits of master classes for all students or the importance of playing from memory.

The Suzuki Method shows some similarities with academic literature related to practice. Physical practice is at the core of the method, with frequent references to the key role of repetitions and how students can be encouraged to repeat technical aspects and old pieces. Numerous publications are addressed to the parents, in order to facilitate regular practice, by authors like Cynthia Richards (1985). Modelled practice is also encouraged as a tool for teachers to work on diverse technical and musical aspects, such as musicality, or the development of a good tone: "teachers must understand and be able to illustrate "tonalization" for his students" (Starr, 1976, p. 17). The use of guided and imagined practice is also present in the literature. Susan Kempter (2003) describes numerous techniques to facilitate the acquisition of motor skills, by the use of external tools, encouraging teachers to transmit sensations to their students through physical manipulation.

Rolland pedagogy

It could be arguably claimed that Paul Rolland's approach to string teaching is one of the most consistent approaches with academic literature. Some Hungarian violinists, who

moved to the United Stated by mid 20th century, claimed to find his ideas on scientific knowledge from the field of neurology, as shown in his main book *The Teaching of Action in String Playing* (Rolland, 1974b). The second chapter, fully dedicated to "Control and Regulation of Voluntary Movement"(1974b, pp. 10-29), was signed by the expert in Motor Learning F. A. Hellebrandt, Professor Emeritus at the University of Wisconsin .

Connection between Rolland's ideas and the literature can be found in his publications and videos. In the set of videos that Rolland (1974c) produced as part of his research, teachers frequently serve as a model for their students, by playing short exercises that are repeated by the children straightaway, in a succession of fast episodes. Rolland was aware of the advantages of modelled practice as an effective substitution of aural instructions: "As in sports and dance, the student can be greatly aided with images. They may be more effective than specific detailed instructions" (Rolland, 1979, p.8). Rolland published a collection of posters with images and brief descriptions, summarizing the main principles of his technique. Although these posters are not available any longer as such, their contents are still available in book format (Rolland, 1974a). Regarding physical practice, Rolland agreed with Suzuki on how relevant constant reviews are and the key role of this type of practice as the way for actions to "… progress from the deliberate and conscious to a subconscious level" (1979, p.8).

Since Rolland's first intention was to elaborate flexible tools that could be adopted by any teacher in the USA, his ideas have had a deep impact on many other pedagogues, like Zweig.

Zweig's pedagogy

After studying with the celebrated pedagogue Ivan Galamian in New York, Zweig started her own career as a teacher with a strong technical foundation but lack of substantial teaching experience: "I had done a little bit of teaching, but I thought that at that moment I already knew a lot about teaching, which is probably a valuable thing because that's the folly of youth" (Forcada, 2015, p. 231).

Her first influences in teaching young children came from observing Betty Haig, a successful Suzuki teacher from Chicago. Since then, she has been under the influence of many other pedagogues, such as Kodaly and Rolland, which have configured her eclectic and celebrated approach to string teaching.

Due to the abovementioned influences, her procedures to teach beginners incorporate concepts and techniques from both Suzuki and Rolland: "A special emphasis is put on the Suzuki method, as well as Rolland's way of teaching

movements and technique and some elements of Kodaly's pedagogy" (Forcada, 2015, p.46). Therefore, we could expect strong connections with the academic literature related to practice.

Traditional method

Among the main violin pedagogies of all times, two schools stand out by the number of their celebrated performers and the impact of their pedagogues: The Franco-Belgian School, started by Charles A. de Beriot, and the Russian School, started by Leopold Auer. Although each school is associated with a well-defined technique and sound, their repertoire and collections of technical material are worldwide played and tough, frequently in combination of other methods as it happened to some of the participants in the experimental study of this paper.

When asked about their method, some teachers claim to follow the so-called *traditional method*, without mentioning any school. At their lessons, they used to include material from diverse authors and schools, namely: Suzuki, Rolland, Kreutzer, Flesch and Galamian, to name but a few. Therefore, this group of teachers is the most eclectic from those participating in the experimental study that will be described in the next section.

Experimental study

In this paper, I try to provide a new interpretation to the data collected through the experimental studies of my doctoral thesis (Forcada, 2015). At that time, I focused on teachers' awareness of Motor Learning principles and its connection with the success of their careers, while in this occasion the goal is to check the consistency between their teaching procedures, the methods they claim to follow and the scientific literature on practice. New research questions have been set up, as follows:

- Are teachers' procedures consistent with the pedagogies they claim?
- Is teachers' practice consistent with the scientific literature on *practice*?
- To what extent can scientific knowledge accelerate teachers' progress?

In order to answer these questions, a sample of 107 participants (19 teachers and 88 students), from three countries (the United Kingdom, the United States and Spain) has participated in this experimental study. The group of teachers represents a wide variety of teaching contexts, both in terms of the institutions where they work as well as the age and level of their students (aged 4 to 18 and the level spanning from beginners to pre-college level). All teachers and students had been informed of the procedures of the experimental study, their rights to cancel their participation in the study and how their

identities would remain hidden (Forcada, 2015, pp. 254-262). Teachers have been classified in 6 groups under the following criteria:

- Zweig group: teachers who work at the program leaded by Zweig at the Jacobs Music School in Bloomington (Indiana. USA).
- Suzuki group: Teachers qualified by their regional Suzuki Association.
- Motor Learning group: Teachers who have attended a training course on string pedagogy of 96 hours, over two years and six months, with an emphasis on the main principles of Motor Learning.
- Rolland group: Teachers claiming to follow Rolland Pedagogy.
- Traditional method group: teachers who have not undertaken formal training on a specific pedagogy beyond a bachelor in Music.
- Top group: A selection of those teachers from the abovementioned groups who are internationally recognised by their careers and their impact in the rest of the teaching community. This group comprises 4 teachers: 2 teachers belong to the Suzuki group, 1 to the Zweig group and 1 to the Traditional method group.

Data collected through observation, after videotaping the 88 lessons, show teachers' use of the different types of practice, as well as other parameters, which can provide a meaningful picture of the tasks and procedures carried out at each lesson. These parameters are listed as follows:

- On/Off-task behaviour.
- Number of seconds per task.
- Number of tasks per hour.
- Total time of oral practice per hour.
- Total time of physical practice per hour.
- Total time of practice with metronome per hour.
- Total time of guided practice per hour.
- Total time of modelled practice per hour.
- Total length of the questions per hour.
- Total time of imagined practice per hour.

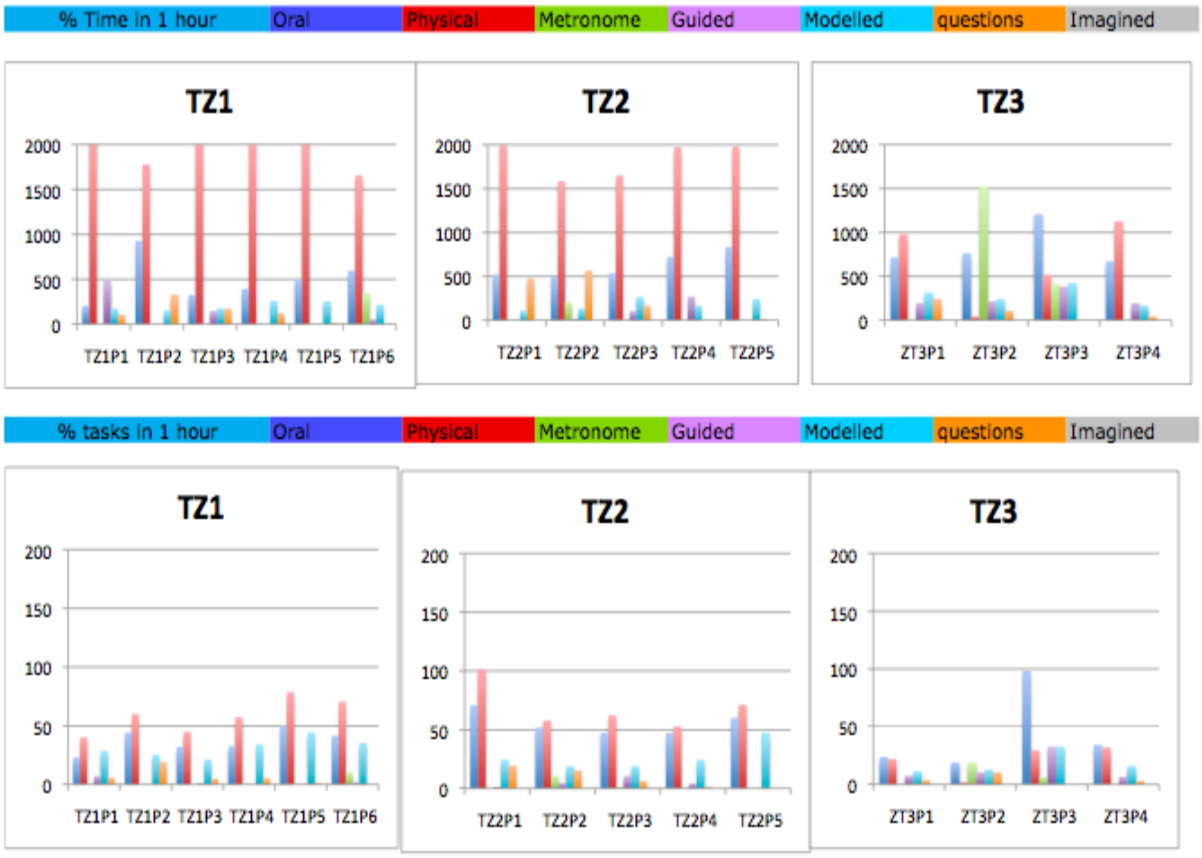
Although observation included only private lessons, their different length (spanning 30 to 60 minutes) made it necessary to calculate the proportional length of each parameter for a one-hour-lesson.

Data representation includes tables and graphics. Tables show teachers, students and data, plus the median and the standard deviation, referred to each parameter (Table 1).

Teachers	Pupils	% On-task behaviour	% Off-task behaviour	Seconds/task	Tasks/hour	Oral time/hour	Physical time/hour	Metron. P+G time/hour	Guided time/hour	Modelled time/hour	questions time/hour	Imagined time/hour
TZ1	TZ1P1	86.55	13.45	29.88	104.29	204.29	2141.43	0.00	492.86	174.29	102.86	0.00
	TZ1P2	88.60	11.40	21.49	148.42	928.42	1777.89	0.00	0.00	154.74	328.42	0.00
	TZ1P3	83.20	16.80	28.93	103.53	324.71	2170.59	0.00	149.41	176.47	174.12	0.00
	TZ1P4	79.09	20.91	21.98	129.55	392.73	2075.45	0.00	0.00	259.09	120.00	0.00
	TZ1P5	79.37	20.63	16.39	174.29	501.43	2080.00	0.00	0.00	257.14	18.57	0.00
	TZ1P6	79.71	20.29	18.01	159.31	595.86	1657.24	347.59	51.72	217.24	0.00	0.00
TZ2	TZ2P1	86.77	13.23	14.27	217.60	522.75	2011.16	0.00	3.86	109.44	476.39	0.00
	TZ2P2	83.59	16.41	18.95	158.82	497.65	1585.88	209.41	16.47	132.94	567.06	0.00
	TZ2P3	75.76	24.24	18.64	146.32	536.84	1649.47	4.21	104.21	268.42	164.21	0.00
	TZ2P4	87.06	12.94	24.11	130.00	722.86	1972.86	0.00	271.43	165.71	1.43	0.00
	TZ2P5	84.88	15.12	17.11	178.60	833.02	1980.00	0.00	0.00	242.79	11.16	0.00
TZ3	ZT3P1	68.02	31.98	24.38	68.34	714.42	983.72	0.00	195.35	315.35	240.00	0.00
	ZT3P2	80.44	19.56	31.49	73.98	762.04	44.67	1524.09	218.10	239.12	107.74	0.00
	ZT3P3	81.89	18.11	12.08	199.81	1208.00	520.00	412.00	384.00	424.00	0.00	0.00
	ZT3P4	61.21	38.79	14.69	91.81	670.65	1126.45	0.00	194.52	167.42	44.52	0.00
	Median	81.89	18.11	18.95	146.32	595.86	1777.89	0.00	104.21	217.24	107.74	0.00
	Standard Deviation	7.45	7.45	5.94	44.49	251.46	640.95	400.13	154.64	80.45	177.30	0.00

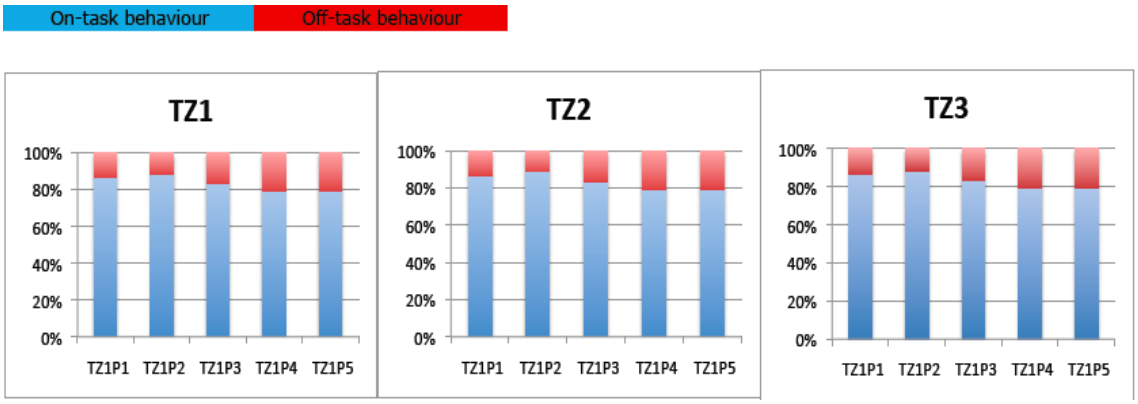
Table 1. Example of table showing participants from the Zweig group.

