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10. DIDACTIC METHOD OF LEARNING DURING MUSIC LESSONS – APPLICABLE IN DISTANCE LEARNING

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Abstract: *The development of contemporary modern technologies in the field of music education is advancing forward. Our contribution points out to the use of didactic method of learning in music lessons with a focus on tablets. The importance of tablet as a modern teaching aid is significant in terms of pupils' motivation in education of contemporary elementary school. We focus on the classification of teaching aids and didactic techniques and their appropriate selection and analysis. In our survey we use a questionnaire as a method to find out how effective is the use of didactic techniques by selected Slovak teachers. We conclude the contribution synthesizing the knowledge from the nationwide project School at a Touch.*
Key words: *didactic technique, tablet, teaching aids, teacher*

1. Introduction

New devices of didactic technology have an important role to execute the aims of music education and in increasing the efficiency of the music education process. They are also important means of pupils' motivation or fulfilment of the principle of auditory or visual representation. At present, schools cannot avoid new trends in information and communication technologies, because pupils use these technologies in the field of musical perception and production. "Music in the lives of pupils is connected with electronic technologies" (L. Fridman 2013, p. 5). For this reason, it is necessary to follow these trends in the educational process.

2. Classification of Teaching Aids and Didactic Techniques for Music Education

Historically, the oldest basic aid textbook fulfils several functions, for example motivational, fixative, supervisory, and educational. It must also meet several criteria such as clarity, logical arrangement of the curriculum, division of the text, linguistic intelligibility, and acceptance of didactic principles. The textbook stimulates the unity of elementary music activities, serving for the comprehensive development of talent in pupils. Teachers should have a methodological manual or a songbook for each textbook of music education. Modern textbooks are usually based on the principles of integrative music pedagogy.

At present, **multimedia textbooks** are coming to the forefront, which brings more opportunities for the creative development of musical talent in pupils. L. Fridman (2013) considers them not only a source of text that describes music, and knowledge. According to him they also allow the presented knowledge to experience it more usefully. They make it possible to perceive the music curriculum

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in auditive form, to repeatedly come back to it and get to know it. Musical instruments are elementary teaching aids used at music education. Even if a teacher's performance is not a professional one, it has psychological and aesthetical impact on pupils (F. Sedlák, 1985). Musical instrument helps pupils develop their music abilities – singing, intonational, auditive-analysis skills. The importance of sound recording technology, especially in the form of CDs and DVDs, lies in perception activities, but also in other musical activities. It allows teachers to acquaint children with music and musical genres that they cannot perform themselves.

Internet is an aid with an attribute of speed, quality, and the possibility of selling information, which also has options such as e-mail and discussion forums or blogs. It also includes several music CDs, publications, tutorials, and various interactive courses. The World Wide Web provides information complemented by images, sounds and video. Music teachers like to use electronic pianos, synthesizers, and computer notation programmes. There are various music programmes that can be used for vocal intonation, or auditory analysis, or song analysis – from the latest programmes such as EarMaster 5, Sibelius 7 Cross and many others. Music teachers should also be able to work with programmes that can convert audio or video to the desired format, for example CDex, Windows Movie Maker, Tube Catcher, etc.

A. Šofranková (2012) considers the role of **visualization in music activities** to be an important part of pupils' motivation, activation, and concentration. It also helps pupils with a dominant visual memory, hyperactive, or those with attention deficit disorders. In her opinion visualization is a pedagogical-psychological process that enables the synthesis of auditory and visual perceptions to activate the children's attention during music acquisition and to participate in the formation of their ideas. The teacher in the teaching process reaches for the interactive whiteboard because it contributes to the effectiveness of the teaching process. The interactive whiteboard is a modern teaching aid, which consists of a computer, a data projector, a special pen, and a computer. It is an electronic device that allows teachers and pupils to work with a computer directly from the whiteboard. According to the nature of music activities in the subject music education, we divide **teaching aids and didactic technique** into:

a) Perceptual – sensory reception of information through sensory organs such as hearing, sight, and other sensory sensations:

- **Auditory** (CD player) – it affects senses of auditory system (recordings from songs and songs to listen to music, with digital recording of HDD audio, CDs, storage media),
- **Visual** – primarily affects the eyes:
- **Static** – paintings (illustration in a textbook or on a blackboard, wall painting), symbolic representations (music notation, diagram), photographs of composers and musical instruments, aids for projecting a static image,
- **Dynamic** – gradually created images in front of the student's eyes (writing or drawing on the board, applications on the magnetic board, mute film loops, projection through a data projector and others).
- **Audio visual teaching aids:** They provide visual and auditory information:

- Audio visual static teaching aids – effectively can be used when the educational content they present does not require a kinetic presentation,
- Audio visual kinetic (dynamic) teaching aids – are used to capture and reproduce movement in space and time (film, video, live TV, CD, DVD, HD DVD, iHD, Blu-ray disc).

b) Productive music aids and didactic-technical devices are the following:

- **Classical musical instruments** (guitar, violin, piano, and others),
- **Orff instruments,**
- **Electronic musical instruments**.

