



The Phenomenon of Orchestral Practice: Implications for Student Motivation and Learning - Student's Point of View

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Abstract:

In the studies on musical learning, group musical practice has not been the object of in-depth study. Little is currently known about the impact of playing in an orchestra on students' motivation or learning to study the instrument. In this study, the objective was to understand the phenomenon of musical practice in orchestra to answer the research questions: Does playing in an orchestra generate intrinsic motivation in students? Does it have implications for individual learning and study of the instrument? Semi-structured interviews were conducted with 15 orchestral students to learn the attitude, feelings and perceptions of the students involved. The content analysis involved: (1) a systematic approach to the data analysis process; (2) the use of data reduction methods; and 3) coding the data into categories. This categorization resulted in what is called "pattern analysis." The qualitative data analysis indicates that students feel motivated for orchestral practice and that playing in the orchestra can positively affect the student's learning and motivation. The orchestra practice seems to increase the practice time and help develop musical and social skills. Self-determination theory is the one that explains the obtained results. According to this theoretical perspective, to feel motivated for a given task, the individual must fulfil three basic psychological needs: autonomy, competence, and establishment of social bonds. For the students, playing in orchestra seems to be a favorable context for developing autonomy, perception of competence, and establishing social bonds with their peers. Playing in orchestra seems to be the challenge in which the balance between the perception of the difficulty of the task and the perception of being competent to perform it successfully is present. That is an excellent level of challenge.

Keywords: Orchestra; Motivation; Instrumental learning; Skills.

1. Introduction

The origin of the term orchestra dates to ancient Greece, in which the term referred to the area between the stage and the audience. In the Middle Ages, the word already referred to the stage itself, having gained in the mid-18th century the sense of referring to the group of musicians performing, meaning that it currently preserves (Fonseca, 2014). In this article, the term will be used to designate the orchestra based on string instruments in the context of orchestras of music schools.

In Portugal, the curriculum of specialized music teaching contains a component of musical practice together, which can include musical practice in choir, string, wind or symphony orchestra, and others (Decree-Law No. 344/90, Decree-Law No. 55/2018). A complete musical formation cannot dispense with playing music with others. Nowadays, in specialized music schools spread throughout Portugal, many students can attend set classes weekly, many in orchestral classes, such as the examples mentioned above. However, we need to find out the specific impact of playing in the orchestra on the students, namely, if it does affect their motivation to proceed with musical studies or if it does affect their individual learning and instrument practice. In the studies on musical learning and the associated motivational factors, group musical practice has yet to be the object of in-depth study.

1.1. Study Objective

In the study presented in this article, the objective was to understand the phenomenon of musical practice in the orchestra to answer the research questions: Does playing in an orchestra generate intrinsic motivation in students? Does it have implications for individual learning and study of the instrument? This investigation intended to understand the students' attitudes, feelings, and perceptions.

2. General Contextualization

Learning a musical instrument is a long process, full of obstacles (Fonseca, 2014). Therefore, it is unsurprising that the motivational factors related to music studies are widely studied. Such studies point out motivation as an essential factor that explains the success of instrumental learning (Creech & Hallam, 2009; Sichivitsa, 2007). The complex process of forming the motivation of an instrument student is affected by internal and external factors to the individual (Creech & Hallam, 2009; Sichivitsa, 2007). The literature reports that social factors influence the motivation for musical learning (Coffman & Adamek, 2001). For instance, factors that may explain higher motivation levels in a music student are the supportive role of family, friends and school (Hallam, 2002). Musical learning in a group context has implications for the student's social, human, and musical development (Bergman & Lindgren, 2014). For example, positive social interaction with colleges and teachers in musical group activities helps students value music (Fonseca, 2014; Sichivitsa, 2007). However, these and other literature references do not clarify if there is or is not a direct connection between playing in the orchestra and motivation or, even more specifically, between playing in an orchestra and the motivation to individual learning and instrumental practice. It is necessary to look into the subject of motivation to understand the phenomenon of orchestra practice and any possible motivational effect on the students.