The same data had been represented in graphics, so students and teachers can be more easily compared (Graphic 1).

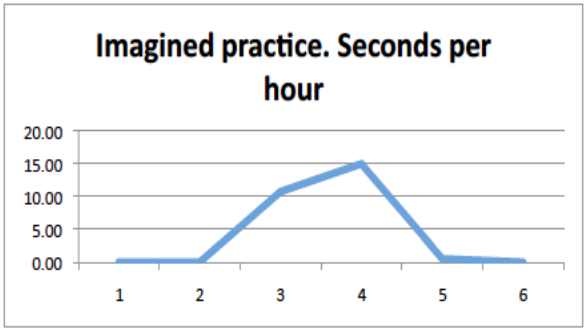


Graphic 1. Example of graphic showing distribution of the different types of practice for each participant from the Zweig group.

Other graphics represent the on-off task behaviour in each lesson (Graphic 2) as well as a comparison of the different pedagogies, as well as the group of top teachers (Graphic 3).



Graphic 2. Example of graphic showing the on/off-time behaviour for each participant from the Zweig group.



Graphic 3. Example of graphic showing a comparison of the different groups of teachers.

Every group of teachers and their students have been associated to a number, so they can be identified in the graphics (figure 1).

Groups of teachers	Number
Zweig	1
Suzuki	2
ML	3
Rolland	4
Traditional	5
Top	6

Figure 1. Numbers associated to each group of teachers and students.

The full set of data, represented in tables and graphics, as well as the code system used to hide participants' identities, can be found in Forcada (2015, p. 66, pp. 267-280).

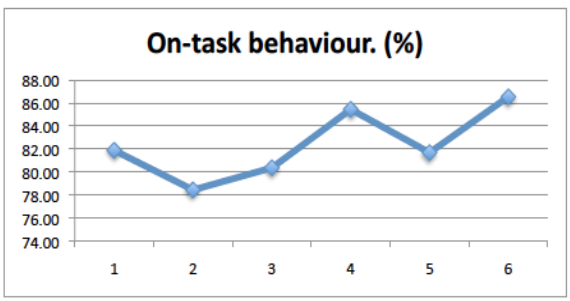
Discussion of the data collected

Literature clearly associates the way teachers apply the different types of practice with their level of expertise. Some authors make reference to the pace of the lessons: 'Effective teaching is related to 'an intense and rapid pace, where teacher and student interact in short episodes' (Duke & Simons, 2006). Others emphasize the impact of the proportion between teachers and students' level of activity: 'Effectiveness in music teaching is related to high levels of students' activity, low levels of teachers' oral instruction and high levels of modelled practice' (Goolsby, 1996). As mentioned above, other routines are associated with effective teaching, such as giving preference to students' physical activities, short instructions and the use of questions as a valuable source of feedback. The following paragraphs will include an analysis of the data collected, comparing the different pedagogies, in order to determine to what extent teachers' procedures are consistent with the literature. The analysis includes on-task behaviour, length of tasks and questions, as well as the different types of practice.

On-task behaviour

Minimising interruptions during lessons allows teachers and students more time to focus on learning activities. Therefore, high figures in on-task behaviour are initially more advantageous.

As shown in graphic 4, all groups show high levels of teaching activities. The group of top teachers is consistent with the literature, showing the highest figure of on-task behaviour. Interestingly, the group of Suzuki teachers, which is the only one where all its members have undertaken systematic training toward the consecution of an official qualification, shows the lowest figure. Since 2 out of 5 teachers in the Suzuki group are part of the top group, the average on-task behaviour of the other 3 Suzuki teachers is significantly lower than the average in other pedagogies.



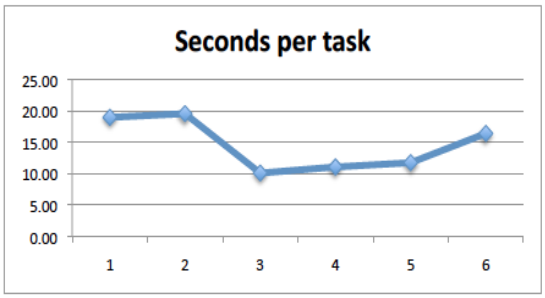
Graphic 4. On-task behaviour.

Seconds per task

Longer tasks (considering tasks as the different teaching actions shown in table 1) imply a lower pace, with a lower number of tasks per hour. Since literature recommends an intense lesson pace, high figures in this aspect are initially associated with a less effective teaching practice (graphic 5).

In this parameter, outcomes are not consistent with literature, showing the 3rd highest figure in the top group, just surpassed by Suzuki and Zweig groups. This last group deserves a special mention since Zweig's program is one of the most respected Worldwide, and the initial perception after watching their lessons might suggest a faster pace than is shown by this data.

Teachers in the Motor Learning group show the fastest pace, which might be an indicator of how training can accelerate the acquisition of certain skills associated with good teaching practices by the literature.

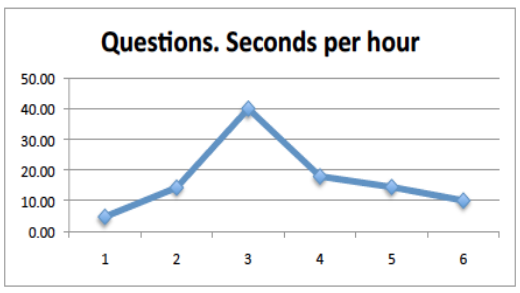


Graphic 5. Seconds per task.

Questions length

Since questioning is generally considered a good teaching practice, time dedicated to questions is one of the parameters included in the experimental study (graphic 6).

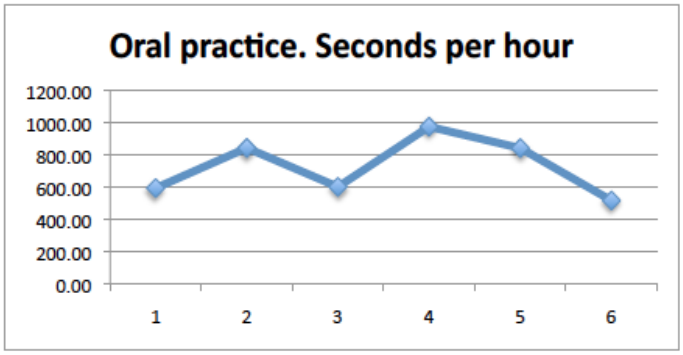
As in the previous parameter (seconds per task), the best figure corresponds to the Motor Learning group, followed from a significant distance by the rest of the groups. Figures from the top and Zweig groups are particularly low, showing a clear contradiction between these outcomes and the literature.



Graphic 6. Time (in seconds per hour) dedicated to questions.

Oral practice

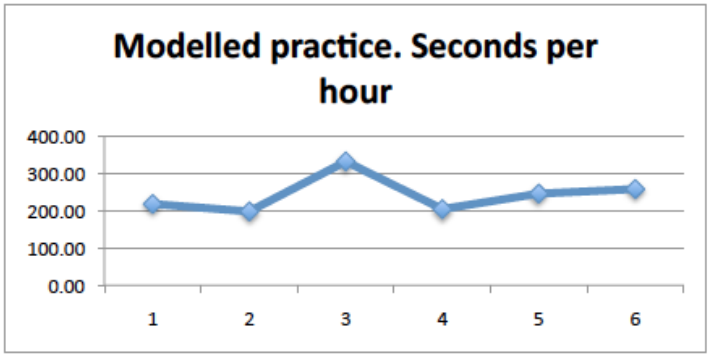
One of the criticisms directed to beginner teachers is the excessive length and frequency of their aural instructions, in opposition to the most expert teacher's practices. Lowering this parameter through training seems to be feasible also, as shown by the Motor Learning group that presents one of the lowest levels, next to the Zweig group and very close to the top group (graphic 7).



Graphic 7. Oral practice

Modelled practice

Modelled practice is another parameter where the Motor Learning group excels. There are no significant differences between the rest of the groups, which are lead by the top group.



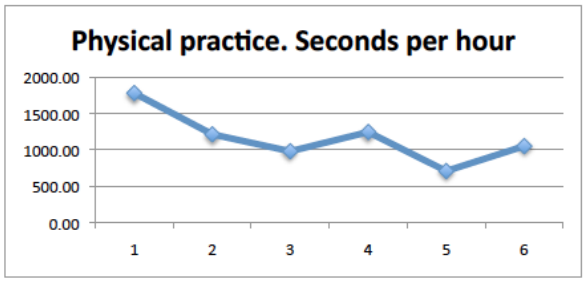
Graphic 8. Modelled practice

Physical practice

Physical practice shows the greatest differences between groups.

Suzuki, Motor Learning and Rolland groups show similar data, in terms of physical practice, to the top group (graphic 9). Zweig teachers are significantly ahead in this

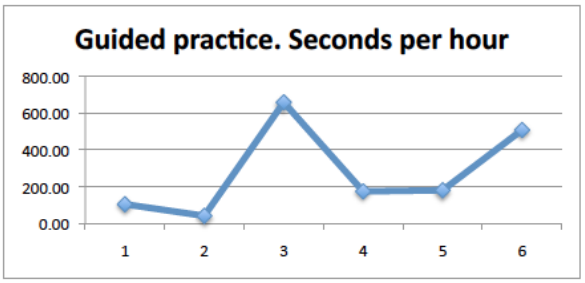
parameter, with the Traditional Method group clearly behind. Data related to this parameter should be considered cautiously, as guided practice implies students' physical activity too. Summing up, both parameters result in the Motor Learning group showing the highest level of students' physical activity, followed by the top group.



Graphic 9. Physical practice

Guided practice

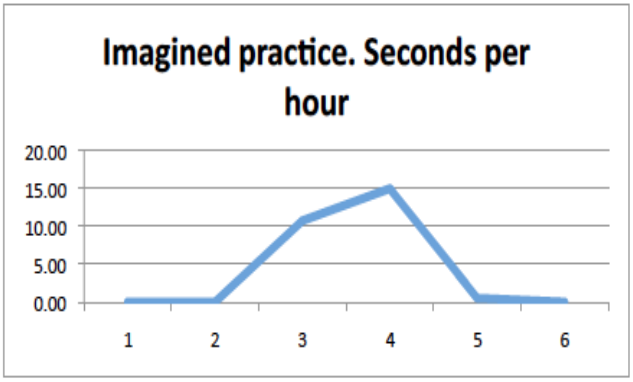
Guiding movements is usually associated with teaching young children. In this sense, data obtained from the Suzuki and Zweig groups are particularly surprising. Due to the strong influence of the Suzuki Method in Zweig's ideas, teachers from both groups work with young children, which is not consistent with the fact that their levels of guided practice are the lowest (graphic 10).



Graphic 10. Guided practice

Imagined practice

Since imagined practice has a clear application in sight-reading, it could be considered as a usual tool in most teachers' procedures. Surprisingly, the presence of Imagined practice in the experimental study is almost non-existent. Only 5 out of 19 teachers (2 Rolland, 2 Motor Learning and 1 Traditional), in 6 out of 88 lessons, included imagined practice, for the lowest time among all the types of practice (graphic 11).



Graphic 11. Imagined practice

Conclusions, limitations and further research

Nowadays, numerous methods and pedagogies are successfully applied for professionals who work in a wide variety of contexts teaching students of different levels and ages. The main question arising is if professionals' procedures are consistent with both the pedagogies they claim to follow and the scientific literature (even from those who are recognised as particularly successful). A secondary question refers to the possible impact of training on Motor Learning principles in beginner teachers. Research questions read as follows:

- Are teachers' procedures consistent with the pedagogies they claim?
- Is teachers' practice consistent with the scientific literature on *practice*?
- To what extent can scientific knowledge accelerate teachers' progress?

In order to answer these questions, I have analysed data from an experimental study based on lesson-observation, looking for connections between teachers' procedures, the characteristics of their pedagogies as well as the literature on effective teaching and practice.

All groups of teachers show consistencies with the literature in some aspects, also unexpected results arise in others. It is particularly worthy of note the low level of imagined practice, although it could be due to the fact that sight-reading was not included in most lessons. Nevertheless, it might be interesting for teachers to consider the literature, which suggests applications of imagined practice other than sight-reading.

Another contradiction is related to the usage of questions as a way to get feedback from students and reinforce their understanding. Although questioning is widely related to effective teaching, the top group showed one of the lowest results, next to the Zweig group. This might be related to another limitation of the study, where the quality of the questions have not been considered, except for the length and frequency.

Compared to the other groups, the Zweig group, whose programme is widely regarded as very successful, shows a slow pace at the lessons. However, the presence of physical practice is the highest and there are strong similarities between the procedures of all its teachers, which supports the consistency of this pedagogy.

Data from the Suzuki group are attention grabbing. Teachers from this group score the lowest in three parameters associated to effective practice, namely: On-task behaviour, as well as modelled and guided practice. Also, there is no presence of imagined practice at their lessons. Conversely, two of the teachers in the Suzuki group, who are also part of the top group, present some of the highest scores in all areas, with a striking 94.8% of on-task behaviour.

Rolland teachers show both strengths and weaknesses when confronted with the literature. Their on-task behaviour is the highest, other than the top group. However, this strength clashes with the highest mark in oral practice, in detriment of the other types of practice. Although marks on physical practice are average, they score low in modelled and guided practice.

The Traditional Method group shows certain similarities with the Suzuki group. They score low in most areas, but teachers in this group show significant differences related to their level of expertise. The most experienced teachers score significantly higher in on-task behaviour and show a faster pace at their lessons.

Besides the lack of imagined practice in the top group, teachers in this group are consistent with the literature in most areas. They score the best in oral practice and on-task behaviour, with a notable presence of guided and modelled practice.

