

Staccato Singing

– A New Method in the Education of Tone-deaf Children –

*Prof. Dorina CREȚ
Phd. Student, Bucharest*

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Abstract

This paper is part of my doctoral thesis now in progress, and its subject is the evaluation of the basic musical aptitudes, sense of rhythm, hearing, and musical memory of a special category of subjects, the inaccurate singers (who have no musical ear), as well as the elaboration of an educational program based on a new method in the correction of vocal production, the “staccato method”.

E-mail: dorina_cret@yahoo.com

I. Theoretical aspects

1.1. The problem

In current pre-school, elementary, and secondary education the evaluation of children’s musical aptitudes is made with regard to the objectives in view. Art schools which offer a supplementary musical education on the basis of previously acquired inclinations and aptitudes, apply the testing of musical aptitudes (consisting of: vocal testing, hearing, sense of rhythm, musical memory, and musicality level) as an exclusive test. At the same time, paradoxically, in nursery schools and regular elementary schools, where all the children should have equal rights for musical education, the interruption and belatedness of children’s musical development lead to their untrue “labeling” as “inaccurate singers”, which could even mark all their future lives.

The problem is a general one: the “labeling” of such children is done without a rigorous evaluation of their real level of musical aptitude, both because of the lack of theoretical support regarding this phenomenon, and also because of the lack of adequate instruments of evaluation.

1.2. Various approaches to musical aptitudes

The term “musical aptitude” is often used, but hard to define due to the diversity in which it appears. Of the many definitions I have chosen that of Zissulescu from his study *Aptitudini și talent* (Aptitudes and talent), which says: “Musical aptitude is a trait of the personality which makes possible a successful musical activity, as a specific combination of sensorial, intellectual, affective, and volitional traits.”¹ On a sensorial level, it needs a good auditive acuity for perceiving the pitch, intensity, rhythm, harmony, and tempo of sounds, while on an intellectual level, a lively intelligence, auditive and visual memory, and creative imagination.

Systematic research of the subject was first done at the beginning of the 19th century, by Helmholtz and Stumpf. Stumpf is also responsible for the first experiments regarding the testing of musical aptitudes, which contained four tests, with emphasis on the perception of sounds and intervals, however, without establishing general methods for measuring these.

Contrary to the aim of their investigations, L. Dauriac in his *Essai sur l'esprit musical* thinks that “Research should be directed towards a more important ability than mere sensations, and this is musical intelligence, which synthesizes the qualitative elements of a melody.”²

We are directing ourselves thus towards another domain, that of the evaluation of musicality, in which G. Révész applied for the first time a set of tests considered the starting points of the study of musical talent, musicality (and not of musical aptitude). How are these two terms delimited? For Révész,³ musical aptitude means a great capacity of achievement in the field of music, while musicality is a specific behavior towards music, a deep understanding of musical works and artistic value.

Some of his conclusions are worth mentioning: in his opinion, musicality cannot be determined by tests because not all traits are equally proportionate with musicality. Still, the reproduction of melodies and relative musical ear seem to have the highest correlation with musicality. As for the in-born nature of musicality, claimed by some authors (among which Révész), Teplov disproves it by saying: “It is not musicality which is in-born, but the premises on the basis of which musical aptitudes are

¹ Zissulescu, S. *Aptitudini și talent* (Aptitudes and talent), Bucharest: Editura Didactică și Pedagogică, 1971, 89.

² Dauriac, L. *Essai sur l'esprit musical*, Paris: P.U.F., 1940, 90.

³ Apud Creangă, I.A., “Măsurarea aptitudinilor muzicale prin metoda testelor” (The measuring of musical aptitudes by testing), *Revista de Psihologie Teoretică și Aplicată* vol. III., 2 (1940): 129-134.

formed. Musicality is an individual-psychological trait of the personality, resulting from a certain proportion of aptitudes.”¹

Coming back to musical aptitudes, the question raises: what are the ways or methods to measure them? The one who has brought certain explanations and systematically presented several methods of testing these is Hans Rupp. Out of his methods I mention the *active* one, of reproducing a sound or melody, and the *passive* one, of recognizing, identifying it. His study, *On the Examination of Musical Aptitudes*, draws attention on the refinement of the criteria of evaluation regarding the perception, or “catching” of melodies, that is, correctness, purity, and verisimilitude, because, as the author says: “A melody can be sung correctly, but impurely, or it can be sung purely, but without being correct”.²

These were the hypotheses which were to ground the future studies regarding the definition and evaluation of the vocal behavior of an inaccurately singing child.

While most previous experiments on the evaluation of musical aptitudes focused mainly on sound and interval, Fr. Brehmer was concerned about melody, using Rupp’s methods, thus: the *active method*, the performance of a familiar melody; the reproduction of an unfamiliar melody and the performance of the scale; and the *passive method*, evaluating the recognition of changes in a familiar and unfamiliar melody, as well as the changes within a scale. He concludes that: “As the melody is a sounding configuration, its perception depends on the aptitude of the subject, but also on the character of the configuration”.³ Thus, musical ear is an essential factor in defining musical aptitudes.

Studies and pedagogical practice alike emphasize when speaking about musical aptitudes the analysis of certain “basic musical aptitudes”, which usually contain three such aptitudes: musical ear, sense of rhythm, and musical memory. In his article “Aptitudes musicales des enfants”, A. Bentley (1974)⁴ names some “elementary aptitudes”, considered basic for

¹ Teplov, B. *Psihologia aptitudinilor muzicale* (The psychology of musical aptitudes), manuscript, “Gheorghe Dima” Music Academy, s.l. [Cluj-Napoca], s.a., 4.

² *Apud* Giurgeca, L., “Cercetări în legătură cu măsurarea aptitudinilor muzicale” (Studies on the measurement of musical aptitudes), *Revista de Psihologie*, edited by the Institute of Pedagogy, University of Sibiu, 1941, 346-347.

³ *ibid.*

⁴ Bentley, A. “Aptitudes musicales des enfants”, *Sciences de l’Art – Scientific Aesthetic*, vol. IX., 1 (1974): 73.

successful musical activities, listing: “(...) melodic memory, the ability to differentiate the pitch of sounds, and (desirably) the recognition of intervals. While in its most elementary form music is melody, at the same time it is also a “mental phenomenon”, as it cannot have a sense unless it was perceived, structured, and recorded in the memory of the listener.”

B. Teplov’s researches¹ place basic musical aptitudes into another perspective, as being represented by: **1) Modal sense**, or the element of emotional perception of musical hearing, or the sense of emotional expression of the movement of pitch; **2) Ability of auditive representation**, that is, the ability to voluntarily operate with auditive representations by the reproduction of the melody by hearing;² **3) Sense of musical rhythm**, represented by the sensing and perception of the emotional expressiveness of the musical rhythm and its correct reproduction.