L. Fridman (2004) includes among electronic instruments a synthesizer and a keyboard. According to J. Laborecký (2008) the synthesizer creates sounds that are very similar to human speech, and to the sound of musical instruments. Musical instrument keyboard was derived from the English meaning of music keyboard. Keyboard is like the classical musical instrument piano, but it is intended more for entertainment.

Today, electric musical instruments are popular with students due to technical developments, as they can experiment with various musical as well as non-musical sounds.

c) Teaching aids and didactic technique that synthesize perception and production:

- **Multimedia computer**, thanks to its functions, can replace a productive and perceptual teaching aids and didactic techniques. A multimedia computer plays an important role in the efficiency of interconnectedness of a lot of information.
- **Computer software** contains several programmes that a teacher can use within teaching process. Music programmes include visualization and notation, acoustic and electroacoustic, combined and multimedia. We can also create sound using a digital computer device. There is computer software that allows you to record sound and write melodies to a sheet music. Audio software is used to record the soundtrack, with which the musician can master recording, editing and visualization of the sound. Currently there are the following programmes: Audacity, Cool edit, Nuendo, Encore, Sibelius, Opus Amadeus, Capella, and Musescore.
- The **Sibelius programme** is a widely used group of music software. It contains a function so called “Expressivo”, which means that the programme can add expression and phrasing during playback (L. Fridman, 2004). Sibelius can provide space for music educators to create teaching aids. In the programme they can create various rhythmic and intonation exercises, and textbooks with the necessary music demonstrations. Programme Musescore has similar functions as Sibelius: It can play sheet music, create a sheet music recording that can be used as an auditory musical aid.

These programmes with their possibilities, the quality of virtual instruments, and the impressiveness of sound processing arouse technological admiration. Nevertheless, we should not forget that human input is becoming a unique, inimitable, and unifying phenomenon.

Modern teaching aids and didactic techniques should support all stages of the cognitive process (motivational, exposure, fixation, application, and diagnostic).

They should also meet the attributes of permanent activity and stimulation for both students and teachers.

3. Tablet as an Innovative Didactic Technique in Music Education

Traditional school has always been associated with blackboard and chalk. Today, in order to achieve educational goals, it is also necessary to use modern didactic techniques, not only in the acquisition of the curriculum. The field of **educational technologies** brings to the forefront the concepts of interactivity, accessibility to the user and mobility. Today, hypermedia resources are used in the field of education (J. Skalková, 2007). These are programmes and devices that connect and present other sources of information, such as images, sounds, or videos. And a tablet is the device of didactic technology that is gradually integrated into the common school practice through projects. The project **Electronization of the Education System of Regional Education** was implemented by the Ministry of Education, Science, Research and Sports of the Slovak Republic in cooperation with the Methodological and Educational Centre. The project brought the construction and creation of a functional electronic education system and the commissioning of electronic services. It also includes the establishment and equipment of digital classes, the adaptation of digital content and, finally, the training of selected staff to ensure further education of teachers. The project was funded by the European Union under the OPIS programme (DigiŠkola, 2014).

Tablet brings a new potency and quality to the educational process. It is a pointing device designed for common work in the operating system, as well as in various areas of creative work. Its **manoeuvrability** requires a certain exercise from the beginning, but gradually it becomes rather intuitive and very simple. Tablet is a touch screen technology, usually a book size of A6 to A4, up to 1 to 2 cm thick (R. Adamek et al., 2010). It is a personal portable device about the size of 7"- 12. It consists mainly of a relatively large integrated touch screen, which can be supplemented with a keyboard cable or via Bluetooth. It allows the user to work on the computer primarily with a finger, stylus, or digital pen. In the initial characteristics of this device, we must initially correctly determine what type of tablet it is:

a) Graphic tablet (digitizing tablet) – It is the input device of the computer. It consists of a fixed pad with an active, usually rectangular, or square surface and a movable sensing device in the form of a pen, or so-called puck in a shape resembling a mouse.

b) Tablet computer is a computer that is fully integrated in a display, which is a touch screen and serves both input and output devices. It has a relatively long-lasting battery. It can be a universal computer or a specialized computer (for certain tasks, only for browsing the Internet and others). We recognize:

- Pure touch tablet PC
- Convertible tablet PC
- Hybrid tablet PC
- UMPC – has an LCD touch screen and an external keyboard can be connected or even partially integrated.