Finally, in spite of their lower median of their experience, teachers in the Motor Learning group score the highest in guided and modelled practice. They expend more time asking questions and their pace is the fastest among all the groups. There is also some presence of Imagined practice.

This discussion confirms that teachers' procedures are not always consistent with the scientific literature or the pedagogies they claim to follow. They also show how training can accelerate the process of acquisition of certain skills associated with effective teaching by the literature. However, we must be cautious with these findings, as consistency with the literature does not correspond with the experience and level of recognition of these teachers.

It is important to take into account the limitations of this research. Teaching a string instrument is a complex task, where lessons need to be tailored to each student and context. The limited number of the sample and the lessons observed makes it impossible to determine how teachers' procedures look like in other circumstances, in the medium and long term. Future research might consider observing a group of teachers for a longer

period of time, monitoring the evolution of a single student or focusing on a single pedagogy.

Teachers have to make decisions at the lessons. To what extent a certain decision is consistent with the literature might not be as relevant as teachers being aware of their procedures, so they can predict the impact of their interventions.

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Distance Training in Violin Teaching: Getting comprehensive professional Knowledge, Skills and Attitudes in Colourstrings Approach

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Abstract: The purpose of this paper is presenting a comprehensive spectrum of violin teachers' professional knowledge following the observation of the International Minifiddlers distance training in Colourstrings approach to violin teaching. Didactic strategies, teachers' skills, attitudes, and their transfer in an ITC environment have been analyzed, based on evidence found in three Catalan conservatoires. Findings suggest that the model of expert-novice distance observation in practice can have valuable applications in the fields of violin pedagogy and teacher training.
Keywords: Teacher Training; ITC; Kodaly; Music Education for beginners, Violin Pedagogy

Distance Teacher Training in Colourstrings Approach

Developed in the East Helsinki Music Institute by Hungarian brothers Geza and Csaba Szilvay, Colourstrings approach of instrument teaching has inspired music teaching for more than forty years. Prominent musicians, such as Mr. Max Rostal, Sir Yehudi Menuhin, and Mr. Christopher Bunting, supported the Colourstrings Approach as soon as they noticed the high quality of music education. It has also received recognition from educational institutions such as European String Teacher Association (ESTA) and American String Teacher Association (ASTA). Today, it plays a leading role in the Finnish music miracle (Launonen, 2017) and it expands internationally where it is well recognized.

From a business perspective, Caprice Company, led by Mdm. Rajamäki, is a pioneer startup in distance violin studies. First synchronous experiences were organized in 1997 with violinist Pinchas Zukerman who, based in America, gave distance lessons to students in Helsinki. After knowing Prof. Szilvay and his approach of teaching, Mdm. Rajamäki started a collaboration with him that materialized later in International Minifiddlers (IM). IM is an innovative and unique teacher training program which includes video lessons examples and videoconferencing, with a view to bringing the expert closer to the novice in the implementation process of Colourstings approach.

According to Mdm. Rajamäki International Minifiddlers was born with the purpose of making Colourstrings training available to those teachers who could not attend face-to-face training (personal interview October 2018). The pilot program 2012-2016, reviewed by Ruokonen (2018), was a challenging experience for everyone involved in the project: Prof. Szilvay, the teachers-in-training, the technical staff, children, and

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families. Prof. Szilvay guided the violin lessons through videoconference to teachers and pupils based on ten different countries. At the same time, he started teaching to his own group of students.

Szilvay's exemplary lessons addressed to teachers participating in the pilot program were recorded becoming a unique document of elementary violin pedagogy, now available under subscription by http://videos.minifiddlers.org. It consists of 122 lessons by Prof. Szilvay to the same 5/6yo beginners' group for four years to the end of Colourstrings basic curriculum. The pilot Program proved the validity of the project which was carried out later in different countries like China or Spain by Caprice start up.

International Minifiddlers Catalan Program

Tarragona County Council runs three conservatoires in the cities of Tarragona, Tortosa, and Reus. Teacher training is supported at different levels by the institution. For example, in June 2016 Profª Yvonne Frye, chief of Colourstrings teacher training program, was invited to Catalonia for a spring workshop. The following summer, a group of violin teachers took part in a Phase I of teacher training at the East Helsinki Music Institute. And then, teachers proposed to participate in the International Minifiddlers program, extending their Colourstrings training.

The proposal was accepted and in 2017, the resources for the project were derived. It involved the acquisition of a videoconference system that did not yet have, and training on the use of this technology all provided by Catalan company, Telapolis.

It was agreed to ten video conferences in springtime of 2018, from January to June according to Prof. Szilvay's agenda, who was leading the sessions. The main goal of IM Catalan program was developing Colourstrings approach knowledge in order to its efficient implementation focusing in the first year of violin learning (see Table 1).

Every session was divided into three parts, one for each Conservatoire. A multipoint connection through Pexip (Catalonia) – Cisco (Helsinki) interface, allows all pedagogues, one from Tortosa, one Reus and two from Tarragona, all teachers ranged from 15 to 30 years of experience and with elementary training in Colourstrings approach, to follow the full session (see Figure 1).

Figure 1. Caprice's studio in Helsinki during the IM Catalan program [digital image].

Minifiddlers. (2018, January 31). Retrieved from https://twitter.com/Minifiddlers/status/958712463733686272

Twenty students were involved in the project, regularly three from Reus, two from Tortosa and four from Tarragona and alternating seven from Helsinki. Lessons were open to one-site listeners and parents also.

Regular e-mail communication between Prof. Szilvay and the Catalan coordinator of the program were useful to receive teacher's and parents' feedback about the session. The plan was slightly adjusted accordingly taking all the opinions into consideration.

Sessions started with an expert's introduction about the subject. Explanation was mainly practical with Finnish pupil's collaboration. After the explanation, the expert monitored the lessons of trainee teachers interrupting it when he considered necessary to provide ideas, solutions and advises oft-times with live examples, and on occasions with the musical accompaniment of parents. All teachers, children and parents could watch the full picture of the action and thus becoming a good opportunity to peer observation at different levels

LESSON	CONTENT	DIDACTIC MATERIAL
1º	Developing the basic holds, basic movements, and basic rhythms, numbered pizzicato, assisted bow	Book A pages 1—32 and Appendix pages Duettini
2º	Developing the basic holds, basic movements, and basic rhythms, numbered pizzicato, assisted bow	Book A pages 33—39 and Appendix pages Duettini "My little Cat"
3º	Connecting the movements of the two hands. Individual bow stroke. Introducing the line-system. Easy duos	Book A pages 42-47 and Appendix pages X-XI-XII
4º	Natural harmonics in the first position	Book A pages 51-71 page 33 with Appendix VIII - IX
5º	Stopping motion of the first finger	Book B pages 1-14 Kreutzerini
6º	Stopping motion of the second finger	Book B pages 15-30 Kreutzerini
7º	Stopping motion of the third finger	Book B pages 31-46 Kreutzerini
8º	Stopping motion of the fourth finger	Book B pages 47-55 Kreutzerini
9º	Independent use of the second and fourth fingers (0—2—4)	Book B pages 56-61 and Kreutzerini pag.40
10º	Independent fourth finger	Book B pages 62-77 and Sonatini

Table 1. Lesson plan for IM Catalan program

Colourstrings child-centered Approach to Violin Teaching

Before one begins to teach violin following Colourstrings approach, it is recommended to receive some training in order to get its full theoretical and practical comprehension. Formal face-to-face training is now offered in three phases, within five levels, up to the certification. Training includes lectures, observation of experts, workshops, practices, and research contributions.

It is also important to consider the recent book published “Guide for teachers and parents. Colourstrings ABC violin” by Prof. Géza Szilvay (2018). And attention should also be drawn to the increasing list of academic research, from the 1990's to present day, related to Colourstrings approach. It has been reviewed by Wallace (1992) in The Strad, Mitchell (1998) in American String Teacher and Morgan (2003) and (2017) in Music Teacher. It has been included in part of a larger-scale studies: Pohjola (2009) Metropolitan University Helsinki, Sarósi (2009) University of Jyväskylä, Garde Badillo (2015) University of Barcelona, Jansen van Vuuren (2016) University of Pretoria. Also, there are some papers based on personal observation or practice: Pretto (2002), Fister (2006), McTier (2006), Viksten (2009), Voima (2009), Banney (2011), Björkman (2016), Sanzone (2017), Salmela (n.d.). And, finally, it is worthy to mention the doctoral thesis by Mitchell (1994) Arizona State University.

With regards to didactic material, nowadays, we can find a comprehensive set of books and CDs published by Fennica Gehrman (Helsinki) and Colourstrings International Ltd. (London), covering the instrument method, technique exercises, solo pieces, chamber music and orchestra repertoire (see Table 1). Work done by Szilvay brothers in collaboration with composer László Rossa and specialized teachers: viola, Pirkko Juntunen, contrabass, Lagercrantz Lasse, guitar, Rody van Gemert, piano, Arja Suorsa-Rannanmäki, flute, Jaana Laasonen & Riikka Rahivaara-Tarkka, clarinet, Tuulia Tuovinen. Also, a proposal for music education at nursery stage has been developed with a set of children’s song books and CD tales recorded by Helsinki Strings and supported by Karen Mackenzie reference’s work. Later on, this set of songs will be a basic repertoire in instrumental teaching.

TYPOLOGY	AUTHOR	PUBLISHER	TITLE
I. TALES	Géza Szilvay Kuvitus Markus Majalvoma	WSOY Helsinki	Little Rascals. Eläinten laulukilpailut ja muita musiikkiaiheisia satuja.
II. MUSIC THEORY, SONG BOOKS	Géza Szilvay Tuulia Hyrski	Colourstings International Ltd. London	Singing Rascals (LA, DO, Pentatonic. ABC) Rhythm Rascals (TA, TITI) CDs (LA, TA, DO, Pentatonic, TI-TI &

	Angela Ailes		ABC) Exercises books (LA, DO, Pentatonic, ABC)
	Karen McKenzie	Colourstrings International Ltd. London	Ideas for developing the Singing Rascals Songs: Pentatonic, La, Do
	Maryan Balkwill Laura Forbes	Colourstrings International Ltd. London	Songs to Sing and Play
IIIa. VIOLIN BOOKS	Géza Szilvay	Fennica Gehrman Helsinki	Colourstrings Violin ABC Book A-G Piano accompaniments for Colourstrings Violin ABC Books E-F Kreutzerini, 42 Finger Exercises for perfect intonation in the first position Scales for Violin, Volumes (1-3) Yellow Pages of the Colourstrings Violin School. I Basic Rhythms Violin School II Basic Rhythms and Ornaments Violin School III Basic Bowings Yellow Pages of the Colourstrings Violin School, Piano accompaniment
IIIb. VIOLA BOOKS	Géza Szilvay Pirkko Simojoki	Fennica Gehrman Helsinki	Colourstrings Viola ABC Book A-C
IV. CHAMBER MUSIC AND ORCHESTRA ORNAMENTS	Géza Szilvay Csaba Szilvay László Rossa	Fennica Gehrman Helsinki	Duettini for two violins Sonatini for violin and piano CD (educational edition) Colourstrings Violin Duos, Vol. I-III Colourstrings Duos for Violin and Cello I-VII Rascals Chamber Music for violin or cello and piano (1 - 7) CDs Vol.1-4 and Vol.5-7
	Lázló Rossa Géza Szilvay	Vol. I-III Ed. Association of Finnish Music Institutions Vol. IV-V SML in collaboration with Ed. Colourstrings International Ltd.	Colourful Music for Strings, Vol. I-V
	Lázló Rossa and Ed. Géza Szilvay	Fazer Music Publishing Company.	Finnish-Hungarian Chamber Music for Young String Players, Vol. I-VII

Table 2. Colourstrings Published Didactic Material from violin, and viola teaching view

The main ideas behind the Colourstrings approach are the following:

1.It is mandatory to be acquainted with Kodaly pedagogy principles, educational environment of Szilvay's' brothers. Even though Kodály didn't create a method (Dobsay, 2009; Houlahan & Tacka, 2015) his ideas have had a major impact later on music pedagogy. Among other principles, we can remark his intention to bring all children music education according to the core idea that music should belong to every child and following a self-determination that only the best is good enough (Bonis, 1974). Colourstrings approach to instrument teaching is a good example of Kodaly's influence and validity in the 21st century.

From Kodaly concept, an integrated framework has been developed where music theory, instrumental technique, ear training, and emotions progress together. Concepts are linked to the child's imagination through multisensory teaching, involving auditory, visual, tactile, and kinesthetic senses, and they are mastered through stages of learning: unconscious, semi-conscious and conscious. According to Prof. Frey (personal interview January 2019) what is special about Colourstrings is the way musical concepts are broken and presented to the child in a way they can understand.

Based on the Kodaly concept, it is thought that every child with their personality and capabilities can achieve a good level in violin playing and be happy during their learning process. For this purpose, there is a need to consider children holistically counting on their personality, emotion, and capabilities, both cognitive and motor skills. A still-photograph of the child at any fixed time isn't enough on its own. We must be alert of changes considering his/her personal qualities with an unprejudiced vision. It can become a gratifying surprise to us when a child shows some unexpected musical emotions, finger dexterity or audiation abilities. This frame implies breaking away from the old paradigm based on natural talent as a unique condition to success in music learning.

The use of the voice as a medium to develop inner hearing and for intonation control, a main goal of string playing, has been taken from Kodály. Naturally, Colourstrings incorporates from Hungarian pedagogue the use of movable-do solfege system and hand-signs for the notes, following the Guido de Arezzo, Sara Glover and John Curwen ideas, and rhythmic syllables, following the Galin-Paris-Chevé method (Rainbow, 1965).