Starting out from the analysis of the main aspects of musical activity, B. Teplov defines the concepts at the basis of the analysis of musical aptitudes, which will also be used in this paper.

The sensory perception of sound. Musical pitch. His studies regarding the notion of pitch have led to the theory of two components of musical pitch:

- the musical pitch as such
- timbre, including “luminosity” and the volume of sound.

The experiments regarding pitch have shown that the comparison of two sounds of very different pitch yields differences not only in pitch, but also in timbre, which makes high sounds be brighter, and deep sounds darker, as if higher in volume. Children perceive it as “thin” and “thick”.

¹ Teplov, B., *Psihologia aptitudinilor...*, 34-35.

² It is interesting to note that Teplov includes in this aptitude both the auditive and the reproductive element of musical hearing, specifying: “It appears directly in the reproduction of the melody by the ear. On higher levels of development it forms what is usually called “internal hearing”, as the core of memory and musical imagination.” *ibid.*, 35. Although the author underlines the organic relationship between the sensation of pitch and the intonation of the vocal sound, Apfelstadt’s study (1986) regarding the determining factors of vocal accuracy develops the scheme hearing–memory–production, also mentioning other distinct features. For instance, “hearing” is conditioned by: hearing as a physical ability, concentration, and motivation, as well as the perception of the sound, while “reproduction” is determined by the vocal control in the production of sound, power of concentration, compass, and the texture of the piece.

Musical pitch, says Teplov, is the height which remains after the elimination of color elements, and “the skill to differentiate between the characteristics of pitch and timbre is only achieved in the process of one’s preoccupation with music (...)”¹

The great majority of studies considers the sensibility of differentiation of musical pitch as the most important musical aptitude.

Summarizing his conclusions regarding this aptitude, one can outline some ideas:

- for the comparison of sounds at least a minimal sense of musical pitch is required;
- one of the causes of low sense of differentiation of musical pitch is the confusion of pitch and timbre;
- this ability grows with age, and it can be increased with musical preoccupations;
- the appearance and development of the sense of musical pitch is unlikely to happen otherwise than by attempts to sing.

The melodic outline, in Davidson’s view (1994), shows “the importance of the figurative form of melody – its outline, while its **scheme** shows the importance of the recognition of levels of mental organization.”²

For Piaget (1968), the scheme appears as “an instrument for the organization of memory, and it acts in the process of retaining and evoking in the same way as in the course of fixation, attesting the relation between operational and figurative aspects of memory.”³

Piaget’s statement (1970) about the quality of actions in a context of awareness of techniques and coordination is a useful point of reference with regard to the future development of musical aptitudes. His concept of operationality is important when one considers the evolution of knowledge regarding the phenomenon of tonal stability of children and adults, as it describes what happens in musical instruction.

At the beginning young children use mental melodic schemes in singing in which the sound is diffuse, then it is replaced by discreet sounds with small descending intervals, the evolution of which does not correspond to the seemingly logical predictions of learning intervals, that is, to start from small intervals toward large ones.

¹ *ibid.*

² Davidson, L. “Songsinging by Young and Old”, in *Musical Perceptions*, Oxford: Oxford University Press, 1994, 113.

³ Piaget, J. and Inhelder, B. *Memoire et intelligence*, Paris: P.U.F., 1968, 26.

Davidson's researchers (1994), associated with other studies, claim that: "the mastering of the relation between sounds can be developed by a series of extended levels or phases in which children master first the outline, then certain sounds, and finally tonal stability."¹

Melodic hearing can be observed in the reception of the melodic line. Teplov defines it as "a qualitative particularity which appears in the recognition, reproduction, and sensibility in the precision of the intonation of melodies, in the education of which there are two stages: the one of perceiving the sense of melodic movement, and the other of the relations (proportions) between sounds".²

Several studies in the field of musical psychology have tried to answer certain hypotheses referring to the way young children actually learn to control the sounds of their songs, which have also been at the basis of the L. Davidson's investigations³ in the *Harvard Project Zero*.

Although researches have proved that the musical development of a child does not follow the course of adults' predictions, a systematic and empiric model of this development has been formulated nonetheless. Thus, his investigations showed that the schemes of the melodic outline come first, and these are responsible for the appearance of tonal knowledge, and not the gradual improvement in the overall outline or in the reproduction of intervals.

Welch & Elsley (1999) have arrived at a similar result: the mastering of the relation between sounds can be developed by a series of extended levels or phases in which children master first the outline, then certain sounds, then intonation, and finally, tonal stability. The outline is the first aspect of a melody that a child must master.

The same thing was observed by Teplov, who discovered that children under school age sing first the outlines of the melody, and only afterwards are they able to reproduce specific intervals contained within a melodic model.

With regard to intervals, it is important to emphasize that he rejects the theory of grounding melodic hearing on the sense of intervals, warning that one must not explain the hearing of the melody starting from the sense of interval, but to understand the sense of interval starting from the hearing of the melody, which is much easier. Although the melodic

¹ Davidson, L. "Songsinging...", 112.

² *Apud* Ionescu, C, *Istoria psihologiei musicale* (The history of musical psychology), Bucharest: Editura Muzicală, 1983, 317.

³ Davidson, L. "Songsinging...", 114.

sense implies both the recognition and the reproduction of melodies on a single voice belonging to the field of memory, it is not a function of this field, as is absolute hearing.

Teplov's studies proved that the normal development of musical hearing assumes the simultaneous development of the two sides: the "external", that is, sense and musical perception, and the "internal", that is, **auditive representation** of music, the variety of which with regard to the different levels of abilities, from person to person, is a matter of quality.

The characteristic of auditive representations lies in the level of clarity and vivacity, the development of which must start from the easiest way of their appearance, connected to perception, and with the help of real sonority (in this case, the voice of the child).

Teplov sustains that auditive representations "(...) are not however mere copies of past sensations, but the result of a certain processing of these"¹, while the people whose auditive representations are very alive only in the matter of timbre and not in that of representation of pitch, cannot memorize melodies and have no musical ear.

One more thing worth noting from Teplov's and his collaborators' researches on musical hearing is that, in opposition to the sense of interval which he disclaims as the basis of musical hearing, he admits as a basis the **sense of tonality**, which is found in emotional, and not musical memory. There are two qualities at the basis of the sense of tonality, says Teplov: *receptivity*, which is the basis of the perception of the melody, and *emotionality*, the basis of its recognition.

In Piaget's terms (1970), the difference between various modes of mastering tonal relations includes contrasting aspects of thinking: *figurative* and *operational*. Thus, while the figurative aspect appears in the initial passive aspect of knowledge, as it is understood from perception, imitations, and mental image, the process of the transformation of tonal knowledge to the operational stage is a long and complex one, which Piaget describes in three distinct phases leading to the development of operational and interiorized knowledge: senso-motor, concretely operational, formally operational.