The tablet may include a digital pen, the movement of which can also be transferred to a computer, in case of connection with this device. Touching the pen on the tablet will trigger an action like clicking a computer mouse. In the case of drawing, the pen also distinguishes the intensity of the pressure. The tablets consist of three basic parts. In addition to the tablet and digital pen, the device can also include a USB receiver or a USB cable (it connects to a computer; in the case of the most modern tablets, network connection is possible without this device). In education, we mainly use tablets in combination with other devices, such as in connection with an interactive whiteboard, data projector or computer with a touch screen. The tablet device is also an attractive tool for students, regardless of their age. It also attracts the attention of younger and older-age pupils, working with a tablet has a strong motivating character for them and they are very much looking forward to activities with this device. Younger pupils approach working with a tablet very intuitively. Working with modern touch technologies is not a problem for pupils.

The advantage of using a wireless tablet is its interactivity with space for a new communicative environment when we want to stimulate pupils. This creates new creative teaching possibilities with the support of information technologies. The advantage in comparison with the interactive whiteboard is also mobility, which allows free movement around the classroom and the involvement of a larger number of pupils in education process. It improves the teacher's contact with pupils in individual and teamwork and the contact feedback with the teacher. From this position, a teacher can evaluate pupils' progress compactly, ask them additional questions, communicate better, solve current problems or complications and others. Various animations, texts, images, music, applications, or programmes can be presented via the tablet. An important role can also be seen in working with handicapped pupils or pupils with special educational needs. They also handle tasks with a tablet well. Creative activities have a strong impact on motivation and self-confidence.

4. Project "School on Touch" – Using a Tablet at School

The ability to understand information and know how to apply it is currently one of the main goals of introducing modern technologies into our existence. The project of Samsung and the non-profit organization EDULAB, called **"School on Touch"**, presents the idea of active use of modern digital technologies in schools and for schools. The Komenského 13 Primary School in Sabinov (Eastern Slovakia) also took part, where music education was innovated under the guidance of an experienced teacher Mgr. Janka Franková, with whose help this contribution was also created.

Thanks to this project, 10 selected schools in Slovakia in the cities of Bratislava, Šamorín, Púchov, Bošany, Nitra, Banská Bystrica, Detva, Trstená, Poprad, and Sabinov, received new technologies and software for teaching by using modern technologies. These schools received more than four hundred Samsung Galaxy Note 10.1 tablets, equipped with a special touch layer on which you can write with an integrated pen. Through the Samsung School solution, the tablets are

connected to a whiteboard with a 65" or 162.5 cm touch screen. They also received new furniture in the classrooms, enabling various dynamic layouts in the classroom. Involved teachers and pupils created interactively available materials to inspire all educators interested in new ways of working. Together they have prepared interesting video blogs, pupil projects and methodologies for the use of tablets, where they present an original way of meaningful use of tablets at school. The work also resulted in opinions that teaching with tablets is easier and more fun, motivating, and illustrative. Learning with technologies also brought about an improvement in pupils' attitudes towards individual subjects.

Application of a Tablet in the Topic: Expressive Means of Music and Their Application in Practice by Using Tablet in the 5th grade of Elementary School (Author of the Topic: Mgr. Janka Franková)

Aids:

- Teaching aids: music demonstration (demo) in mp.4 format, headphones for tablets, whiteboard.
- Didactic technique: Tablet, Walk Band application, S note application, whiteboard with touch screen, internet.

The varied world of the animal kingdom can also be an inspiration for a musical composition. Pupils turn on the tablet and open the **S note** application. They work using a digital tablet pen. We ask them to use the tools of the application in the tablet to draw the animal that the composer wanted to express through music. The teacher plays music demo of Camille Saint-Saëns "The Carnival of the Animals". We draw pupils' attention to the **instrumentation and colour of the musical composition**, as a composer connected the world of music with the world of animals. We motivate pupils' imagination while they are drawing. Pupils can present their drawings to classmates, describe how their music motivated them to create a drawing.