Also following Kodaly ideas, folk music occupies a central role in the repertoire. Furthermore, the addition of own folklore is strongly encouraged. As Prof. Szilvay (2018) comments in his book, the finding of suitable melodies will become a never-ending activity and motivate teacher's proficiency. Not surprisingly Kodaly concept was selected in 2016 on the register of Good Safeguarding Practices by UNESCO. Many authors have highlighted the benefits of interculturalism in music education, as we read below.The

music of children's own culture must be given respect and status in the classroom, indirectly giving children a sense of their own values and status. Receptivity toward the music of other cultures can be developed from this point of reference, thereby fostering cultural awareness, tolerance, and respect. (Elliot as cited in Houlahan & Tacka, 2015, p. 53)

2. We should know the way contents are organized and how to go through. Its sequencing progresses from the easy crotchets and quavers and singable intervals, children songs and nursery rhymes, adding difficulties progressively step by step (see Table 2,3,4). In each chapter a new aspect is addressed, whether rhythmic, sound, or technical, which is accompanied by a wide repertoire based on nursery rhymes and folk songs and complementary chamber music and later orchestra music. Some of the songs are used repeatedly in different chapters and musical contexts, with the thought that it is better to address the new content with well-known material.

The main line is supported by complementary material to suit different learning speed, needs and levels. For example, we can reinforce some volumes with its Appendix or Colourstrings ABC violin Book B, with Kreutzerini volume. Colourstrings encourages the teacher to be creative and not a page-by-page one. As it is suggested, the teacher has to adapt the proposed sequence of contents to each child's singularity. It implies a good knowledge of the didactic material and know-how to use it.

BOOK	CONTENT
COLOURSTRINGS ABC VIOLIN BOOK A and B	Long- and short-lines
	Crotchet, TA (car)
	Quavers, TITI (train)
	Crochet rest (candle out)
	Minim TAA (boat)
COLOURSTRINGS ABC VIOLIN BOOK C	Syncopate TI-TA-TI (water snake)
	Bow distribution
	Three and four beat slurs
	Dotted minim TA A A (boat with three rowers)
	Dotted crotchet - Quaver
	TAI-TI (mummy kangaroo and baby)
COLOURSTRINGS ABC VIOLIN BOOK D	Quaver – Dotted crotchet
	TI-TAI (baby and mummy kangaroo)
	Quaver rest on the beat and after the beat – quaver
	M-TI / TI-M
	Upbeat "Levare"
	Slurs with string crossing
	Semibreve TAAAA (snail)
	Semiquavers TIRI-TIRI (plane)
	Quaver and two Semiquavers TI-TIRI (Camel to the west)

YELLOW PAGES OF THE COLOURSTRINGS VIOLIN SCHOOL. I BASIC RHYTHMS	Triplets
	Dotted quaver – semiquaver
	3/8, 6/8, 9/8, 12/8, 5/8, 7/8
YELLOW PAGES OF THE COLOURSTRINGS VIOLIN SCHOOL. II BASIC RHYTHMS AND ORNAMENTS	Changing time signature
	Demisemiquavers
	Augmentation and *Alla Breve*
	Syncopated rhythms
	Double dotted
	Quintuplets, Sextuplets, Septuplets
	Triplets and Quintuplets and 3/8, 6/8
	Crochets triplets
	3/2
	After beat
	Grace notes and Ornaments.

Table 3. Sequence of Contents. Rhythm

BOOK	CONTENT
COLOURSTRINGS ABC VIOLIN BOOK A	Open strings
	Octave and double octave flageolet
	Natural flageolets in the first position, major 3º, perfect 4º and 5º
COLOURSTRINGS ABC VIOLIN BOOK B	do (0) - re (1)
	do (0) - re (1) – mi (2)
	do (0) – mi (2)
	do (0) – re (1) – mi (2) – fa (3)
	re (1) – fa (3)
	do (0) – fa (3)
	do (0) – re (1) – mi (2) – fa (3) – so (4)
	do (0) – mi (2) – so (4)
COLOURSTRINGS ABC VIOLIN BOOK C	Major Pentachord, do (0) and so (4 or 0)
	Major Pentatonic Scale, do (0) – re (1) – mi (2) – so (4 or 0) – la (1)
	Major Pentatonic Scale, la (3) and so (1) low than do
	Pentatonic scale, do (3)
	Double-stops with open string
	Pentatonic scale with string crossing and various fingerings
COLOURSTRINGS ABC VIOLIN BOOK D	Major and minor Pentachord (new finger pattern 12-3-4)
	Scales with Major Pentachord, C (0/3) and minor A (0/1)
	Fingering in all possible string crossing
	Major Hexachord do (0 or 3) and minor la (0 or 1)
COLOURSTRINGS ABC VIOLIN BOOK E	Absolute notes and finger patterns
	Review of finger pattern 1-23-4 / 12-3-4 and combined
	1-2-3(#)4 A major, E major, B major
	1-23-4 y 1-2-3(#)4 combined. A major in two octaves
	A, E and B melodic and harmonic minor
	C, G, and D natural, harmonic, and melodic minor in third position
	1(b)-2-3-4 C major, F major, Bb major

	12-3-4 y 1(b)-2-3-4 combined C major and A natural minor in two octaves
	1(b)-23-4 la, D, G natural, harmonic, and melodic minor.
	1(b)-2-34(b) Bb, Eb and Ab major
	1(b)-2-34(b) y 1(b)-2-3-4 combined. G and C natural, harmonic, and melodic minor. Bb major in two octaves.
	1(0#)-2-3-4
	1-2-3(#)-4(#) si mayor, fa # mayor, do # mayor
	1-2-3(#)4 y 1-2-3(#)-4(#) combined B major in two octaves
	B, F#, C# natural, harmonic, and melodic minor
	Fourth finger extension
COLOURSTRINGS ABC VIOLIN BOOK	First finger sharp and double sharp
F	C# minor, G# minor
	Second finger Sharp or double sharp
	A# natural, harmonic, and melodic minor.
	Third finger flat
	Ab major, F natural, harmonic, and melodic minor.
	Second finger flat or double flat
	Cb major and Bb, Eb, Ab natural, harmonic, melodic minor.
	Chromatism
	Double-stops
	Modes

Table 4. Sequence of Contents. Sound

BOOK	CONTENT
COLOURSTRINGS ABC	Coloured notation
VIOLIN BOOK A	Octave flageolet (birds) and double octave flageolet (sun)
	Left-hand pizzicato (+)
	Down bow (⊓), up bow (V)
	Natural flageolets in the first position (diamond)
	Change of position (arrow)
	Key signature (key)
	Sharp (stair)
COLOURSTRINGS ABC	One line and two lines staff notation system
VIOLIN BOOK B	Time signature's upper number (2-3-4) and bar lines
	Repeat bar lines
	DC al fine
COLOURSTRINGS ABC	Black and white staff and coloured notes
VIOLIN BOOK C	Slurs, two, three and four beats
	Moderato, Allegro, Adagio, Crescendo, Diminuendo
	Double-stops with open string
	Abbreviations and first time, second time repeat
COLOURSTRINGS ABC	Slurs with string crossing
VIOLIN BOOK D	
COLOURSTRINGS ABC	Traditional notation with coloured fingering

VIOLIN BOOK E	Double-stops in first position stopping both strings
	Introduction to 3º position: C (do 1) major, G major and D major
COLOURSTRINGS ABC BOOK F	Half position
	Enharmonic
COLOURSTRINGS ABC BOOK G	Positions
YELLOW PAGES OF THE COLOURSTRINGS VIOLIN SCHOOL I	Tempo and dynamics
	Détaché
	Legato
	Portato
	Martelé (strict or smiling)
	Staccato (strict or volante)
	Marcato
	Spiccato
	Ricochet
	Sautillé
	Arpeggio
	Three and four notes chords

Table 5. Sequence of Contents. Music Reading

3. Colourstrings achieves a breakthrough with the addition of multisensory pedagogy to the Kodaly framework. This is exemplified by its system of reading music based on the simplification of the traditional black and white staff and the use of colours. Five-line staff is reached progressively from coloured straight lines and one-line and two-line staff. In this pathway colour becomes less and less present until it disappears altogether.

At the same time, complementary symbols and pictures close to a kid's world are used to explain musical ideas. It is believed that involving different senses, learning becomes deepest and long-lasting (Szilvay, 2018). In this line, research has pointed out that students learn best when information is presented in different modalities (Mercer, Mercer & Pullen,1993).

Besides colours and pictures, the art of story-telling and the use of metaphor becomes part of Colourstrings approach, in no childish way, but the other way round - a calculated bridge between the musical content and the child's imagination. This child-friendly approach helps to turn teaching and the learning process into a stimulating and fulfilling experience for children as Prof. Frye said (notes from Colourstrings Teacher Training course) "children are full of fantasy. Use it!"

4. Regarding didactic strategies, Colourstrings brings in innovations for violin

pedagogy in its ground level, such as systematic use of left-hand pizzicato, and harmonics. This path helps us to build left-hand technique from the very first steps looking for a good hand-posture with the minimum strength, and a good intonation control. Also, flageolet's playing helps a lot in terms of sound production because one needs to develop a fast, light, and straight bow-stroke to play them properly.

Intonation development is based on a principle "ear led the fingers". Kodaly's entry in the *New Grove Dictionary of Music and Musicians* note that "If you can sing something correctly then you can play it. Singing makes that essential connection with the "Inner Hearing". In Colourstrings, it is about a progressive development following three steps: plucking, touching, and stopping (Prof. Szilvay, IM Catalan Program). Plucking: we learn through left-hand pizzicato to make the fingers independent without intonation burden. Touching: we learn through flageolets to find the right places with small intonation burdens. And then, stopping: we learn through singing and inner hearing how to play in tune with active fingers. Prof. Szilvay said (IM Catalan program) "That is very slow, but then the stopping will not be difficult, the intonation will be not difficult."

Colourstrings incorporates eurythmy exercises according to Jacque-Dalcroze proposals, seeking to link movement, pulse, and rhythm. Complementary exercises such as: walking while playing, ostinatos, rhythm duos, polyrhythms with pizzicato and bow, reinforces the relationship between different values and the pulse and with the body. The whole package leads the child to be fully conscious, theoretically and practically, of the rhythm frame.

5. In terms of know-how, Colourstrings proposes some specific technique for the students' physical help. This technique helps to establish and control basic posture, strength, movements, sound, and intonation (Banney, 2011). In the early stages, it is recommended to adopt a position in front or at the side of the student which allows teachers to assist students with both hands. Left hand assists bow movements and right hand the fingerings, both with special attention to the thumbs usually hidden from view and prone to overstrain.

Later, physical help is also recommended to check strength balance or to introduce new technical issues such as bow strokes or vibrato. Moulding the child at the early stages helps to create a right representation of our body in the cortex (Johnson, 2009; Kempter, 2003) that will give us benefits later.

Also, teachers are encouraged to adopt certain attitudes to develop children's expression. Demand of musicality, with special attention to sound production in a musical context, from the very first lesson is a defining characteristic of Colourstrings approach. To this end, body action in the lesson is addressed to demand: sound volume, musical tempi, musical direction or bow speed. A teacher in front of a 5yo student needs to act

like a conductor in front of a hundred professional musicians with the purpose of activating the child's musical expression and emotion. A model that can easily be imitated individually by children in their playing later.

Exemplification is also used in the Colourstrings approach in this direction. The teachers', parents' or advanced students' practical demonstration helps the pupil to achieve an overall understanding of musical expression. Chamber music or a music accompaniment, whether a counter melody or a pedal, could be a very useful tool for this purpose. It's not a demonstration of the player's abilities nor a sound subjugation, for this reason it is advisable to play on equal terms with a similar violin, in terms of size, as the students' one. But it is a valuable example of the musical speech in its entirety: phrasing, dynamics, gestures, and emotions.

Learning in Practice

In order to teach violin to beginners, we need a well thought out plan (see figure 2), and Colourstrings approach gives us a paved road to build a child violin's technique. Children feel comfortable because they feel like there is a plan outlined for them.

From the very beginning a logical sequence of contents is proposed with its related didact strategies and some specific teaching skills. But is that enough to succeed in our teaching?

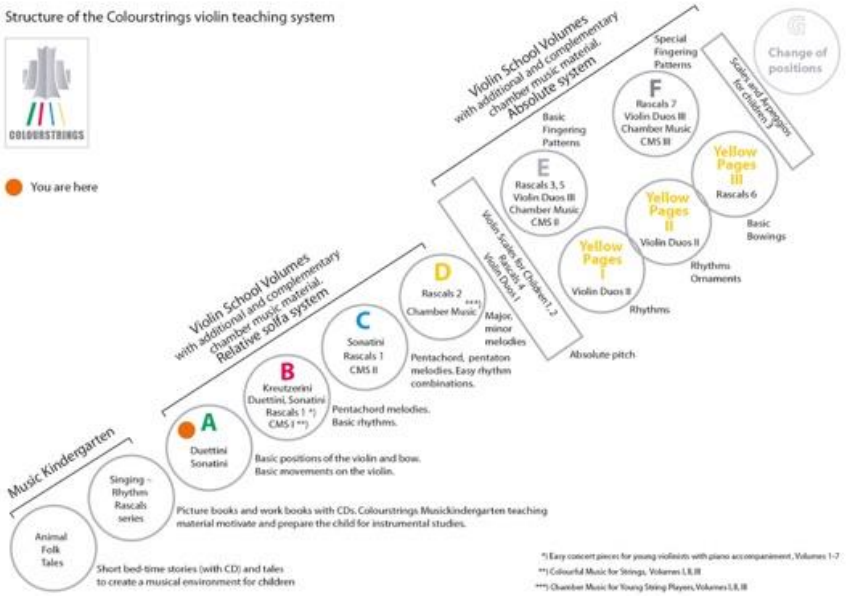

Figure 2 Structure of the Colourstrings violin teaching system. Szilvay, G. (2005). Violin ABC Book A. © Fennica Gehrman Oy, Helsinki. Published with permission

The research highlights that there are some other abilities which are equally or even more important in the success of Colourstrings approach of violin teaching. We talk about those strategies related to the management of the lesson and student's progress. In the IM Catalan program, one observed how teachers were dealing with proposed goals, and at the same time they were advised to keep a continuous monitoring of all basic aspects: posture, rhythm, sound, intonation, and expression. A highly demanding attitude towards those aspects already worked is undoubtedly decisive in the level of achievement in instrument playing. If the teacher perceives that some issue is still not totally solved, he/she must review or reinforce that point in order to progress without gaps.