As for musical **memory**, Teplov thinks that: "the efficiency of the recognition of the melody must depend first of all on the emotional sensibility towards that movement (...), that is, of the sense of mode and rhythm."²

¹ Teplov, B. *Psihologia aptitudinilor...*, 23.

² *ibid.*

A similar and interesting point of view is found in the case of Joseph Le Doux from the University of New York, who discovered that “before being taken over by the neocortex, the messages taken over by our senses are first processed in that field of the brain in which emotional memory is located – the nucleus of the amygdala, which means that emotional intelligence influences in fact rational thinking.”¹

The reproduction of the melody is directly dependent on the other element of melodic hearing, the grade of generalized auditive representation of the musical material (not being limited to one simple auditive representation). In Teplov’s opinion this crystallization of the generalized representation, the only one which allows the vocal reproduction of the song, can be achieved by various and repeated performances imprinted in the memory, a fact confirmed by several other scholarly studies as well.

Coming back to the evaluation of musical aptitudes, the one who made the first collective tests to measure these, and at the same time the founder of a school of musical psychology at the University of Iowa (USA), was C.E. Seashore. The coordinates of the evaluation considered basic by the author of the tests are the four fundamental qualities of the musical sound and the spiritual functions required for its perception and musical achievement. The problem is the following: while the abilities regarding the sense of pitch, duration, etc. are measurable, functions like auditive imagination, musical feeling and thinking cannot be precisely measured, so that they are controversial.

In Romania it was Ion A. Creangă (1940) from the Institute of Psychology in Cluj who took the first steps in this field. His first experiments were meant to verify in practice six of Seashore’s tests. Following these, Creangă had certain objections, proving the deficiencies of the tests he had verified, and this determined him to turn his attention towards the individual measurement of the subjects by the active method, following at the same time the complex function of the melody.

A critical and pertinent synthesis of previous measurements is due to Giurgeca (1941), who analyzed and disproved the categories of tests measuring musical aptitudes, classifying them into: collective and individual tests; active and passive tests; for children and any age; for testing musicality and musical aptitude, proving the drawbacks of each category. From here, the necessity of a new collective method was

¹ *apud* Segal, J. *Dezvoltarea inteligenței emoționale* (The development of emotional intelligence), Bucharest: Teora, 1999, 11.

outlined, which would measure the central part of the aptitudes as a whole, as well as the method of dictation.

The fact that the experiment was undertaken at the Music Academy in Cluj tells us that the subjects under investigation, first and second year students of the Academy, had already had a certain level of musical education, and thus the applicability of the test was limited only to those initiated in musical notation.

In the 20th century, the development of technology and the interest of several fields of science in the singing voice has led to new methodologies of investigation and measurement. Now, especially in research, there are different ways of measuring various parameters of musical aptitude, making use of specialized laboratories and automated technology. What is more, there are many standardized tests (Bentley 1969, Gould 1969, Howard 1998, etc.), which have items of different difficulty levels, especially conceived for the measurement of musical aptitudes. Also, there are programs which allow the instant computerized visualization and evaluation of various aptitude tests. One example is the vocal-visual feed-back program, where the diagram of the singing voice is compared in parallel with the correct model to be reproduced.

Welch (1990) discovered that the visualization of the voice on the screen has made great improvement of results in experiments of vocal-auditive recovery, the children being more attentive and motivated and concentrating better when they knew their own results. Consequently, some of the studies recommend the use of computer programs, where children are able to correct themselves by special exercises meant to support the gaining of vocal self-control.¹

This procedure naturally leaves room for interpretations, but the most important thing for the child is the stimulation of the desire to make music, and not feel excluded, or labeled from the very beginning.

¹ I consider it timely to mention that I am acquainted with such instruments of research, but to own these would have meant economical and institutional support which I did not have. The experiment was not part of any local, regional, or national program supported by the Ministry of Education and Research or any other interested organizations. It only had the consent of the management of the "A. Bena" Music School and the "Horea" General School in Cluj-Napoca. The fact that the research had an optional, voluntary character explains the relatively small number of children (14), which is at the same time very great for one single class.

II. Description of the “Horea” experiment

The research about to be presented here will attempt at redefining the psychological reality of children regarding the way in which their musical aptitudes change with experience and directed exercise.

The interest in this experiment has been born from some questions, such as:

- Are the children who sing out of tune indeed inaccurate singers?
- If no, why could they not correct themselves during their first two years of school, having the same educational background with their classmates, who have progressed?
- If yes, what would be the ways and minimal abilities required for their recovery and development?

II. 1. Methodology of the research

1. Objectives

The objectives of this research aim at the optimization of the level of singing of 3rd grade inaccurately singing children (9-10 years of age), as follows:

- evaluation of basic musical aptitudes at an individual level: sense of rhythm, singing, and musical memory;
- evaluation of the level of expression of basic musical aptitudes in collective singing;
- investigation of the efficiency of a new method of vocal-auditive recovery by the staccato singing, in the process of formation of individual vocal skills;
- formulation of a recovery program based on the staccato method, supported by an auxiliary methodology adapted to the deficient level of vocal production.

2. Hypothesis of the research

In order to achieve these objectives I have tested the following hypothesis:

- based on the application of the staccato method of singing a significant increase in the level of the collective vocal production will be perceived, as the consequence of the development of basic musical aptitudes at an individual level: sense of rhythm, singing, and musical memory.

3. Criteria for choosing the sample

In selecting the experimental group of children, I had in mind the vocal behavior regarding the actual interpretation of a song, both individually and collectively. The first schematic selection was made in their classroom by the leader of the experiment, in the presence of their teacher. It was explained from the very beginning that the voice is like a musical instrument, which can only be discovered and mastered by practicing. Thus, the aim of the experiment, which would last for 10 weeks, and which would be done together, is exactly the attempt to discover and practice one's own voice by children who have difficulties with singing. Finally, the result of the work would be a small concert.

In order to find the children with vocal problems, the class test was made up of two exercises: a rhythmic and a melodic one. Each child was asked to reproduce a simple rhythm after the teacher by knocking the desk with their pencil, and to sing a song by their choice. Then they were requested to collectively sing a song known by the whole class. The children chose the song *Înfloresc grădinile* (The gardens blossom) by T. Popovici.

After checking the results, 14 children were selected from the total of 24, as possible inaccurate singers. Most of them anticipated or motivated their weak performance by saying that they cannot sing better in music class either because "I have no musical ear", "I have a hoarse throat", or "I sang inaccurately in nursery school as well, and I only recited poems". Others were not aware of the quality of their own voice, but they wanted to participate in the experiment and correct themselves if possible. Although the experiment was voluntary for the children as well, nobody from the group of 14 children withdrew.

4. Data of the experiment

- Total number of children: 14, out of which 6 boys and 8 girls (of whom 2 sets of twins)
- Age: 9-10 years
- Date and place of experiment: October-December 2003, Music School, Theory Room.
- Time period: ten weeks (20 hours), two hours per week weekly in different days, Tuesdays and Thursdays at the same time, 11 am., and only under the supervision of the coordinator (music teacher).