2.1. Motivation theories and the Ecological theory of human development

In recent decades, the motivation to learn music has been widely studied and debated in the literature, in which different theoretical points of view have referred to a multiplicity of factors associated with it (Hallam, 2002, 2009, 2011, 2012). Some theories that seek to explain this motivational process, frequently mentioned in studies and articles addressing this theme and may have implications for this research, will be presented next.

Theory of self-efficacy: Developed by Bandura (1991; Oliveira et al., 2019), the concept of self-efficacy, the individual's assessment of his/her abilities, is the base for this theory.

This author states that the motivation for a task will be at its highest point as the levels of self-efficacy are combined with a moderate degree of uncertainty regarding the results (i.e. when the individual feels simultaneously capable but challenged).

Attribution theory: This theory indicates that the attributions – value judgments – that the individual makes to the causes of success and failure influence self-esteem, self-concept and future expectations. These factors that will be the ones that most determine the type of performance that the individual puts in tasks (Hallam, 2009; O’Neill & McPherson, 2002).

Theory of expectation and value: Based on the theoretical model proposed by Atkinson (1983), Eccles (2005) proposed a model in which the individual feels motivated for a given task according to importance, interest, utility, and cost as components of value (Sin et al., 2022).

Theory of self-determination: Deci and Ryan (2010) proposed this theory to explain the inner motivation and factors that can explain it (Ryan & Deci, 2017). According to this theoretical perspective, to feel motivated, individuals need to meet three basic psychological needs: autonomy, competence, and to establish bonds (Deci & Ryan, 2010; Ryan & Deci, 2017, 2000).

There are other theories of motivation mentioned in the context of musical learning, such as the theory of self-regulation (Pintrich, 2000), the theory of the self-concept of intelligence (Weiner, 1985; Fontaine & Faria, 1989; Fonseca, 2014) and others. Studies about music learning have used these theories to explain the development of the child's motivation in his musical academic path. In this context, it is important to look for authors to help us analyze features of the child's global development, the context in which the child lives, and his interactions. The Ecological Teoria of Human Development by Bronfenbrenner (1979) seeks to explain this. According to Bronfenbrenner (1979), human development is marked by the contexts surrounding the individual, from his inner circle (micro dimension) to the multiple successively larger contexts surrounding him (macro dimension). According to this theoretical point of view, human development consists of the adaptation of the human being to his immediate environment, which includes dimensions such as the person, person and context (interaction with his immediate environment) and person in context and time (interaction as a whole) (Bronfenbrenner, 1979; Moreno et al., 2021).

Based on this point of view, Bronfenbrenner established the idea of an "ecological environment," that is, an environment that consists of a complex set of systems that interact and influence each other. This environment is made up of: 1) the microsystem, an area of intimate interaction of the child, which includes the interaction of the child with parents and siblings; 2) the mesosystem, the active participation space of the child, which also includes the interrelationships between the groups involved in the microsystem; 3) the exosystem, which includes one or more dimensions in which the child is not an active participant, but which indirectly affect it (laws and the education system); 4) the macrosystem, which refers to the general context of the individual (culture and society); and 5) the chronosystem, the temporal dimension, which includes changes and events that may influence the child's development (Bronfenbrenner, 1979; Moreno et al., 2021). These theoretical perspectives will frame the assessment of the impact of playing in the orchestra on music students' motivation and learning.

3. Methodologies

Due to the scarcity of literature on the subject studied, an exploratory phenomenological study was conducted. This type of study is appropriate to understand a phenomenon little investigated and could help guide "additional research" (Babbie, 2012, p. 22; Holanda, 2006). It used a qualitative and interpretative strategy to obtain comprehensive knowledge, using the experience of individuals to understand the phenomenon (Turcato et al., 2019). The data obtained were subject to qualitative analysis. Some data were quantified to describe the sample further. The quantitative elements provided complementary information that emerged from the qualitative approach and provided "a[...] supplement to support the conclusions" (Maxwell, 2010, p. 480) suggested by the qualitative data.