But in the teaching and learning process, we must take the risk of losing motivation into consideration. From that point of view, sometimes it is recommended to move forward and work on the unsolved issue later, if we consider that the student has shown certain skills. Whether to go through or go back is a decision that comes from expert's tacit knowledge and they were very valuable for teachers to bring in their teaching.

Prof. Szilvay all the time asks for a dynamic lesson: "You understand a lesson like a composition" (personal interview August 2018). The teacher has to monitor the rhythm of the lesson properly, avoiding excessive and unnecessary repetition, interfering only if needed, and all the time looking for challenges. Also, they have to involve all the students present at the session, demanding constantly an active attitude to all children. For example, the teacher can ask the other child to follow the score by tapping it with the bow, or to play a pedal note or the beat to help her/his peer, or to conduct the group.

And this composition must be concluded with a happy ending, providing motivating messages or asking the students to play an affordable piece of their own taste, aiming to leave the lesson with a broad smile on their faces. It shows the importance given to children's feelings and confidence (see figure 3).

This friendly attitude is critical to create a positive learning environment, also one can observe the same feelings in the IM teacher training program. All the sessions were finished with generous concluding words considering all children, parents, and teachers, and promoting a friendship within all students, teachers, and families from both localizations, and giving thanks to Finnish students and their parents for their inestimable collaboration to demonstrate expert's teaching ideas.

There's an agreement that parents are a critical part of the teaching and learning process, we can say for a lifetime but of vital importance at the beginning of their studies. The question is: how can we incorporate them in this process?

In the IM Catalan program, one observed different ways to do it. Parents were encouraged to accompany their child's playing, in case of some musical training or

adapting this collaboration to single characteristics. They were invited to observe the lessons and to check at home the aspects to be improved, such as postural, technical, or musical expression, becoming a full-time teacher assistant. Last, we should ask parents for a continuous emotional accompaniment, encouraging practice and congratulating successful goals. One can conclude that instead of waiting for a violinist at the exit of the tunnel, parents are invited to understand their child's music education as a work in progress in tandem - we could say a family project.

Figure 3 Two teachers from Conservatoire of Tarragona with a violin student. Retrieved from https://www.diaridetarragona.com/tarragona/Los-conservatorios-de-Reus-Tortosa-y-Tarragona-implantan-un-programa-pedagogico-nacido-en-Finlandia-20180212-0032.html

Finally, I report one event which illustrates Prof. Szilvay's passion, and love for teaching, undoubtedly a key point of the Teacher Profession. At the very end of a long session, occurred that Prof. Szilvay asked to see a girl who could not play a crotchet and eight notes two weeks before. She came to the picture and then she played successfully eight notes within a pulse of crotchets and Prof. Szilvay concluded: "Bravo, bravo. Wonderful, greetings to her. I'll sleep better now. She was in my mind for two weeks, really. So many thanks." (Prof. Szilvay IM Catalan program).

Results, Conclusion and Development Paths

The main ideas and arguments that emerged from the observation of the IM Catalan program and from the interviews to participants are detailed below.

1. All teachers' participating in this research point out that for the first time their pedagogical activity had been observed from a training view. Never before, neither in

their formal pre-service training nor in their professional training, critical observation of their professional practice activity occurred. It is noticeable that, parallel to this fact, they consider self-experience, observation, and reflection in practice (Schon, 1983) core parts of their knowledge as an instrument teacher.

2. Teachers highlighted the uniqueness of being observed by an expert and obtained guidance in real time during the lessons with their own students. Expert's exemplification with pupils were found very valuable, as it is pointed out in Ruokonen (2018) research.

3. Participants remarked the importance of extending the program for a period of time because this plan allowed them to observe the evolution of the students lesson to lesson and how to react in front of each of them. Teachers were also able to observe their own evolution and the acquisition or improvement of certain skills.

4. Teachers saw as key aspects of students, family, and the teacher's motivation, those related with the sort of atmosphere you have to create when you are teaching. Teachers are highly demanding on basics and constantly looking for a right balance between short- and long-term goals. Achieved goals are acknowledged in order to strengthen children's self-confidence. Teachers are looking for suitable goals appropriate to a child's stage of development, counting on both cognitive and motor skills abilities, and on their personality and emotions. Teachers have to have a big toolbox to help students find their own way to overcome each step successfully. Teachers who are highly involved in their job assume responsibility in children's musical development, being capable of putting themselves at the level of their students. Pupils, families, and teachers who are highly motivated show a higher level of music education in this demanding, but also friendly and enjoyable, learning environment.

5. It is important to remark at the agreement that distance teaching couldn't ever replace face to face instrument teaching ground levels. But distance coaching could be a very useful tool in teacher training in practice because it deals with professional skills in a real context. Particularly in Colourstrings approach, it is an inestimable complement to face to face teacher training because of the importance given to the students considering them holistically.

As a closing statement one can notice that IM is a successful ICT-enabled education program in the field of violin pedagogy based on video lessons plus videoconferencing. We can refer to this as a mixed model of instrument teacher's training based on video observation and learning in practice (Schon, 1983).

On the one hand, participants enhanced and increased their awareness and knowledge of Colourstrings approach of violin teaching. On the other, getting closer to the expert's thoughts and ways to do it, they learnt how to be proficient by creating a

good atmosphere in the lesson that has continuity at home practice. Abilities that one can develop in a much more focused way in IM program than in any other training context.

It is observed that the IM Catalan program include a set of core features critical components of effective Continuous Professional Development (CPD): (a) content focus based on specific training, (b) active learning with active teacher's participation, (c) coherence according to curriculum and with time for practice and reflection, (d) duration sustainable in the time, and (e) collective participation with teachers of the same subject and institution (Desimone, 2009).

IM model of teacher training suggests to us potential applications in the field of violin pedagogy and teacher training, in CPD and in the stages before professionalization. It would be recommendable to offer students mentoring programs in the transition from higher education to the professional world, as we see in other professions. Distance coaching would be a priceless solution in this direction.

It can enable us to link expert's practical knowledge to their long-term plan in their initial years of teaching. No need to say that saving moving costs allows us to work easily with international renown teachers, and this represents for us a unique opportunity to effective global transfer of knowledge.

To conclude, I think that there are many reasons, as outlined above, to contemplate IM project and its potential applications for improve instrument teacher training, and consequently, it will contribute to valuing music teacher profession as it is demanded by recent research in Spain (Batista, 2020) and internationally (Burnard, Georgii-Hemming & Holgersen, 2013).

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Figure 3. Ferré, P. (Photographer). (2008, February 2). Diari de Tarragona. Two teachers from Conservatoire of Tarragona with a violin student [digital image]. Retrieved from https://www.diaridetarragona.com/tarragona/Los-conservatorios-de-Reus-Tortosa-y-Tarragona-implantan-un-programa-pedagogico-nacido-en-Finlandia-20180212-0032.html

Paul Rolland's String Pedagogy: Teaching the Basics

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Abstract: When Paul Rolland created his pedagogy, his first intention was to provide teachers with a set of tools that could be applied to any method, enhancing their understanding on how to teach technique from the first stages solidly. This flexibility also brings some difficulties when trying to include Rolland's resources in a syllabus. This paper focuses on Dr Forcada's approach to teach basic principles to his students, based on Rolland's Pedagogy, namely: Posture, Sound, Intonation and Rhythm. Aims will comprise the promotion of a healthy bow and violin hold by avoiding excessive tension through motions; understanding of tone production and its connection with more complex bow strokes; promotion of accurate intonation, taking into account left hand ergonomics and their relationship with intervals; and finally, Rolland's ideas on pulse and rhythm training.
***Keywords*:** *Rolland Pedagogy, violin technique, string methods.*

Introduction

Providing young string players with a solid technique is a long process that involves the acquisition of numerous technical and musical skills. Some basic aspects should arguably be prioritised, not only at the beginning, but also at any stage of the learning process, namely: Posture, sound, intonation and rhythm. However, the first steps are of paramount importance, as it is when teachers set up the foundation that will determine students' evolution over the following years. In this article, I will illustrate how I organise the teaching of these basic aspects, based on my experience of more than 30 years, under numerous influences, where Rolland Pedagogy has played a major role. Other influences that have helped me to create a more eclectic approach to violin teaching include: Zweig's pedagogy, the Suzuki Method, Kato Havas' New Approach, the Franco-Belgian School and the field of Motor Learning[61].

When Paul Rolland created his string pedagogy project at the University of Illinois, his first intention was to provide teachers with a set of tools that could be applied in different contexts, enhancing their understanding on how to solidly teach technique from the first stages. This flexibility also brings some difficulties when trying to include these resources in a syllabus. Understanding the basic aspects and their influence on the other elements of the technique might help professionals to organise their own teaching in a meaningful way. In the following paragraphs, I describe the way I organise the teaching of the four-abovementioned basic technical aspects[62].

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[61] For more information on my research on Motor Learning and Violin Pedagogy, see my doctoral thesis (Forcada, 2015).

[62] Since Rolland's main work *The Teaching of Action in String Playing* (Rolland, 1974) presents in detailed his pedagogy, most references in this article will be from this book.

Posture

It is commonly accepted that adopting a good posture is essential for any string player, not only for the development of a correct technique, but as a way to minimise the risk of possible injuries. Due to its complexity, the following question arises: What can prevent us from adopting a good posture? One of the main reasons why performers struggle with posture is lack of awareness of our position in space. Besides, adopting a visually correct posture does not necessarily lead to a comfortable performance. Since one of Rolland Pedagogy's main goals is for performers to play free of excessive tension 'through the use of good motion patterns, and freedom from excessive tension' (Rolland, 1974, p.9), it might be worth considering it.

Literature on Motor Learning can also provide us with some additional clues to plan our teaching practice in an efficient way. In this way, experts Target and Cathelineau (2002) state two steps in the acquisition of motor skills: They highlight the role of two types of indicators that help performers to know when we are doing right: External and internal indicators. Firstly, eyes and ears check that muscles are performing the motion appropriately (external indicators). Secondly, and after a certain number of accurate repetitions, it is the kinaesthetic channel that provides us with sensations associated to the correct performance. This supports not only the role of the repetitions in the acquisition of motor skills, but also the so-called guided practice (Forcada, 2015). Teachers use external marks, such as stickers and physically manipulate the students in order to facilitate good quality motions. I will continue below with some ideas on how I work on the stance as well as the violin and bow holds.

Stance

Rolland emphasises the role of the whole body on the performance of any motor skill. Consequently, awareness of the different parts of the body will facilitate the foundation for a solid posture. This can be specially developed at the group lesson, starting with a warm up that includes not only motions but also stretching, bouncing knees, dynamic balance with lateral swinging and the *case walk* (Rolland, 1974). This will provide students with an improved sense of their whole body and a better balance, while getting muscles ready for action.

Violin hold

As many other teachers, I am a believer in introducing students to violin hold by placing the instrument high in the air, above the head, with the left arm completely extended.

This is what Rolland called “the statue of liberty”, after the evident similarity with the famous statue in New York. However, beginners might benefit from some previous work in rest position, that is, with the violin placed under the right arm.

Tapping on the top of the violin box with the left hand, as well as left hand *pizzicato,* are useful ways to develop multiple skills. These exercises promote a healthy posture, eliminating excessive tension and undesired bad habits on the left hand. They are also a good way to introduce more sophisticated techniques, such as vibrato or shifts. Students can also swing the left arm while plucking the strings in order to prevent them from static left elbow. Shifting can be introduced through the *rocket (glissandi* back and forward), as well as plucking or tapping with the left hand in different parts of the fingerboard.

Finally, in order to facilitate the placement of the left hand fingers in first position, Rolland suggests the use of two markers for the first and third fingers. An additional sticker on the high dot (an octave higher than the open string) will assist the student while shifting to the natural harmonics.

Bow hold

There are several ways to introduce beginners in the bow hold. In the Suzuki Method children start placing the thumb under the frog, while Rolland suggests the possibility of an early bow hold, where the right hand is placed slightly higher in the bow, between the frog and the balance point. Since most of my students are aged 3 to 5 when they start, I generally use the Suzuki way, although I also like using Rolland’s early bow hold in other situations, as when trying to transmit the sensation of a light and fast bow stroke in baroque pieces. The final bow hold in Rolland is close to the Franco-Belgian school, which is how I teach my students as they grow up.

In order to reinforce the bow hold, I combine multiple exercises with the bow on the air as well as on the violin. I find particularly useful what Rolland called *Rock and Roll*: Rocking the hand and rolling the arm up and down. This exercise can be done with just the bow hanging from the left little finger, or with the bow on the strings and also in different zones (frog, tip and middle). Tapping the stick at the frog with the right fingers also helps to avoid unnecessary tension when grabbing the bow.

Once students learn how to hold the bow, the *shadow bow* allows them to try rhythms with the bow resting on the left shoulder and inside a cardboard roll. This way, students can fully focus on the right hand, without any additional difficulty on the left hand.

Sound

The mechanical aspect of the sound is based on four interrelated parameters, as follows: Pressure, speed, bow-length and contact point.

There is a pressure of the bow on the string, but also of the arm and the hand on the bow. Rolland suggests that sound control should come from the large muscles, reserving small muscles for other tasks.