5. Course of research

The way of application of the tests

With the objectives and hypothesis in place, I made use of the following instruments:

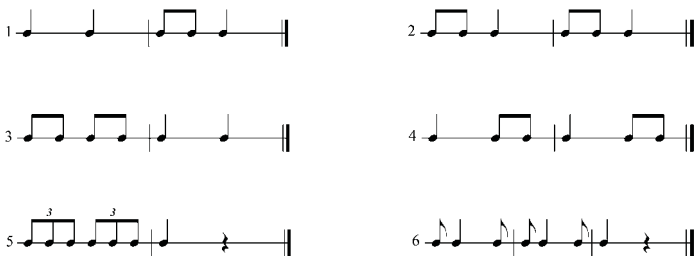
Pre-test – Post-test

1. verification of sense of rhythm
2. reproduction of isolated sounds after piano
3. vocal test
4. musical memory
5. collective singing of a familiar song

Individual and group results of the pre-test and the post-test were then introduced into a collective table.

Rhythm test. As they were already familiar with this because of the tests in the class, it meant the reproduction of six simple and clear rhythmic motifs of limited length (two measures each, Fig. 1.), taken from children's folklore, containing quarter-notes, eighth-notes and rests.

Fig. 1.



In the elaboration of these items I had in mind certain considerations, such as:

- a too lengthy example to reproduce inevitably, and in most cases, leads to mistakes;
- the introduction of more lengthy notes may create confusion, as there is no musical support by which a greater length can be achieved;

- the slow tempo of the example leads to imprecision; consequently, the example was made “*moderato to allegro*”.

The grading was done with points from 3 to 0, as follows:

- 3p. – correct reproduction
- 2.5p. – correct reproduction at second listening
- 2 p. – reproduction with little hesitation in tempo and accent
- 1.5p. – reproduction with little hesitation in tempo and accent, also after second listening
- 1p. – partial, incomplete reproduction
- 0.5p. – incomplete reproduction also on second listening
- 0p. – completely false reproduction

This grading is based on Teplov’s theory from his work *The psychology of musical aptitudes* regarding the psychological aspect of rhythmic perception, which clearly demonstrates that perception is an active process.

Reproduction of isolated sounds after piano. The aim of this test was to find a common compass of the whole group from where it may start to extend by different types of collective exercises and songs.

Depending on the register in which they sang, we tried to find sounds which each child was able to clearly reproduce after piano or voice. The test was marked in the collective table beside the name of each child, on the scheme of a piano’s keyboard, without qualification. (Table no. 1).

The lack of qualification of this test is explained by the fact that the simple reproduction of isolated sounds does not implicitly mean the vocal accuracy of singing, because there are several cases of children who correctly reproduce isolated sounds, even on a compass of one octave or more, but sing out of tune, sliding towards higher or lower registers. Also, I have seen cases of children who failed this test, being incapable of producing isolated sounds, while they still succeeded in approaching the correct melodic outline of the song.

Table no. 1. Individual compass after isolated sound reproduction test – pre-test

Nr .	Gama																										
	Prenume																										
1	Andra C.																										
2	Diana C.																										
3	Teodora P.																										
4	Iulia L.																										
5	Andrei L.																										
6	Dan D.																										
7	Andrei R.																										
8	Catalin P.																										
9	Tudor M.																										
10	Raluca V.																										
11	Andreea V.																										
12	Patricia C.																										
13	Diana M.																										
14	Radu P.																										

Vocal test. I consider this the most eloquent test, and also the most complex in the discovery of the possible causes of the inability to sing. For the pre-test the children had to sing two songs of their choice for several reasons: on the one hand, to see whether they find their comfortable register and have kinesthetic, that is, whether they can place the second song in the same register; and on the other hand, in order to see their musical vocabulary. This test also warns about problems of

vocal health, the characteristics of the singing voice and vocal mechanism, but also about important psychic characteristics such as: the ability to concentrate, attention, memory, the pleasure of singing, etc. Any of these components, if stagnating or unidentified in time, whether separately or collectively, might form barriers in the way of vocal development.

It must be said that it was difficult to establish a system of grading, taking into account the different development level of the aptitudes as well as the variety of deficiencies. Finally, I decided to grade by the criterion of individual tonal stability, regardless of register, as follows:

- 3p. – intonation with slides, but returning to tonic
- 2p. – intonation correct at beginning, followed by slides and leaving tonality
- 1p. – defective intonation, sliding through several tonalities, but grasping some correct outlines
- 0p. – inability to sing; song recognized only by the text

Musical memory was tested by the reproduction of six short melodic motifs, after piano, in the child's comfortable register.

Fig. no. 2.
Musical memory



Here, distinctly from the rhythmic test, each motif was sung twice, and at special request it was also sung by the examiner in voice, without influencing the grading. Criteria for the establishment of grading:

- 3p. – precise reproduction of the six motifs
- 2p. – memorization of four motifs
- 1p. – memorization of two motifs
- 0p. – inability to memorize and wrong performance of the six motifs

Collective singing. The children repeated the song sung in the classroom, “Înfloresc grădinile”, the tone being given by a boy, on the group’s

request, by ear. The tonality in which they tried to sing, but which they could not maintain, sliding towards a lower register just like previously in the class, was B flat major.

Fig. no. 3.

Înfloresc grădinile

In-flo-resc gra-di-mi-le ce-ru-i ca o-glin-da Si-au por-nit co-lin-da Can-ta cio-car
 Prin li-vezi al-bi-ne-le

li-i-le imn de ve-se-li-e flu-tu-rii cu mi-i-le joa-ca pe cam-pi-e

The grading followed the same criteria than the vocal test and was graded 1, that is, defective intonation, sliding through several tonalities, but grasping some correct outlines.

6. Design of the research

There are two types of variables in the design of the research: the dependent variable represented by the rhythm, singing, and musical memory, and the independent variable, which is the recovery program based on the method of staccato singing.

7. The recovery project

As the problem also involves further investigations, which allow for a forecast over its success, I have previously considered the following aspects of the project:

- **mental-affective mobilization and raise of interest in the world of sounds**
- education of hearing and voice for the formation of the ability to sing

Mental-affective mobilization

If certain unfavorable environmental or educational circumstances have led to the stagnation of the child's vocal-auditive development, the child will mentally and affectively feel the frustration of its vocal disability which it cannot disregard, being in most cases inhibited and distancing him- or herself from the art of sounds. Therefore, from the very beginning, the major common factor of the experiment was

to implant self-confidence in their success and permanently encourage them in an environment in which nobody felt uneasy about singing out of tune or being suspected of “aphonia”, a state explained to be passing and correctable. From a psycho-pedagogical point of view, this was one of the most difficult tasks (I incidentally mention their arrogant behavior at the beginning, with mutual ironic remarks). It must be emphasized however that there are no special “prescriptions” for such mobilization, which would work for all children, in all situations, and with all those who do this recovery work.