A total of 15 semi-structured interviews were conducted with students from one of the orchestra classes of the Artistic School of the Calouste Gulbenkian Conservatory of Aveiro. For the interviews, a script of questions was prepared together with the purpose of each question inserted in the script.

Since the intention was to know the students' feelings and perceptions, semi-structured interviews were conducted. According to Gray (2004), this type of interview is appropriate for a study involving the analysis of feelings and attitudes. This data collection method has advantages, namely its degree of flexibility that allows for adjustment of the direction of the interview since relevant information is mentioned (Robson, 2002). When preparing the script of the interview, open-ended questions were used, which, allows for generating "rich" information (Hill & Hill, 2005, p. 94), allows to evaluate of what students effectively believe, and produce unexpected views, not previously anticipated (Robson, 2002). Different measures were adopted to circumvent possible threats to the validity and reliability of the results. First, the researcher sought to maintain an attitude of critical reflection. Second, the "negative cases" were analysed (Gray, 2004, p. 342), e.g. the possible problems resulting from orchestral practice. Third, the same protocol was followed in all interviews (Gray, 2004).

The interviews were all conducted between December 2012 and January 2013 at the school where the students attended the orchestra class. All interviews were recorded on video, which has the advantage of allowing the researcher to focus on listening and, if necessary, reorient the direction of the interview (Gray, 2004). Since the interviewees were students. The confidentiality of the interview content was ensured in the request for authorization given to the parents. The script of the interview had a structure according to the order suggested by Robson. Before beginning the interview, the researcher included the phrase "introduction and heating" (Robson, 2002, p. 277). Subsequently, the interviews were transcribed to be analyzed.

3.1. Study Participants

The 15 students included in this study were chosen according to what Robson calls "intentional sampling" (2002, p. 265). In this sampling method, the choice of participants is made according to the profile defined by the researcher and according to the needs of the research, since the intention was that the students assess the impact of joining the school orchestra. In this case, four criteria of choice were defined: 1) students should be attending the artistic school chosen for this study; 2) students should be attending an orchestral class at the time of the interview; 3) students should play different instruments that make up the orchestra; and 4) students should have joined the orchestra in the current school year or the school year before the interviews (see Table 1). As can be seen in Table 1, the students interviewed were played string students (seven violins, two violas, two cellos, two double basses) and brass instruments (one trombone and one horn).

Table 1 - Distribution of students by instrument.

Instrument	N
Violin	7
Viola	2
Cello	2
Doublebass	2
Trombone	1
Horn	1
Total	15

Ten students were male (66%) and five (33%) were females. The age range was between 11 and 15 (see Table 2). As can be seen in Table 2, most of them attended the 8th and 9th year.

Table 2 - Distribution of students by year in school.

Year of education	N	%
6th	2	13.3%
7th	1	6.6%
8th	5	33.3%
9th	6	40.0%
10th	1	6.6%

3.2. Qualitative Analysis

The data collected were subject to qualitative analysis, given the qualitative nature of the interviews. This type of analysis can result in a "true description of evidence" (Maxwell, 2010, p. 480). The content analysis involved: 1) a systematic approach to the data analysis process; 2) the use of "data reduction methods" (Robson, 2002, p. 477); and 3) coding the data into categories. After transcribing each interview, a brief descriptive summary of the interview was prepared (the interviews were relatively short, with an average of 7 minutes). Next, a "document sheet" was prepared, a systematic summary based on previously chosen categories (Robson, 2002, p. 477). The categories took account the most relevant questions of the interview. Finally, the most relevant information was collected from the summaries. This kind of analysis is often called "pattern analysis" (Robson, 2002, p. 468; Crabtree & Miller, 1999, p. 164).