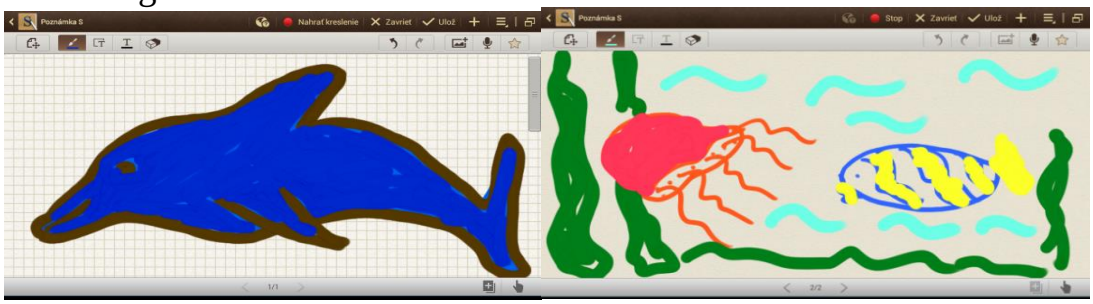

Fig. 1. Drawing inspired by music – Walk Band Music
Source: Pupil from Janka Franková's class (Janka Franková's archive)

We use the Walk Band application.

Fig. 2. Keyboard

The world of **musical instruments** can relate to the world of animals by focusing on the development of knowledge about melody. Pupils choose their favourite animal. In the Keyboard section, they look for the musical instrument that best describes the animal – according to the properties of the instrument, the nature of the tuning, the pitch that the instrument emits, and so on. They will correctly assign the selected musical instrument to the instrument group. Using a touch keyboard, they try to improvise and capture the image of an animal.

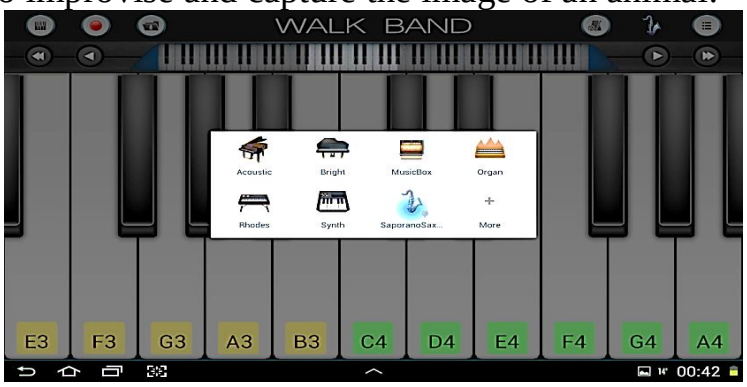

Fig. 3. Application Walk Band

Example1: Animal – a deer, instrument – a double bass, instrument group – string instruments. In the following practical task with pupils, we develop especially rhythmic skills. The Drum pad in Walk Band allows you to create and record short rhythmic themes using different types of percussion.

Example 2: Fast animal – a mouse, a bird – we choose rhythmic sounds of mallets, a triangle, a rumba ball and others, slow and big animal – an elephant, a deer – selected rhythmic instruments complement the animal character – a big drum, cymbals, and others.

In the next task, pupils can develop the acquired knowledge about harmony, instrumentation, but also melody and rhythm. Using the part of the application called **Multitrack Record**, it creates a 25-second recording showing the selected animal. In the recording, at least two musical instruments of different instrumental groups are connected, supplemented by a rhythmic accompaniment to capture the character and characteristics of the animal. Pupils present their demonstrations to classmates, whose task is to guess which animal it is. We may evaluate the most successful recordings together. We develop cooperation at work, self-reflection and self-evaluation.

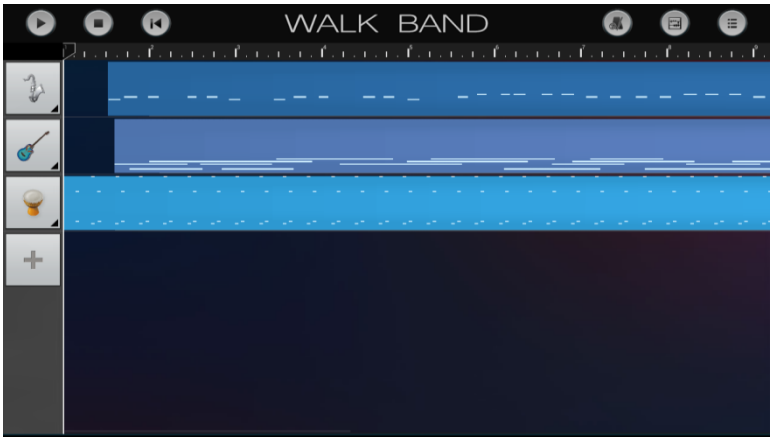

Fig. 4. Application S Note

We write the five animals that pupils liked the most on the board. Pupils

continue to apply **S Note**. Their task is to come up with a simple story about animals with the incorporation of music recordings from tablets. A teacher writes the brief scenario in the application with a **digital pen**.