One way of motivation was the concert, which however proved to be insufficient; thus a new means of motivation was introduced, the recording of their voices both individually and collectively, which indeed motivated them, stimulating their interest, attention, and self-control.

Raising of interest in the world of sounds

For raising the children’s interest in the world of sounds I pursued the development of their inborn sensibility. The identification of possible causes (sometimes due to the environment or the lack of general educational correlation) have directed the achievement of this aim, by presenting and familiarizing them with new kinds of musical sonorities (viola, oboe, flute, trumpet, cello, marimba, etc.) which were to be identified later by ear.

This “awakening” does not necessarily manifest itself as a passion. Each child chooses his or her rhythm, and there are no prescriptions, because the “awakening” to music is a different road to take for each one of them. A concert at school, a record discovered, a friend’s musical performance etc. can be determining for a first emotional contact with music, and in these situations the contact with music may prevail over the work as such.

Education of hearing and voice for the formation of the ability to sing

Several types of exercises were included into the experiment, some with a permanent character, others by rotation, together with a repertoire of songs meant for several purposes.

Types of exercises:

- a) muscle relaxation and breathing
- b) concentration, listening, and perception
- c) for development of musical memory
- d) for the formation of vocal skills

e) rhythm exercises

Of all the exercises, only a few will be presented, the rest of them will appear in the dissertation.

Muscle relaxation and breathing exercises

These exercises had the task of relaxing the muscles of the face (cheeks, tongue, lips, jaw), the neck, and the whole body. They were associated with the two phases of breathing, inspiration and expiration, in a rhythm guided by counting.

- Slow and full rotation of the head and neck in both directions, right-left (8 beats).
- Slowly turning the head and eyes in the following sequence: right, then front; left, then front; stretching out the tongue by making a sound; leaning the head slightly backwards (8 beats).
- For the cheeks, imitation of chewing with the mouth full of air; different types of breathing: slow or sudden; quiet or with babbling; long or short; continuous or interrupted (use of the diaphragm).
- Drawing the cheeks backward, imitating rabbit lip, and onomatopoeic imitation.

Getting rid of bad habits is not immediate, therefore the children were asked to repeat some of the exercises at home as well.

Exercises for concentration, listening, and perception

While for certain subjects concentration, listening, and perception are necessary and obligatory conditions for the fulfillment certain tasks (arithmetic, writing after dictation, natural sciences, etc.), it is not the same in music classes, where these are only rarely and occasionally present.

Even if a child is on a very low level, musically speaking, it may still possess, unless being deaf, several elements required for musicalisation, like the sense of movement, intensity, or timbre. Many noises and sounds are already familiar to the child, and this is the starting point in the experiment: fixing the attention on the field of sounds, together with determining the child's active participation in the class.

Consequently, perceiving the lack of concentration and attention in the group, some new exercises were included into the recovery program to correct this deficiency, with implications not only in perception, but also in the whole process of singing. The importance of

concentration and listening exercises is even greater as these can be at the same time causes and effects of wrong intonation.

It should be noted that some of the exercises here presented were taken over, others were created by me or by the children themselves.

- In standing position, with relaxed body and normal breathing, the eyes closed, a minute of complete silence, while children were asked to identify any sound or noise they heard. The period was gradually increased to two minutes. The evaluation of each child's achievement was made by individual questioning, checking the order and number of the stimuli heard and recognized, as well as directly, by the immediate analysis of their behavior. (Some of the children laughed at the beginning, making different noises on purpose, but this temptation disappeared after the first few hours).
- Exercises of listening and recognition of the direction of the sound source
- Exercises for the recognition of melodic direction: increasing, decreasing, linear, etc.

Exercises for the development of musical memory

Our previous experiences confronted with the literature of the field have largely confirmed the possibility of developing auditive memory by various methods, but this can only happen if the child learns to listen to what he hears, and thus the exercises themselves are far from being enough in this respect.

Therefore, coming back to the evaluation of causes (lack of educational basis for musical training, or frustration connected to the whole process of making music), and having in mind the children's particular deficiencies in the matter of musical memory, I mostly based the recovery project on these data, following Piaget's theory regarding memory schematism. Here the scheme becomes the instrument of organizing the memory which acts in the process of memorization, using specific pre-operational or operational schemes in the guarding or reconstruction of previous images. I did not neglect the affective nature of melodic memory either, nor the associations of visual, auditive, and movement representations, which directed the experiment towards the following procedures: exercises, singing with echo, using vocal mediators, and playing.

For both hypotheses the means applied required a careful gradation followed by several frontal repetitions, in group, then

individual, training the children for the formulation of the most diverse rhythmic-melodic cells. Then, in the next level of the experiment, these formed the basis for outlining complete melodies, by repetition, following the method of staccato utterance.

The children who had difficulties in memorizing melodies, as they were unable to retain the active pitch in their memory, were trained at first by some simple exercises meant to develop their ability of internal listening:

- to find on their own the sound heard on the piano, on a keyboard limited to a fifth of their comfortable register of singing, and then to intone it (a very attractive exercise)
- to reproduce only two descending sounds (minor third, perfect fifth) repetitively, with different syllables, then words. They were gradually made to repeat short melodic motifs of the future songs. Any initiative of changing the syllables in the exercises was encouraged.
- to recognize and correct what the teacher has changed on purpose in a familiar song.

The exercises of musical memory and internal listening, similar to other exercises, could also be collective with the condition of a more careful supervision of children with greater deficiencies, who were also asked to sing individually after the collective exercise.

Exercises for the formation of vocal skills

The development of voice and musical hearing is achieved by exercises of vocal culture, vocal exercises (vocalise), and singing. In reaching the objective of the experiment, that is, to raise the singing level of the class, it is impossible to reach a better sonority of the group without all the children's individual mastering of their vocal skills. What is then this important premise?

First of all, it is the understanding that it is not a purpose in itself, but an instrument by which music may become a way of communication. It should also be said that the activity of the formation of vocal and auditive skills must not be transformed into a boring technical drill, detached from the content, making the recovery work and implicitly the music class tiresome and unattractive.

Consequently, regardless of the particular aim of the vocal exercise, I have conceived them as short and varied, the basic factor in forming the vocal skills and mechanisms being the song.

I have also pursued the mastering and concentration over certain elements, such as: position while singing, breathing, natural emission of sound, diction and phrasing, tending progressively to a homogenous and expressive singing.

I do not wish to describe here all the types of vocal exercises applied for the formation of vocal skills or the solution of certain technical problems imposed by the setting of the studied pieces. These can be found in treatises of choral conducting or in diverse methodological writings. Important in this experiment was to select them according to the deficiencies of the group and especially to adapt them to the specific needs of the group. Some of them have already been described, being commonly implied in the formation of vocal skills.