Although all the above mentioned parameters have an impact on the volume, different situations require different management of the parameters. In order to get a louder volume, it might be simpler for beginners to increase the pressure of the bow on the string. However, a longer and faster bow might achieve a similar result with a tone that rings more and projects further. When students start playing in high positions, they should show understanding on the relationship between the contact point, the positions and the quality of the tone, by moving the bow towards the bridge in the highest positions.

Rolland claimed that beginners should start by playing short bow strokes toward the balance point, expanding later on the bow towards the tip and finally towards the frog. One of the main innovations of his pedagogy is the so-called *flying pizzicato*. The right index plucks the string with a rotary movement from the right arm, which draws a sort of circle on the air before coming back to the starting position on the string, ready to repeat the motion. This can be followed by a similar pluck of the string by the bow, around the balance point. Gradually, the student can expand the length of the bow, keeping the rotary movements, what might facilitate the production of a deep and rich tone. This exercise can be followed by variations in different parts of the bow and the inclusion of rhythms. In addition to the promotion of a tone, this technique is also the origin of more sophisticated bow techniques, such as the spiccato, retakes and chords[63].

Intonation

More than relying on the ear to correct the notes that are out of tune, students will highly benefit from a set up that takes into account the morphology and balance of the left hand. The order followed to place the fingers can facilitate a good set up, where the performer has more chances to play in tune. Rolland emphasises the importance of the octave (open string and either the third finger for violas and violins or the fourth finger for cellos). Playing an open string creates a reference to the student in terms of both sound and intonation. In violins and violas, the third finger also facilitates the correct shape of the left hand as well as the intonation. Next to the octave, the sixth (open string plus first

[63] A clear explanation of Rolland's basic principles on both the violin and the bow holds can be found in Rolland (1960, pp. 2-6).

finger) will establish the foundation for the placement of the other fingers (high/low second, first or four). Following this order, I elaborate short exercises to practice sound and intonation, tailored to the characteristics of each piece.

In order to consolidate the intonation of a certain pattern, I ask my students to practice mechanisms on the different possible combinations of fingers starting with the first finger (1234-1243-1324-1342-1423-1432). These mechanisms can be practised at different speeds, with the support of the metronome, with and without slurs, as well as using different bow strokes. All these variations allow students to work on different technical aspects in a simple way, such as intonation, sound, speed, hand coordination and bow distribution, to name but a few.

Rhythm

Rolland was fully aware of the key role of rhythm training in the development of any young string player: 'Without good concepts of rhythm and pulse, the player's movements become confused' (Rolland, 1974, p. 43).

For Rolland, the first step in rhythm training is associating rhythm with action, maintaining movement during the rests. There are numerous ways for young students to practise both rhythms and the pulse. They can clap, stamp on the floor; play with the bow inside the cardboard roll, resting on the music stand or on the string; in open strings, scales or simple melodies. Initially, rhythm and pulse should be practised separately. Then, students might be able to practise them simultaneously (for example: Stamping the pulse on the floor, whilst playing rhythms on the instrument). Group lessons are an ideal scenario to offer new possibilities, as all children can play together or be divided into a few groups, where each group plays the rhythm or pulse in different ways.

Conclusion

Posture, sound, intonation and rhythm are all an essential part of every string player's training. Teachers have plenty of tools at their disposal, coming from different methods and pedagogies, to provide their students with a solid foundation. Among all these tools, Rolland's ideas stand out for their adaptability to any context and student, allowing professionals to tailor their teaching to each situation.

More than memorising the exercises presented by Rolland, I would like to stress how important understanding those principles governing his pedagogy is, as a way for teachers to adopt a meaningful approach. Understanding might take longer than simply reproducing patterns and exercises provided by others, but will allow teachers to keep

progressing through this fascinating journey of educating the new generations of young string players.

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PART 4

Mind, health and well-being

String musicians' health problems: bridges between clinical research, teaching and instrumental practice

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Abstract: Literature has shown a high prevalence of playing-related pain and functional disability among musicians. This seems to have a significant negative impact on the musicians' performance and quality of life, sometimes leading to the end of musicians' career. Musculoskeletal and neurological disorders are common, namely in string musicians, however the specific health condition and the aetiology and location of the pain vary by instrument. About 65-89% of the string musicians will develop playing-related pain and functional disability during their life. Several factors have been associated with the development of musician's health problems, although literature is still scarce. Recent studies have focused on the potential predictive factors of playing-related pain and functional disability. These findings could be a guide for clinicians, music teachers and musicians in the prevention of playing-related pain and disorders. In this article we will discuss the main musicians' health problems, particularly in string musicians. Why do musicians often develop playing-related pain? How to prevent and treat musician's health problems? Why do musicians need a specialized clinical approach? How can preventive measures improve the musician performance? How can teachers help their students? How can musicians help themselves? How to build bridges between researchers, clinicians, music teachers and musicians?
Keywords: string; musicians; health problems; prevention; treatment.

Introduction

Playing a musical instrument, specially at a professional level, requires fine motor skills and high neuromotor control (Steinmetz, Seidel, and Rigotti, 2012; Kok, Groenewegen, and Huisstede, 2018). The literature has shown that musicians may experience a wide range of playing-related health problems, which may be related to or impair musical activity (Ackerman, Driscoll, and Kenny, 2018; Kochem, and Silva, 2017; Steinmetz, Scheffer, and Esmer, 2015; Silva, Lã, and Freixo, 2015; Kok, Huisstede, and Voorn, 2016; Nygaard, Roessler, and Eichberg, 2013; Leaver, Harris, and Palmer, 2011). Playing-related pain and functional disability may have a significant negative impact on the musicians' performance and quality of life (Bragge, Bialocerkowski, and McMeeken, 2006; Abréu-Ramos, and Micheo, 2007; Chimenti, van Dillen, and Prather, 2013; Paarup, Baelum, and Holm, 2011; Kaneko, Lianza, and Dawson, 2005; Guptill, 2011).

String Musicians Health Problems

Previous studies reported a 67% lifetime prevalence of occupational-related injuries among string players (Middlestadt & Fishbein, 1989). Recent studies have shown even

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higher prevalence, demonstrating that about 65-98% of the string musicians will develop playing-related pain and functional disability during their life, with a 12-month prevalence of musculoskeletal disorders ranging from 63% to 97% (Kok, Huisstede, and Voorn, 2016). This represents a huge problem not only because of its high prevalence, but because it has a significant negative impact on the musicians' performance and quality of life, sometimes leading to the end of musicians' career (Guptill, 2011).

Why do musicians often develop health problems?

To achieve a performative high level, musicians need to study several hours a day for several years (Ackermann, Driscoll, and Kenny, 2012; Kok, Haitjema, and Groenewegen, 2016).

Several factors have been associated with the development of musician's health problems, although literature is still scarce. Recent studies have focused on the potential predictive factors of playing-related pain and functional disability and showed a correlation with biomechanical risk factors, perceived physical environment risk factors (such as incorrect or sustained posture, bad ergonomic conditions), instrument weight and average number of hours played per week, length of rehearsals and performances, lack of rest breaks in rehearsals and individual practice, repetitive movements, instrumental technique and pedagogical style, insufficient warm-up, technical flaws, pressures from self, peers or educational institution, lack of exercise, poor nutrition, competitiveness, poor injury management and personality traits (extreme perfectionism, somatization tendencies) (Jacukowicz, 2016; Steinmetz, Scheffer, and Esmer, 2015; Kaufman-Cohen, Ratzon, 2011, Heikkilä, 2012, Chan, Ackermann, 2014). Furthermore, a systematic review described consistent results indicating that previous musculoskeletal injury, music performance anxiety, high levels of stress, being a female and playing a stringed instrument seemed to be associated with more musculoskeletal disorders (Baadjou, Roussel, Verbunt, 2016). Regarding music teachers, Fjellmann-Wiklund found differences between genres. Neck and shoulder pain in female music teachers was correlated with high psychological demands and teaching at multiple schools, whereas in male music teachers, it was associated with lifting, playing guitar and low social support (Fjellmann-Wiklund, 2003).

However, no conclusions could be made on causality, since most current data represent cross-sectional associations. Our research group is conducting observational prospective studies to better understand predictive factors. These findings could be a guide for clinicians, music teachers and musicians in the prevention of playing-related pain and disorders and identification of musicians at higher risk.

Main string musicians' health problems

The main string musicians' health problems include musculoskeletal (Stanhope, and Milanese, 2016; Silva, Lã, and Freixo, 2015; Bragge, Bialocerkowski, and McMeeken, 2006; Kok, Huisstede, and Voorn, 2016), neurological (Aránguiz, Chana-Cuevas, and Alburquerque, 2011; Altenmüller, and Jabusch, 2010), auditory (Schmidt, Pedersen, and Paarup, 2014; Schink, Kreutz, and Busch, 2014), respiratory (Hanon, Rongé, and Potvin, 2014; Fuhrmann, Wijsman, and Weinstein, 2009), dermatological (Crepy, 2015; Vine, and DeLeo, 2011; Jue, Kim, and Ro, 2010; Gambichler, Uzun, and Boms, 2008), and psychological conditions (Kenny, and Ackermann, 2015). Neurological and musculoskeletal disorders are the most common problems, and they are usually related to or impair musical activity (Ackerman, Driscoll, and Kenny, 2018; Kochem, and Silva, 2017; Steinmetz, Scheffer, and Esmer, 2015; Silva, Lã, and Freixo, 2015; Kok, Huisstede, and Voorn, 2016; Nygaard, Roessler, and Eichberg, 2013; Leaver, Harris, and Palmer, 2011). Studies comparing musicians' groups showed that string musicians appear to have the highest prevalence of pain. The specific health condition and the aetiology of the pain vary by instrument (Ackerman, Driscoll, and Kenny, 2018; Kochem, and Silva, 2017; Steinmetz, Scheffer, and Esmer, 2015).

Some of the most common string musicians' health problems are epicondylitis and other tendinopathies, myofascial pain syndrome or muscle contractures and unbalances, postural disorders, temporomandibular disorders, nerve compression syndromes, thoracic outlet syndrome, musician's focal dystonia (usually of fingers), among others (Demaree, Wang, and Lin, 2017; Leite, Souto, and Márcio, 2017; Lee, Park, and Yoon, 2013). Sometimes, there is more than one disorder, and all of them should be evaluated and addressed. For example, in violin or viola players is common to find neck myofascial pain and shoulder tendinopathies with associated orofacial and temporomandibular pain and dysfunction, headache, tinnitus or other symptoms related to the posture and artistic gesture that are required to play the instrument. Regarding musician's focal dystonia, it is relatively more common among guitar players (concerning all kind of string musicians), and it may affect right or left fingers.

When these disorders happen and if they are not properly or early addressed, musicians frequently develop anxiety and depression related to the functional disability associated to the physical problem. Usually, it is described a sensation of frustration as musicians feel progressively more unable to play their instrument as they were used to, or they are asked for or they wish to.

Pain and other symptoms/signs

Pain is the most common symptom described by string musicians, and the location of pain depends on the specific instrument played (Ranelli, Straker, and Smith, 2011). There seems to be a predominance of symptoms in the neck and left upper limb in violinists and violists, whereas cellists and bassists usually report injuries in the right upper limb, neck and low back. Overall, in previous studies, the neck, lower back, shoulders, and hand/fingers were most frequently affected (in a descendent order for most studies) (Ranelli, Straker, and Smith, 2011). In guitar players, left elbow and wrist are the most affected regions (Middlestadt, and Fishbein, 1989; Lee, Park, and Yoon, 2013).

During ESTA Conference, it was performed a cross-sectional study. All ESTA Conference participants were invited to fill in an anonymously questionnaire. From a total of 51 who agreed to participate, 86% reported to already had playing-related pain, being that 33% presented pain at the moment of the survey. Therefore, our results corroborate the high prevalence of pain among string musicians. Regarding pain locations, neck, lower back and shoulders were the most common locations, as demonstrated in previous studies.

Although pain is a frequent complaint, musicians may also describe other symptoms related, such as: weakness, fatigue, aching, annoying, burning, cramping, numbness, stiffness, tingling, muscle tension, hypersensitivity, involuntary movements, and lack of fingers or hands control.

Treatment and Prevention strategies for string musicians

How to prevent and treat string musician's health problems?

For the prevention it is important, firstly, to identify eventual potential risk/predictive factors of pain or disorders development. Several factors have been described in literature, as mentioned above. The medical doctor should address intrinsic and extrinsic risk factors and evaluate if there are some modifiable risk factors. He should define a preventive program considering those factors and the individual and contextual characteristics of each musician.

When pain occurs, what should musicians do?

When a disorder is already developed or musicians feel pain or other symptoms, it is crucial to search for specialized health services as soon as possible to perform a holistic evaluation in order to stablish the diagnosis and treatment plan, considering a biopsychosocial approach. Depending on the specific problem, the medical doctor will define the treatment plan, which may include some medical interventions using the musical instrument, education and advice, an exercise program individually prescribed, ultrasound-

guided interventions (ideally performed by an interventional physiatrist), performance optimization and ergonomic considerations, some physical therapy, occupational therapy or speech therapy modalities, pharmacotherapy, orthotics, among others.

What are the barriers to improve musicians' health?

Unfortunately, most musicians seek medical care too late or only have access to generalist health care which is usually insufficient. Although in some European and American countries, performing arts medicine is a medical specialization field already widespread, globally there is a lack of specialized health care worldwide. In Portugal, for example, we have recently created the first center dedicated to musicians and other performing artists.

It is important to discuss why most musicians still look belatedly for health care. Some because they are simply afraid of judgement by their peers or hierarchical superiors (conductors, artistic directors, …) and try to keep to themselves and from others their own problems. There is still the myth that a musician who develops an injury will always have limitations and will not be able to reach his performative peak. Fortunately, nowadays we have clinical tools to change this paradigm. On the other hand, there are also some musicians who wrongly believe that feeling pain is normal. In fact, it is not normal to feel pain when playing the instrument. If it happens it is important to look for specialized medical cares to avoid cumulative structures damage and worsening of functional disability and limitation of the performance' quality. A correct and attempt diagnosis and treatment has proven to significantly improve the prognosis and reduce the risk of recurrence.