4. Presentation of Results

The data collected in this study shows that students are motivated to play in the school orchestra. The 15 interviewed students mentioned that they liked to play in the orchestra, and nine (60%) qualified this taste with high intensity (using expressions such as "I like it very much" or "it is very good") (see Table 3). Twelve (80%) took the initiative to study the orchestra repertoire regularly. Nine (60%) said they had asked for help to overcome technical questions presented by the repertoire. Table 3 shows some comments where students describe their enjoyment of playing in the school orchestra.

Table 3 – Student comments on orchestral practice.

"I like more playing in the orchestra. I feel a stronger passion...and always want to "pull" more."
"I think it is a pleasure because it does feel great."
"I like it very much because we can gather ideas and have a great idea at the end."

Part of the purpose of the interviews was to understand whether the students had the perception that starting to play in orchestra produced some impact, some change in the learning of the instrument or relation to the learning of music in general. The students reported that playing in the orchestra was reflected in the time spent practicing the instrument. Thirteen students (86.6%) reported that they began to practice more because of joining the school orchestra. This change was associated with three reasons: 1) having more music to work with; 2) the technical difficulties of the orchestra repertoire; and 3) wanting to develop the technical and musical skills of the older orchestra pairs. Still, five students (33.3%) mentioned that playing in the orchestra led them to set new goals for their music studies. The data collected offers further understanding into the reasons that lead students feel motivated to play in the orchestra. Six students (40%) attributed motivational gains to social factors such as involvement and interaction with their orchestra colleagues. Below are examples of the skills students develop from playing in the orchestra (see Table 4).

As can be seen in Table 4, students feel that playing in orchestra helps them develop the following musical skills: *learning to listen to others, music reading, technical evolution, rhythmic skills, tuning, and metacognitive skills (learning study strategies, problem-solving) and a better understanding of what music is*. The pupils mentioned the social skills learned: *emotional maturation, concentration, autonomy, and responsibility*.

Table 4 - Development of competencies reported by students.

Musical Skills
<p>Listen to others: "You must listen to what others play. We cannot just focus on what we are doing." "It teaches us how to listen to others while listening to ourselves."</p> <p>Music reading: "It helped me to get better at sight reading." "When I got into the orchestra, I got in the middle of the school year. They were already playing; they knew that. I had to pick up their rhythm. It helped to read faster." "I began to have easier sight reading."</p> <p>Technical evolution: "I think we have evolved a lot," "gives us dexterity."</p> <p>Rhythmic skills: "I think it helps me more to count the tempo... in the rhythmic part."</p> <p>Tuning: "I think it helps me... also about tuning."</p> <p>Metacognitive skills: "Learning "to overcome difficulties." "In orchestra, we must learn not to err because this can affect the whole group. When we are alone, it makes a big difference."</p> <p>A better understanding of what music is: "It makes you see other perspectives of what music is... enrich us as students".</p>
Social Skills
<p>Emotional maturation: "It helped me to grow a bit."</p> <p>Concentration: "In orchestra, you need to be more attentive... a mistake of ours can harm the whole section." "We need to be more attentive".</p> <p>Autonomy: "We must be ourselves... we do not have a teacher there to say to do that. We have a conductor who gives us the entrance, and we do the rest. I think it helped a lot in my autonomy."</p> <p>Responsibility: "I start having to study more time." "We must learn not to make mistakes because it can affect the whole group."</p>

The wide variety of skills learned in the orchestral indicates that most students attributed the motivational gains to musical and social skills development.

Other factors contributing to the student's motivation to play in the orchestra were also mentioned (see Table 5). Other factors that seem to motivate students are to feel the sound of the orchestra (33.3%), the pleasure of playing the repertoire (26.6%), and the challenge of the new task of playing in the orchestra (20%) (see also Table 6).

Table 5 – Other factors impacting student motivation.