Here are some of the vocal exercises from the beginning of the experiment:

- exercises of training vocal chords in vibration, from low to high register, accompanied by the movement of the arms, thus: moving the arms from down to up on an ascending glissando, accompanied by an increasing intensity on the vowel u, then descending movement with sound descending in intensity. Jean Lupu recommends the “walking” of the child’s voice after the direction of the hand’s movements and the application of pauses by gestures. I have found this procedure more effective when drawing the curves and pauses on the blackboard, and the interpretation was made individually.
- exercise of vocal warm-up on a single inspiration. It also concerns precise attack and the maintenance of a repeated sound in a simple sequential musical phrase for different syllables, onomatopoeiae, etc.
- exercises with short rhythmic-melodic motifs, easy to memorize, compare, and reproduce, in order to have a greater number of nuclei on which songs are built.
- exercises of maintaining the pitch, perceiving the eighth-note rest and developing the compass on alternating inferior minor third with the syllable cu-cu, progressively. In the phase when they have already acquired a secure perception and a precision of reproduction on a small compass, this exercise was continued as a dialog between two groups; both types of vocal exercises were done in staccato and in *tempo allegro*.

II. 2. Development of vocal skills by singing: the staccato method

1. Description of the method

While the literature of the field offers a variety of methods for children with vocal and auditive difficulties to reach vocal stability (presented in details in a previous article), I have experimented a new method, not mentioned so far in the bibliographic sources at my disposal: the method of singing in staccato, applied both in exercises and in singing. The method consists of the staccato attack of sounds, aiming at the same time at keeping the melodic outline as well.

The basis of this method, meant for the recovery of children with deficiencies, is:

- on the one hand, the possibility for children to clearly reproduce isolated sounds, and the staccato singing of the melodic line (in shorter duration but at a precise pitch, similar to “syllabifying” in spoken voice) offers them the possibility to concentrate upon the emission of the sound coming next, the melodic outline.
- on the other hand, from a kinesthetic point of view, this method allows the projection of the singing voice over the text of the song, without passing through the intermediary stage of learning the melodic line with the neuter vowel and coming back to the text only afterwards, as several studies suggest. For the elimination of concerns about the memorization of texts, the songs were written on the blackboard.

The first steps in choosing the repertoire of songs was based on the **pentatonic structure of children’s folklore**. Well-known names of Romanian education, G. Breazul, L. Comes, E. Comișel, A. Ivășcanu, L. Toma-Zoicaș, V. Vasile, etc., not to mention those of European schools, repeatedly draw attention to the importance of beginning musical education at a young age, starting from simple and rational rules found most often in children’s folklore. The variants of songs progressively presented to children, starting from the interval of descending minor third gradually continuing with the development of the melodic line by neighboring steps or leaps, offer the group a “dowry” which they have not acquired before, and the lack of which can easily be noticed.

The association of the staccato method with the simplicity of these songs, some of them familiar, may remove the obstacle of inhibition, allowing thus:

- to concentrate on vocal accuracy
- to fix a relative kinesthetic support

- to enrich the melodic outline with schemes to which they can relate in other songs as well
- an easy and attractive way to exercise the vocal apparatus.

In the individual performance, during the first two weeks we focused on the development of auditive perception and vocal accuracy making use of a repertoire of easy songs which would allow them to concentrate upon easy tasks – staccato singing –, avoiding too many details. As they gained vocal independence and accuracy first individually, then in group, we added sound after sound to the songs, the children finally learning 13 songs. The activity went on both individually and as a group during the whole experiment.

In the framework of special recovery methods we tested the efficiency of several means applied simultaneously to the group of inaccurately singing children: individual and group audio recordings, or listening to the same songs they had learnt, performed by exceptional children choirs.

2. Analysis and interpretation of the data

Results obtained

Several observations could be made after the analysis, processing, and interpretation of the data; some of them are presented below.

Having in mind the small number of the subjects, as well as the asymmetric distribution of the sample, I applied the non-parametric Wilcoxon rank test to establish the position that the results of each subject take in the rhythm test, in order to find significant differences between the pre-test and the post-test.

Table no. 2. Wilcoxon rank test pre-test – post-test on the **sense of rhythm**

		Ranks		
		N	Mean Rank	Sum of Ranks
ritmpre - ritmpost	Negative Ranks	4 ^a	2.50	10.00
	Positive Ranks	0 ^b	.00	.00
	Ties	10 ^c		
	Total	14		

a. ritmpre < ritmpost

b. ritmpre > ritmpost

c. ritmpost = ritmpre

Table no. 3. Statistical differences for pre-test – post-test ranks on the **sense of rhythm**

Test Statistics ^b	
	ritmpre - ritmpost
Z	-2.000 ^a
Asymp. Sig. (2-tailed)	.046

- a. Based on positive ranks.
- b. Wilcoxon Signed Ranks Test

The Wilcoxon test proved that the recovery program yielded the following results for the subjects’ sense of rhythm: 4 of the subjects progressed, the other 10 remained at the same level regarding rhythm. It should be emphasized that none of the subjects regressed in this variable. This result can be explained by the fact that those 10 subjects had already had a good sense of rhythm which was also maintained in the post-test, while the other 4 progressed from a low level of a sense of rhythm to a medium one.

At the level of pre-test – post-test statistical differences there were no significant differences, the significance threshold for .046 is $p > .005$, keeping in mind that only 4 subjects registered progress.

Table no. 4. Wilcoxon rank test pre-test – post-test for **vocal performance**

		Ranks		
		N	Mean Rank	Sum of Ranks
CANTPRE	Negative Ranks	13 ^a	7.00	91.00
CANTPOST	Positive Ranks	0 ^b	.00	.00
	Ties	1 ^c		
	Total	14		

- a. CANTPRE < CANTPOST
- b. CANTPRE > CANTPOST
- c. CANTPOST = CANTPRE

Table no. 5. Statistical differences at the level of pre-test – post-test ranks for **vocal performance**

Test Statistics^b

	CANTPRE - CANTPOST
Z	-3.419 ^a
Asymp. Sig. (2-tailed)	.001

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

The Wilcoxon test proved that the recovery program yielded the following results for the subjects' singing performance: 13 subjects progressed, and only one did not, remaining at the initial, unsatisfactory level. At the level of pre-test – post-test statistical differences on singing, there were strongly significant differences, the significance threshold being $p < .001$.