Why do musicians need a specialized clinical approach?

Similarly to athletes who need specialized medical care in sports medicine, musicians also need specialized medical care in performing arts medicine. Most disorders developed by musicians are related to or impair musicians' performance. Besides that, there are some problems, such as musicians' focal dystonia, that are only noticeable when the musician is playing their instrument. Therefore, the medical approach should include performance evaluation and optimization.

Bridges between clinical research, teaching and instrumental practice. How to build bridges between researchers, clinicians, music teachers and musicians?

When addressing musicians' health problems, it is important an interdisciplinary approach centred in the musician. For music students, the music teacher should be part

of this team since the approach of the musicians' health problems should not de dissociated from musicians' performance and demands. Therefore, teachers should have an active role in the treatment plan since it may be necessary to adjust some technical gesture, to review the repertoire played at that moment. Teachers perception about the student performance, difficulties and limitations is also important information for the medical doctor who treat the musician since it may help to better guide the diagnostic and treatment process. Teachers are also "a model" for their students so they should be a good example in matters like health care and good playing habits. Thus, teachers also play an important role in the prevention of pain and disorders among their students, not only giving good advices about study routines, but also showing it with their own experience. They are the first line, the ones who are regularly evaluating students' performance. Thus, they should be aware of some pathological signs (such as abnormal elevated shoulder, exaggerated muscle tension, involuntary movements, postural changes or errors) and to know when to refer to medical care. For that it is crucial that teachers themselves have some education on musicians' health and ergonomics. The inclusion of courses concerning musicians' medicine in the curriculum of music students, at high school / university level, is a vital need to capacitate the future performers and music teachers about these health problems, how to avoid or how to deal with it in the best way.

In conclusion, it is highly needed to create strong synergies between researchers, clinicians, music teachers and musicians to improve musicians' health, performance quality and quality of life.

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Problems of the formation of integration competencies of pupils of children's music schools in Russia

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Abstract: Additional musical education for children in Russia covers a large contingent of schoolchildren and has a long history of development. In institutions of additional education, they study for various purposes: both for general development and for receiving initial musical professional training. In contrast to specialized music schools for gifted children, students of the system of additional music education (and their parents) during their studies can change their motivation to study music and, accordingly, the goals of learning and the further trajectory of their musical development. The multitasking nature of music education requires the system of additional music education to create pedagogical conditions necessary for the formation of universal competencies. According to the author, participation in cultural and educational projects increases the motivation of students to study music, allows to create pedagogical conditions that differ from traditional forms of education in a Russian music school, and to form integration competencies. To the group of integration competencies, Russian pedagogical scientists include the competence of structuring knowledge, situationally adequate updating of knowledge, expanding and increasing accumulated knowledge. The presence of these competencies is necessary both for the continuation of the professional career of a musician, and for the successful development of a personality in another specialization.
Keywords: competence; competence-based approach; musical education; project method.

Description of the problem

Currently, music is one of the leading areas of extracurricular education received by schoolchildren. According to reports from the Ministry of Culture of the Republic of Tatarstan, less than 2% of students pursue their musical education after school. This state of affairs cannot be considered unequivocally as a negative situation, because the development of society and the economy does not require a large number of professional musicians. However, the existing ratio of professionally oriented students and those who will not continue their studies should be taken into account when setting goals, objectives and determining the pedagogical conditions of music education of the first stage.

The statistics obtained by the author, based on the results of city competitions in Kazan in 2008-2009 and in 2011-2012, shows a tendency towards a decrease in high school students: the safety of the contingent was 50 percent or less. Since not all students participate in competitions in the senior grades, and the general statistical picture may differ, I requested and processed data on the string-bow specializations of Kazan children's music schools for the same period, and carried out a comparative analysis of the data. This trend can be traced in the general statistics of music schools in the city of Kazan: half of the students stop playing music after primary school.

The data obtained suggest that teaching in a music school is focused primarily on

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the transfer of specialized, professional and performing skills from teacher to student. In most cases, the learning process is focused on the formation of basic knowledge and skills, in combination with tasks for reproducing what was shown by the teacher. For this reason, many students are not ready to apply knowledge and skills even in typical situations - competent independent homework, sight-reading plays of a low level of complexity. When independently getting acquainted with a new task, students without the help of a teacher are often unable to determine the level of complexity of the same work and its compliance with their own performing skills. They cannot differentiate between known and unknown elements of the musical text, since they are accustomed to playing with the teacher's show and do not try to delve into the meaning of the designations and systematize them. Accordingly, they are not aware of the boundaries of their own knowledge and cannot expand and effect it. The consequence of this approach is a large dropout rate of those students who do not plan to proceed with their music education in specialized institutions of the middle and higher level. Cases when music lessons are relevant for a student throughout his studies at a music school and after graduation – since it adds to his personal development, in combination with other disciplines studied by him – contribute to the understanding comprehension of the world around him and self-actualization. Unfortunately, at the present time they are more often the exception than the rule.

The relevance of research

In the conditions of the modern educational space, saturated with various sources of information, as well as in the context of educational paradigms focused on the formation of certain competencies, the question arises: how relevant is additional music education for successful personality development nowadays?

Analysis of materials from all-Russian and international conferences, organized by the Institute of Continuing Professional Education, shows that in music education of performing specializations, project forms of work are widespread, but they are used mainly as a form of extracurricular activities and solve, firstly educational tasks. The works of teachers of music schools, presented in the materials of the conferences and generalizing their practical experience in organizing projects, are mainly descriptive in nature; tracking and analysis of the educational results of projects is not reflected. Thus, contradictions have developed that determine the relevance of the study - between the spread of project forms of work in children's music schools and the insufficient level of their research in this type of education.

Methodological base of the research

The methodological basis of the research is based on the providing of modern pedagogical concepts and research that implement the activity[66], personality-oriented[67], and competence-based approaches in general education[68] and music education[69]. The research develops the principles of problematic[70], concentrated[71], developing[72] and contextual[73] learning, based on the principles of humanism, cooperation, creative activity, success and social significance.

Practical forms of work within the research

In the experimental part of the research, it is planned to test several models of organizing a musical educational project in the form of international summer schools: "Musical Germany" and "Play with Joy". The student admission and exit tests, conducted within the framework of projects are not evaluative in nature, as in school, but are of a research nature instead.

Purpose of the study

The main goal of the study are: to identify the difference in the pedagogical conditions of

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the traditional process of teaching and learning within the framework of project activities; to determine the basic pedagogical principles and scientific approaches to the organization of project activities of students of music schools and colleges; to develop and substantiate a model for organizing a musical educational project.

Basic principles that distinguish the project «Musical Germany»:

- The principle of concentrated learning is used- the method of thematic immersion- when a student studies one topic in various activities, the topic is considered from various aspects - theory and practice, different pedagogical approaches and cultures. The immersion method is based on three principles: pleasure and relaxation in the classroom, the unity of the conscious and subconscious, and two-way communication in the learning process.
- At the Summer School, participants taking part in an interesting and interactive form get acquainted with the musical culture of Germany, play music together with their peers and professional musicians.
- The leading teachers of the project are invited professional musicians from Germany who have an idea of the system of music education in the post-Soviet space and in Germany, who are able to become agents of innovation.
- The result of their studies will be a participation in the gala concert of the school-festival, as part of a combined chamber orchestra performing music by German composers.
- The project "Musical Germany" aims at the development of predominantly vocationally oriented students.

The concept of the summer school "Play with Joy"

"Play with joy, play for the soul." We want people to understand that the instrument can be practiced not only for the profession, but also simply out of love for music. Only with such an attitude to classes can one develop competencies that will be useful not only for continuing the professional career of a musician, but above all for independent study, or self-realization in another field of activity. The organization uses the experience of the international project Oppstryk Finnmark (Norway).

The main principles of this school:

- inclusiveness: everyone is invited and everyone plays together, regardless of age and playing skills;
- lack of competitive selection: everyone who plays a string instrument can join;
- 4 categories of participants in the combined orchestra: students of music schools, amateur musicians, teachers of music schools and professional musicians;

- formation of the compositions and repertoire of ensembles depending on the age and level of training of the participant.

The format of the project of the Summer School "Play with Joy" will expand the performing experience of professionally oriented students, as well as give meaning and purpose to independent studies both for children and adults who, for various reasons, have not become professional musicians or do not plan to become, but have data and interest in music. The role of the school's teachers and conductor is to inspire music lessons, guide and gently correct technical deficiencies, to help the student realize creativity and feel part of a larger community of musicians

Novelty, theoretical and practical significance

According to the author, participation in cultural and educational projects increases the motivation of students to study music, allows to create pedagogical conditions that differ from traditional forms of education in a Russian music school, and to form integration competencies. The essence of the design method and the ways of its application in the educational process are sufficiently studied in pedagogical science. In foreign music education, the project performing activity of students of music schools and university students is part of educational activities, which is expressed in the system of credits (credit units).

However, in the Russian music education practice of children of performing specializations, the educational potential of project forms of work is not sufficiently demanded, pedagogical conditions that contribute to the formation of integration competencies of participants in music projects have not been formulated. Analysis of scientific literature and existing practice has shown the need to determine the essence of the development of integration competencies in additional music education, to identify the role of project activities in its development, and to determine the pedagogical conditions of formation. At the same time, the problem of the formation of integration competencies is insufficiently developed, at least in two aspects: in relation to additional musical education of children and in connection with the potential possibilities of using project forms of activity in the educational process of children's music schools; the need for theoretical generalization of practical experience.

Manifestations of this group of competencies in music teaching, highlighted by the author:

- the ability to establish interdisciplinary connections - the application of knowledge gained on the subjects of the theoretical cycle when playing an instrument and vice versa;

- understanding the boundaries of one's own knowledge and skills, the ability to isolate what is known in the total volume of a new musical text, to determine one's own deficiencies / gaps in knowledge;
- developed skill of music sheet reading;
- developed skill of musical co-creation (playing with a partner, playing in an ensemble, playing under the direction of a conductor);
- high motivation for self-study;
- high readiness for the practical application of their own skills / for public playing.

Carrying out a study on the topic "Pedagogical conditions for the formation of integration competencies among participants in musical and educational projects" has the potential for innovation. The paper presents a new scientific idea within the framework of well-known scientific pedagogical concepts that implement the principles of problem, project, developmental learning, competence, activity, and personality-oriented approaches, which consists in increasing the educational potential of extracurricular musical project activities by creating certain pedagogical conditions.

The theoretical significance of the research lies in substantiating the pedagogical conditions that contribute to the formation of a group of integration competencies (structuring knowledge, situationally adequate updating of knowledge, expanding and increasing accumulated knowledge) within the framework of project activities in the field of music education.

The practical significance of the study lies in the creation of a normative model of a musical and educational project that contributes to improving the quality of education in the system of additional education for children

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How a knowledge of neuroscience can be used in violin studies, and a glimpse into the past.

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Abstract The first information about using neurosciences in music pedagogy arrived in Estonia thanks to the friendship between our violin teachers and the scientists of St Petersburg Conservatory and Moscow Conservatory about 50 years ago. The good knowledge of Russian language has allowed us to read the main scientific papers of the Soviet Union neurophysiologists, especially Nikolai Bernstein`s (1896–1966) and Pyotr Anokhin`s (1898–1974). Vladimir Alumäe (1917–1979), the leading professor of Tallinn State Conservatory (nowadays Estonian Academy of Music and Theatre) was the first to add some basic information about neurosciences to his didactic's lectures for students. Alumäe`s article "Neuropsychological Mechanisms and Higher Mastery in Violin Playing" was published in Estonian language in 1981, unfortunately only after his death.
The first part of my paper concentrates on the certain part of Nikolai Bernsteins's theory (Bernstein, 1990) – two periods of building the skills of the movements (translated also the construction of movements.) Bernstein was a good amateur cellist as well, so he was quite familiar with our speciality problems and achievements. He studied thoroughly how the Central Nervous System can control the posture and movements. The second part of my lecture consists of Pyotr Anokhin's theory (Anokhin, 1978) of the model of the functional system and the stages of behavioral act. I will continue my presentation telling how Vladimir Alumäe explained this theory in connection to violin playing. Alumäe stated that a violin player can be also observed as a functional system whose action should be always directed to the receiving of the recommendable result. This theory was addressed mostly to the high-level players but nowadays we can extend it to many different levels as well. The main question in my paper is: why should violin teachers know about the neurosciences and how can we use this knowledge in violin teaching.
Keywords Neuroscience

Foreword

I have worked for decades as a violin teacher at the Tallinn Music High School. In addition,I am the lecturer at the Estonian Academy of Music and Theatre teaching the history and didactics of playing string instruments. Therefore, through those decades I have also been following the development of methodological thought in our field. Below, I will try to provide a justification for choosing this topic. As you can see, I have included the phrase 'a glimpse into the past' in the title, because I would like to show how this issue has been handled in Estonia for many years.

The first information regarding the possibility of involving neuroscience in string instrument pedagogy came to Estonia about 50-60 years ago, thanks to the close contacts that Estonian musicians had with teachers and researchers in Moscow and Leningrad (now St. Petersburg). Proficiency in the Russian language provided the Estonians with the opportunity to read the original research on neurophysiology produced by the Soviet scientists Nikolai Bernstein (1896–1966) and Pyotr Anokhin

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(1898–1974) among others. Vladimir Alumäe (1917–1979), one of the leading professors at the Tallinn State Conservatory (now the Estonian Academy of Music and Theatre), was the first educator to introduce the neurosciences- as they relate to violin playing-into the lectures he gave to his students and the teachers of string instruments in Estonia. Alumäe's article 'Neuropsychological Mechanisms and Higher Mastery) appeared in his 1981 book titled "Thoughts on the Theory and Pedagogy of Violin Playing" which was regrettably published two years after the author's death. Unfortunately, this article has not yet been published in English.