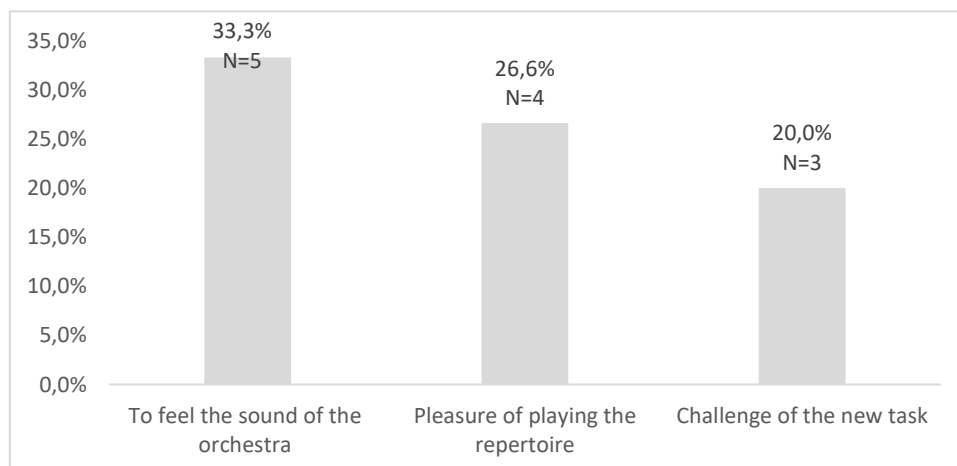


Table 6 - Students remarking on the sound and pleasure of playing the orchestral repertoire.

Feel the sound: "The sound is different; it seems to fill the room more than when we are playing alone."
 "I like to feel the general sound of all the instruments combined."
 "There is a lot more sound."

Pleasure in the repertoire: "I really like the repertoire we are playing in the orchestra."
 "The pieces are more beautiful with the different instruments."

Regarding two of the factors of feeling the sound (of the orchestra) and pleasure in playing the orchestra's repertoire, Table 6 offers some comments from students interviewed that exemplify the impact of these factors on the students. On the other hand, the data collected in this study indicate that orchestral practice may also be associated with problems (see Table 7).

Table 7 - Problems felt by students when playing in the orchestra.

I.	Difficulties in adaptation
II.	Sight reading problems
III.	Lack of guidance to do the task
IV.	Difficulty of the task
V.	Not feeling included in the group
VI.	Repertoire too easy/no challenge
VII.	Lack of commitment from others
VIII.	Negative comments about playing in the orchestra
IX.	Anxiety of playing on stage
X.	Have little music to play (many waiting bars)

The students mentioned ten problems, namely difficulties in adaptation, sight reading problems, lack of guidance to do the task, difficulty of the task, not feeling included in the group, repertoire too easy/lack of challenge, lack of commitment from others, negative comments about playing in orchestra and anxiety to play on stage. Table 8 offers student comments on some of the problems mentioned.

Table 8 - Examples of student comments on problems felt when playing in the orchestra.

Difficulties in adaptation: "At first, I didn't like it very much; the adaptation was a bit complicated. But then I adapted and liked it."
 "I wasn't used to it; at first, it cost me a lot, but then I got used to it."
 "I was used to an individual job, and there it had to be a group job."

Sight reading problems: "I feel a little uncomfortable when we read new pieces, sight reading."

Lack of guidance to do the task: "Sometimes the teacher gives us the scores and tells us nothing" [i.e., gives no indication].

The difficulty of the task: "For me, it is more difficult to listen to others".

Not feeling included in the group: "Sometimes when I don't feel comfortable, it feels like I'm there doing nothing; I feel shy."

As seen in Tables 7 and 8, the process of adaptation to the task of playing in a group could justify some of the difficulties felt by the students. For example, points II to V in Table 7 seem to be related to the problem of difficulty in adaptation. That is, the entry into the orchestra seems to generate a process of learning new tasks, namely, sight reading, being part of the group, listening to colleagues, playing with his peers, and playing on stage with the orchestra. It should be noted that the acquisition of these skills also seems to be related to the social adaptation to the group. Problems III, lack of guidance to make the task, and IV, difficulty of the task, indicate that playing in the orchestra can be difficult.