Table no. 6. Wilcoxon rank test pre-test – post-test on **musical memory**

Ranks

		N	Mean Rank	Sum of Ranks
MEMOPRE	Negative Ranks	9 ^a	5.00	45.00
- MEMOPOST	Positive Ranks	0 ^b	.00	.00
	Ties	5 ^c		
	Total	14		

a. MEMOPRE < MEMOPOST

b. MEMOPRE > MEMOPOST

c. MEMOPOST = MEMOPRE

Table no. 7. Statistical differences at the level of pre-test – post-test ranks on **musical memory**

Test Statistics^b

	MEMOPRE - MEMOPOST
Z	-2.810 ^a
Asymp. Sig. (2-tailed)	.005

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

The Wilcoxon test proved that the recovery program has yielded the following results on musical memory of the subjects: 9 subjects progressed, 5 subjects did not, remaining at the initial level. It must be mentioned that 2 of the 5 subjects had an initial level of musical memory of 0, and remained at that in the post-test as well, while the other 3 remained at a low level, and registered no progress. At the level of pre-test – post-test statistical differences on singing there are significant differences, the significance threshold being $p < .005$.

Table no. 8. Individual compass – after isolated sound reproduction test – pre-test – post-test

Andra C.										
Diana C.										
Teodora P.										
Iulia L.										
Andrei L.										

Dan D.																			
Andrei R.																			
Catalin P.																			
Tudor M.																			
Raluca V.																			
Andreea V.																			
Patricia C.																			
Diana M.																			
Radu P.																			

Note: dark – pre-test; light – post-test

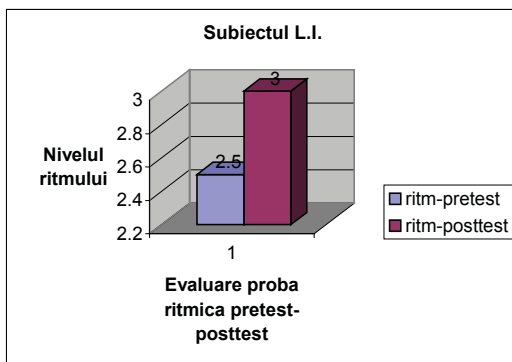
The subjects also progressed on the individual isolated sound reproduction test as follows: 10 subjects progressed significantly, 1 progressed insignificantly, 2 did not progress whatsoever, 1 subject regressed. It is interesting to note that in spite of the program a child can – statistically speaking – regress. This possibility is also mentioned by Davidson (1994) in his study already referred to in this paper, in which the author cites the observations of Sargeant and Roche who say that: “the ability of children to reproduce sounds becomes worse as their ability to reproduce outlines improves.”¹ This case means to go beyond our actual knowledge, even more so as most subjects have progressed at this test.

Qualitative analysis

In order to emphasize qualitative aspects, I will present only 2 examples of the 14 which I considered most conclusive by their contrast.

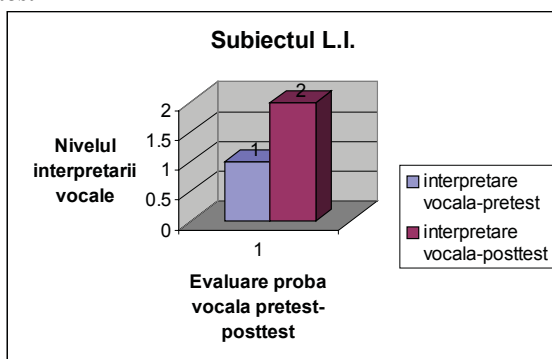
¹ Davidson, L. “Songsinging...”, 112.

1a. Rhythm test



Subject L. I. had a 2.5 points rhythm level in the pre-test, which means a precise rhythmic reproduction only at the second listening. In the post-test as a result of the experiment there was an increase of the rhythmic level to 3 points, meaning a precise reproduction at the first listening.

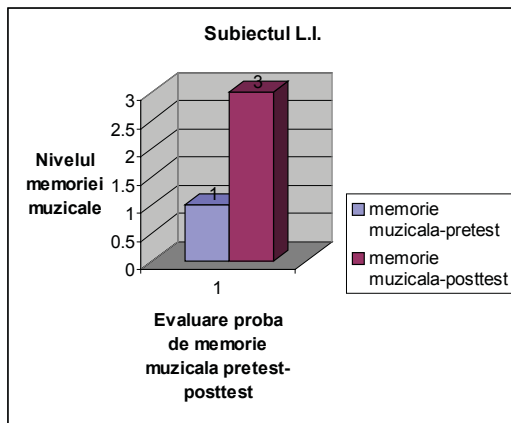
1b. Vocal test



Subject L. I. had a singing level of 1 point in the pre-test which means defective intonation, sliding through several tonalities ascending or descending, but grasping some correct melodic outlines. In the post-test as a result of the staccato method there was an increase at the level of

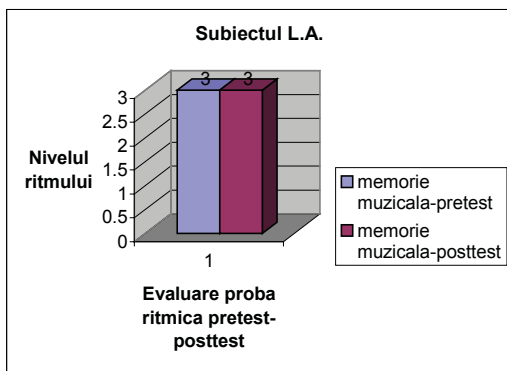
vocal performance to 3 points meaning correct individual intonation at the beginning, followed by sliding and leaving tonality.

1c. Musical memory test



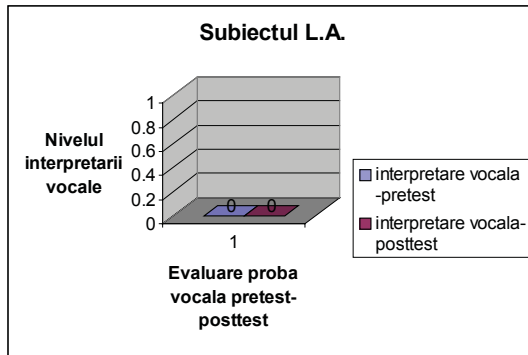
Subject L. I. had a 1 point level of musical memory in the pre-test meaning the correct memorization of two motifs. In the post-test as a result of the staccato method the level of musical memory increased to 3 points representing the correct reproduction of all six motifs.

2a. Rhythm test



Subject L. A. had a 3 point level sense of rhythm, that is, he could reproduce a rhythm correctly at the first listening. In the post-test he remained at a rhythmic level of 3 points, but it is a particular case because, despite a superior level of rhythm, the other elements of musical aptitude (vocal performance and memory) remain at an unsatisfactory level, proving Teplov's theory that a successful musical activity depends on the combination of aptitudes, and "the rhythm detached from the musical phenomenon has a formal nature, as rhythm is a category of form."¹ Révész reached the same conclusion, drawing attention to the fact that the sense of rhythm also exists outside musical phenomena (cf. p. 2.).