After his resignation from the Rector's position in 1970, Alumäe became the Head of the Department of String Instruments at the Tallinn State Conservatory and held the position until his death in 1979. At that time the work of university teachers also included scientific research. To demonstrate the activeness of the Department of String Instruments at the Tallinn State Conservatory I will present a brief example from Alumäe's report of the 1972/73 academic year: In the years 1970-73, the following problems have been at the centre of the department's research (most of which had already been discussed for several years):Exploring the possible application of research results in the physiology and psychology of activity (related primarily to Anokhin and Bernstein) to better understand the effects of the internal mechanisms of the learning process related to string instruments (the 'hierarchy' of levels and their functions in the central nervous system, the main features of the formation of 'afferent synthesis, the reflexive circle). (Alumäe, 1973 p.1)

Alumäe himself did most of the department's research work on these topics. And with his energetic approach, he also involved colleagues from the Tallinn Conservatory, the Tallinn Music High School, as well as string instrument teachers throughout Estonia.

The academic careers of Nikolai Bernstein and Pyotr Anokhin, the two great figures of Soviet science mentioned in the Alumäe report above, began in the 1920s. Both studied the neurophysiology of activity, among other things. Both defended their PhDs, were members of the Soviet Academy of Sciences, and mutually accepted each other's research. Both supplemented their work based on the development of research opportunities and the political situation (for example, some of Bernstein's works were banned by Stalin at one time). For musicians, Bernstein's name is primarily associated with the establishment of the physiology of activity (*fiziologija aktivnosti*) and the study of the structure of coordination and formation of motor skills, also translated from Russian as construction of movements (*postrojenije dviženij*). Anokhin is better known to us as the author of the theory of functional systems.

The following is a brief survey of some aspects of the research on the development of motor skills, which are not outdated and we should keep in mind when teaching children.

What can we learn from Bernstein's theory?

According to Bernstein, the physiology of activity seeks to explain what living organisms respond to and why, and what needs are met, while always determining the needs for the future. The activity of an organism is defined by a probable prediction of subsequent developments, the resulting activity of which can be determined by taking into account the model of future needs *(model poterbnogo buduštšego).* (Bernstein, 1947)

One of the most important concepts formulated for us by Bernstein is coordination. To achieve coordination, it is necessary to overcome the excess degrees of movement freedom at each stage by means of sensory correction (*preodolenije izlišnih stepenei svobodõ pri pomoštši sensornõh korrektsij).* Bernstein defines motor skills as a coordination structure, which comprises the acquired ability to resolve some type of motor task, in other words – to make the motor task manageable. According to Bernstein, the formation of motor skills consists of a successive chain of different meanings and qualitatively different mechanisms. This development is a meaningful action and no steps should be skipped nor their sequence changed, whereas each stage represents an active psychomotor activity (Bernstein, 1947).

Bernstein divides the entire process into two periods. In the first period, the phylogenetic construction of the action or movement (*postrojenije dviženij*) takes place, i.e. an evolution that moves through the different levels of the central nervous system (ABCDE) “from bottom to the top”. That is, from general large and subconscious movements to subtler ones, gradually decreasing the share of visual control, and moving toward cognitive exactness. In turn, each level has its own coordinative tasks. He defines the first one as the leading level (on the consciously coordinated acquisition of the current task of acquiring each movement by moving from inefficiency to efficiency). When acquiring the movement, a descent to the background level of the same level occurs, where the movement associated with the tasks at this level are adapted and are subconsciously controlled. (Bernstein, 1947)

According to Bernstein, level A starts where the spinal cord and brain meet. Level B includes the transitional area between the brainstem and the cerebellum, which also comprises a small part of level C. Levels D and E are already taking place in the nerve centres of the cerebral cortex.

Levels A and B were labelled by Bernstein as background levels that operate on a subconscious level: level A being responsible for basal muscle tone and level B being involved in achieving muscle plasticity.

Level C is a conscious level, which regulates the accuracy of movements, and is already focused on the senses of sight and hearing. Therefore, it needs to be developed as such – first at the managerial and then the background level. According to scientist, level D is the tool level and level E takes care of the overall purpose of the action. (Bernstein, 1947).Since Bernstein was himself an excellent cellist, he also provided examples from this field. In the case of cello playing Bernstein lists the playing posture andensuring the basic tonality of the movements as being the competence of level A. Level B should ensure the coordinated work of the muscle groups. Level C specifies the quality of one's bow movement, etc. Visual control is also necessary. Level D determines the goal, i.e. which stroke, mood, and character to choose. And level E takes care of the presentation of the mood, the message, and the feeling. (Sild 2013, pp.82-83)

As a motor task becomes more complex (refined, more creative), the process repeats itself. Thus, a kind of uninterrupted circle is formed, with something unnecessary being discarded with each round (starting with the background level), thereby achieving a more optimal result.When applying this to the teaching of violin playing, we see that this "from bottom to the top" type of movements takes place as each new playing technique is acquired. It starts even earlier: from the placing of the violin under one's chin (initially adjusting it, and later not even thinking about it). One basic example would be using a simple bow division. Once we have acquired a technique (skill) based on the tasks of the corresponding level of coordination, smaller corrections (changes in tempo, dynamics etc) take place in the background or at the subconscious level.

A second stage, i.e. the stabilisation stage, is needed to complete the process. This means letting the same movement (technique, skill, etc.) become established, and linking this skill to the ones that already exist, thereby eliminating any superfluous tensions. It also includes observing new skills from another angle (in our field, when learning a new etude-piece-exercise based on the same playing skills), while always keeping Bernstein's famous phrase – 'repetition without repetition' – in mind. What he meant was that repetition is not a tool, but a process of solving an assignment, i.e. repetition at a background level with a constantly new quality, thereby totally embedding the acquired motor virtuosity (Bernstein,1990).

In summary, the acquisition of every motor skill must occur step-by-step, and each new skill must be allowed to stabilise. The acquisition rate can differ, as can the stabilisation period. However, you cannot force the acquisition process by skipping any of the stages. For example, it would be rash to expect a student to deliver an emotionally

high-quality performance when still in the initial stages of learning a technique or section – this would be comparable to painting the roof before the house is even built. So, what is possible? It is possible for a teacher to plan one's work well enough so taht the student is in the best possible form in time for good performances, competitions, exams. This means that after solving a task (the acquisition of a work, plan, etc.), time should be found for a sufficient period of stabilisation in order to ensure a good performance.

What can we learn in our field from Pjotr Anokhin's works?

Pyotr Anokhin has argued that in order to survive, every living organism must consider the anticipated results in order to function, and be able to answer the following questions in advance: What result needs to be achieved? When should the result be achieved? How can it be achieved? And how to ensure that the result satisfies us? By observing any living organism as a functional system with common features, he described the system that ensures its functioning, which we can call the universal architecture of a functional system. (Anokhin, 1978)

A parallel can be found in the first half of Alumäe's article (1981), which is cited above, i.e. there is reason to view violinist-performers as functional systems; to observe the extent to which the theory of functional systems applies to them. The main feature of a functional system

is the purposeful organisation of the entire system to achieve the desired result, which, in this case, is the artistic, creative performance of a musical work. (Alumäe, 1981, p. 120)

Teaching someone to play an instrument is also a purposeful action.

We have all seen how in class, we have barely been able to ask the student to play a piece (or a passage), before he or she grabs the instrument without thinking about the tempo, or the piece as a whole, etc. Apparently, the same thing happens when he or she is practicing at home. The younger, less experienced and more impatient is the student, the more often we see this. Perhaps we can become more aware of how to teach students in class in order to develop the habit of imagining the entire subsequent process (both audible and physical) before starting to play, if we consider the following (again quoting Alumäe): The imagination of what is to be done with the corresponding field of excitation in the nervous systems is formed already before the start command is given. After all, no intentional activity can take place before the need is felt and the idea of the next activity emerges. We can confidently state that a 'picture' of what must immediately take place appears as encoded in the action of bioflow in the nervous system that

controls the violin playing, before the signals “of what is actually happening” start to arrive in the ‘picture’. (Alumäe 1981, p. 129)

Once the decision to act has been made, the action order is sent along the efferent nerve pathways (nerve fibres) to the muscles carrying out the activity. Alumäe states: It is important to understand that new, afferent signals will begin to arrive in this previously common field of excitation right away, even before the efferent impulse has “set off,” signalling the situation and changes in the fields of sound and movement – our working (muscle) apparatus (situational afferentation). (Alumäe,1981: 129)

Alumäe then asks: “Why is this knowledge useful to us?” He continues to provide examples from real life where we rely on continuous incoming signals via sight, touch and hearing. This allows us to avoid tripping while walking on the street, to respond to the other musician’s unexpected *accelerando* in an ensemble setting, etc.

Anokhin calls this an anticipatory or forestalling reflection of reality (*operežajuštšeje otraženije deistvitelnosti*) (Anokhin, 1978). In his researches, Bernstein (1990) calls such phenomena a model of desirable future or a model of future needs (*model potrebnogo buduštšego)*. This model is formed in relation to a specific situation with the individual’s previous experience, knowledge, skills and abilities and it based on the principle of feedback including ‘control mechanism’ (‘acceptor of action’) (Anokhin: 1978)*;* former professor of Moscow Conservatory Vladimir Grigorjev calls this phenomena an imagination, which is “both audibly and physically like compressed” in the musician’s head before beginning to play (Grigorjev, 2007); contemporary Estonian scientists call it as the prediction processes in the brain (Tulver, 2020) etc. I am convinced that in violin playing we can consistently develop the imagining that is necessary for an action from an early age, by repeatedly ‘going through the motions’ in our head before starting to play. As our skills develop, so does the accuracy of our imagination (and this is true no matter how old you are when learning a new piece).

Every quality performance requires a readiness to perform. The readiness to act must develop in every performer’s head before the stimulus necessary for the activity is activated (according to Anokhin). This also applies to the development of the simplest instrumental movements. In the beginning of the 21st century, the German scientists Eckart Altenmüller and Sabine Schneider pointed out the importance of readiness (i.e. readiness potential – *Bereitstschaftpotential*) related to any motor activity. They also specified the area of the cerebral cortex in which spontaneous activation is initiated within milliseconds before any movement can occur and from which area the action order is given to the muscles. (Altenmüller, E., & McPherson, G. 2007, pp.61–73)

Back to Anokhin: after the decision to act is made, an order is sent along the efferent nerve fibres to the muscles executing the activity. The alarm delivered by our

senses constantly refines the picture of the conditions in which the work orders issued by our brain must operate. This concerns the readiness to make operational adjustments. The musician must subconsciously know how to deal with this, i.e. adjust one's accompaniment to the partner by predicting his or her creative idea and reacting to his or her playing accordingly (this means that the brain must command the muscles to react to the new emerging sound image and the resulting motor process). The learning process occurs repeatedly, along with the performance adjustments, until the result reaches an acceptable level (cf. Bernstein's 'repetition without repetition'). Anokhin also points to the continuation of the same process – to the information that travels back from the muscles to the brain – which he calls reverse (or feedback) afferentation (*obratnaja aferentatsija).* (Anokhin, 1978)

For comparison – Grigorjev also introduces the concept of an 'image of motion' (*obraz dviženija*), based on an intense sonic-physical imagination of the upcoming movement, which is executed in four steps until the movement assignment is completed.

To make it easier to understand Anokhin's theory, I have added a diagram (stages of the behavioral act) with translation from the Anokhin's Russian-language book (1978), in which the left-side of the diagram (i.e. the afferent synthesis) can be conditionally perceived as the player, along with his or her memory, motivation, current knowledge, as well as the constantly arriving information and stimulus that triggers the activity. This is followed by the decision to start playing, during which a concentrated plan of action is formed in one's head (right-side of the diagram). This, in turn, is followed by the activity together with an assessment of the parameters of the activity result and then, by the action acceptor and feedback afferentation. And if necessary, the entire process is repeated.

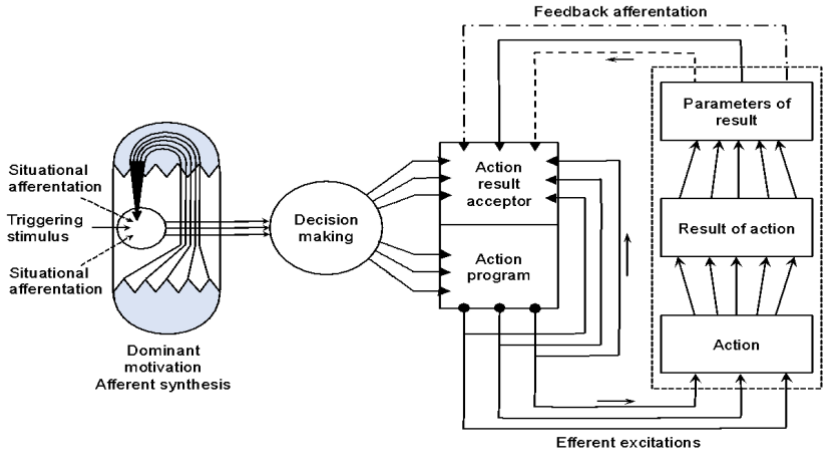

Figure 1 Stages of the behavioral act, (Adapted from the diagram – Anokhin 1978, p. 87.)

In summary:

In regard to both our own playing and the teaching of children, it would be useful for teachers to know what is going on in our own brains and nervous system when we are preparing to play, as well as when we are already performing in various situations and with different groups on stage. The skill of constructing a clear picture of one's activities before and during playing can be taught and developed starting at an early age.

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