For example, the repertoire can be technically demanding, more complex than the technical skills of the student - which can generate discouragement - and to perform on stage in concert can generate anxiety (problem IX). These problems may indicate the usefulness of having a section teacher supporting students, especially when they enter the orchestra. Problems VII and VIII, respectively, lack of commitment from others and negative comments about playing in the orchestra, show that colleagues' attitudes can negatively affect students' motivation to play in the orchestra. Finally, problem VI, too easy repertoire/absence of challenge and X, having little music to play (many waiting times), the latter referred to by brass instrument students, show that the absence of challenge can be a factor of demotivation for students. It should be noted that some of the students mentioned problems that were overcome, namely the first two comments in Table 8, regarding the difficulties in adaptation.

5. Discussion

The qualitative analysis of the data collected indicates that the students feel motivated for orchestral practice. This motivation can be positively reflected in the student's learning and motivation to engage in learning the instrument. All the motivational theories referred to in this article can be used to explain some aspects of the obtained results. However, the one that best explains the results is the theory of self-determination (Deci & Ryan, 2010; Ryan & Deci, 2000). According to the students' perceptions, playing in the orchestra generates more effort to practice the instrument. Hallam (2009) that doing musical activities together can often result in more time for practicing. Although this author did not refer specifically to playing in the orchestra, the obtained results seem to indicate that this also happens in this musical activity. Students justify the high levels of motivation to play in the orchestra with what they learn musically and socially, among other reasons.

Still, the data indicate problems in orchestral practice, particularly in the adaptation of joining the orchestra, the interaction with colleagues, and the perception of the challenge (difficulty of the task or need to be more challenging). Yet, the same students who mentioned these constraints also mentioned that they feel motivated to play in the school orchestra. Students see these problems as challenges and obstacles to overcome. According to self-determination theory, playing in orchestra seems to be an optimal-level challenge, which strengthens the perception of competence, generating in the individual a strong sense of self-determination (Deci & Ryan, 2010; Ryan & Deci, 2000).

The data indicate that the student's motivation reflects the interaction with the orchestra colleagues. Thus, when the students observe the older, more technically evolved students, they begin to work harder, practicing to imitate their colleagues. Note that the task of playing in an orchestra requires students to learn how to do it together. Students mentioned that they learn in the orchestra "to listen to others," and stated "we have to learn not to err because it can affect the whole group." The collaborative learning process that orchestral practice requires generates a need for mutual help among the group members, generating a trending positive motivational effect in these with positive reflexes in the individual practice of the instrument.

6. Final Considerations

According to these data, students enjoy playing in the orchestra and strive to overcome the challenges and constraints, particularly in the adaptation phase, to perform the task successfully. The absence of direct help – the instrument teacher is not usually present – generates a need for autonomy, which seems to result in a perception of competence, as explained by the theory of self-determination (Deci & Ryan, 2010; Ryan & Deci, 2017, 2000). According to this theoretical perspective, the need to establish bonds is met by playing in an orchestra, a space in which students establish social bonds with their peers. Playing in orchestra seems to be the challenge in which the balance between the student's perception of the difficulty of the task and the perception that he/she can do it successfully is present; that is, playing in orchestra seems to be the challenge of an optimal level (Deci & Ryan, 2010; Ryan & Deci, 2017, 2000). Moreover, students feel that this challenge is positively reflected in the instrument practice and the goals they set for musical learning.

According to Bronfenbrenner (1979), the progressive complexity of peer-to-peer tasks with whom emotional ties are created results in a significant intellectual, emotional, moral, and social impact (Santos & Santos, 2017). The students comments lead to the conclusion that this happens in orchestral classes.

6.1. Limitations and future research

This study explored a theme where investigation is limited. The possibility of generalization of the results is limited because of the qualitative shape of the study. Another limitation is the lack of studies about the subject, which limits, at least, the literature review. Further investigation could be done by engaging with teachers with students playing in orchestras to understand the teacher's point of view. Also, the results could be used to design a study with a more significant number of students in different schools.

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