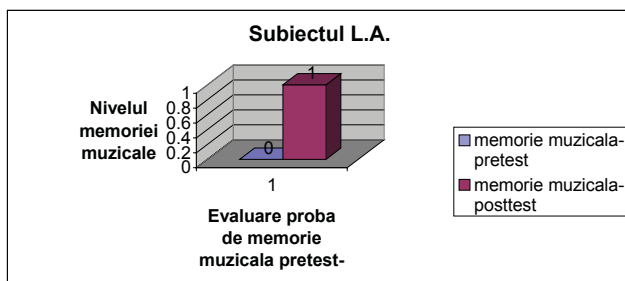
2b. Vocal test



Subject L. A. had a vocal performance level of 0 points in the pre-test meaning complete incapacity in singing, identification of the song only by its text. In the post-test despite the recovery program there was no modification of the performance level, this subject being thus indeed an inaccurate singer.

¹ Teplov, B. *Psihologia aptitudinilor...*, 31.

3b. Musical memory test



Subject L. A. had a level of musical memory of 0 points in the pre-test meaning the inability to memorize and incorrect performance of all six motifs. In the post-test there was a slight increase of the level of musical memory to 1 point, meaning the correct reproduction of only two motifs, which is only an insignificant progress.

Any activity for the education of inaccurately singing children presupposes certain conditions. First, and perhaps most important is the discovery of the causes which determine the lack of vocal-auditive evolution.

However, the analysis of particularities, first individual, then as a group, may complete the image of specific problems appearing with these subjects.

Individual deficiencies

- limited compass of voice, mostly in low register of singing, similar to spoken voice
- problems of incorrect breathing and maintaining of the musical phrase
- correct intonation of certain intervals, especially perfect fifth and minor third, although losing tonality
- contraction of neck muscles towards medium and high register
- under-development of vocal mechanism
- inhibition about singing, manifested by simulation, or on the contrary, loud and out-of-tune singing
- a case of possible functional dysphonia (permanent hoarseness in sung and spoken voice)

Collective deficiencies

- poor repertoire of familiar songs
- difficulties in taking over the tone
- lack of skills in singing, interruptions at the middle of the word or musical phrase
- lack of listening and self-listening skills
- lack of vocal control and concentration during singing
- problems connected to collective discipline

Observations

The synthesis of the data from the pre-test correlated with bibliographical data reveals that some of the difficulties of the singing voice are closely connected to their affective, temperamental, and behavioral panels which had to be kept in mind.

This attitude has directed the attention to a task parallel to recovery, but equally important, which is the creation of a new image of the self and of each other by the feeling of being collectively involved in the successful accomplishment of a novel experiment. Consequently this supplementary work done by each child individually and in group with the help of music means (besides other conditions) appreciation and respect.

I also observed one more aspect: listening to their vocabulary and their fluency in speaking I could deduce that they are not the best pupils in learning, and their teacher in most cases confirmed this assumption. Their social environment shows medium conditions, some of them commuting from the neighboring village of Baciu where they only sporadically attended nursery school.

Consequently, if musical aptitude is considered to be a personality trait which enables the successful performance of musical activity, then the level of the development of their predispositions, that core which stands at the basis of the formation of their skills under the influence of heredity, environment, and education, is very low.

Conclusions and limits of the study

At the end of the experiment, synthesizing and interpreting statistical data regarding pre-test and post-test variable measurements, it can be said that of the 14 inaccurately singing children 10 had recovered, proving tonal stability in collective singing and some slight dystonations in individual testing. Three children made no significant progress in the level of vocal performance compared to the pre-test, and one child made

no progress at all in the post-test. The musical memory test in the post-test shows a significant progress compared to the pre-test, with the exception of three children (two boys and a girl who did not progress at all). Still, they sang together with their peers at the final concert, enjoying it, although their voices could be distinguished every now and then at a lower register.

The collective vocal production in the post-test was neatly superior to the pre-test, which is explained, in my opinion, by the following progresses in the three variables:

- on the level of the sense of rhythm 4 children progressed, the other 10 had already had a good sense of rhythm in the pre-test
- on the level of individual vocal performance there are strongly significant differences between the pre-test and post-test ($p < .001$), 13 subjects have progressed and only one remained at the original unsatisfactory level. 3 of the 13 subjects made a minimal individual progress, however, together with the subject who had not progressed at all, they are all inaccurate singers.
- on the level of musical memory there are significant differences between the pre-test and the post-test ($p < .005$), 9 subjects progressed, while 5 subjects remained on the pre-test level.

The analysis of the conclusions shows the correctness of the theoretical assumption that by stimulating the two primary psychic processes of sensation and musical perception as the external bases of musical aptitude auditive representation is also implicitly stimulated. This is confirmed in the experiment by the significantly increasing results on the level of musical memory. The affective participation of the subjects (emotionality) activates the auditive patterns at the basis of recognizing a melody, and this is emphasized by a rich repertoire of 13 songs mostly of children's folklore corroborated with the variety of the exercises.

During the program all types of vocal exercises or songs were based on staccato singing, in a gradated way, encouraging any success.

On the basis of the results I arrived at the conclusion that the formation of vocal skills by the adaptation of the syllabic-melodic skeleton of words is an important factor in gaining accuracy and a valid support in the later transferring of the singing voice to a melodic interpretation (non-staccato).

The analysis and interpretation of the data of this experiment may raise some problems after the application of the recovery program based on the method of staccato singing.

The curiosity to see whether the children have maintained their performance also after the program took me back to their class after four months. This time I intended to work with the whole class in order to see their vocal behavior amongst musical children. I chose the song *Şade raşa pe butoi* (The duck sitting on a barrel) by Al. Paşcanu, writing the text on the blackboard. To my great surprise, not only the children who had taken part in the experiment “derailed” evidently, forgetting the melody and turning it into a recitation for the last two stanzas, but also the musical ones.

This situation has generated several doubts about the method and the means of recovery, without finding an immediate answer. I returned the same week, taking up the exercises and the new starting song again, as well as audio recordings for each line of benches (in which they were sitting at random), noticing that they gradually started to intone better and finally at the end of the class they maintained tonality.

Practice shows thus that the recovery of inaccurately singing children requires a well-prepared guidance, and hard and permanent work, even more so as the level of their aptitudes is very different, which requires a close examination for finding their latent abilities. Any form of relaxation after recovery as to perception, memorization, or sound production may compromise all the abilities developed.

Although this study offers incontestable positive results in proving that not all inaccurately singing children are indeed incapable of developing their musical aptitudes and that they can progress by a rigorously constructed and consistently applied recovery program, it also has certain limits in connection to the small number of subjects, the lack of a control sample, a certain deficit of measurement instruments, the risks of possible errors in data interpretation because of the examiner’s subjectivity.

However, these shortcomings can be erased in future research, underlining the mechanisms responsible for certain changes, as well as the parameters which influence the efficiency of the recovery. The instability of the data in certain categories of investigations, such as testing musical aptitudes, is already well known.