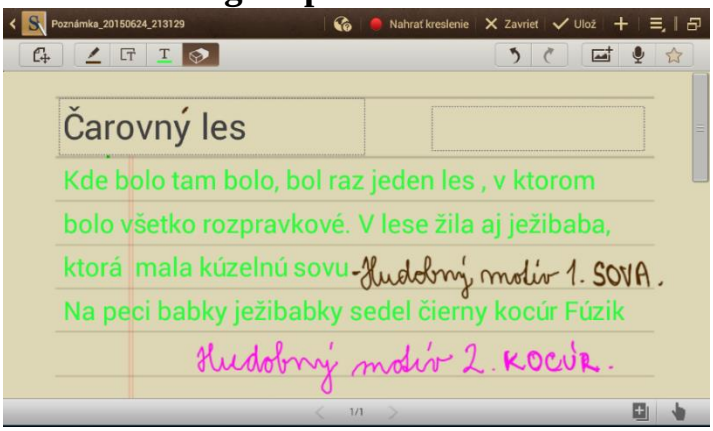

Fig. 5. Music Motive Magic Forest
Source: Pupil from Janka Franková's class (Janka Franková's archive)
(Text: Once there lived a witch in a forest. She had a magic owl. Music Motive 1 *An Owl*. A black tomcat sat in the oven of the witch. Music Motive 2 *A Tomcat*)

We select one theme and its main characters. At the end of the lesson, pupils present a short **music-drama tale**. Other classmates can musically **co-create the story using percussion in the Drum Pad** (greeting, surprise, fright, threat, warning) or in **Keyboard** using musical instruments. We record the whole story with a tablet, document it with photos or video.

The music lesson is aimed at the means of expression of music and the application of pupils' abilities and skills using a tablet. The **Walk Band** application provides a large space for a better acquaintance with individual musical instruments. Using an internet connection, pupils can download the sound of any musical instrument from the menu and control it using the interactive keyboard. Even non-traditional tools such as a music box, synthesizer and more can search for and download. Already at the initial motivation, we develop pupils' musical imagination. We try to involve as many senses as possible in learning. We evaluate the individual pupil' outcomes in a suitable form and develop their self-reflection.

From the pupils' perspective, working with the Walk Band application is very popular. It does not require prepare beforehand. It allows you to combine playing musical instruments with rhythm, even two students can play on one tablet as in a piano duet involving two players playing four hands. For those who prefer drawing, the **S note** application has proved its worth, offering, among other things, the function of creating images. The drawing process can be recorded and then reused. When coordinating pupils, the teacher is connected by his tablet to the big screen, pupils can see his or her work with applications. The teacher can solve any complications with the creation of recordings individually with pupils thanks to the mobility that the tablet device provides at work.

Throughout the lesson, all pupils were actively involved in various tasks, which were different in character. When they worked with **Walk Band** application, they used **headphones**, which did not disturb each other pupils' creative space for work. They managed to create very original musical adaptations of animals, such as a fly, swan, duck, frog, horse, woodpecker, and others. Some of the recordings were

very funny, they brought such a relief within the lesson. The pupils were looking forward to the individual tasks, they cooperated without any problems in their elaboration.

The final part of the lesson can be focused on a complex interconnection of creativity and musical skills. We can modify the musical tales created in this way according to the teacher's requirements or the situation. Several musical stories can be combined into a larger music project, which can be presented in front of classmates in the form of an educational concert. Every musical activity that motivates pupils to actively listen to and experience music makes sense for pupils.

Summary of our findings: The use of the tablet as a modern device of didactic technology is perceived as creative teaching. The involvement of modern technologies in teaching has a demonstrably strong influence on the motivation of the student, influences a positive attitude towards the subject, learning, activating pupils, it becomes part of their lifestyle.

Pupils showed an increased interest in music in general, as well as in teaching music history. In the activities, they showed greater emotional experience and thus achieved deeper experiences. However, its use must be meaningful. By appropriate inclusion of modern means of didactic technology, such as tablets, we can positively influence the relationship and attitude of pupils to the subject of music education.

5. Results: Music Teachers Opinions on the Use of Teaching Techniques and Aids

From the survey questionnaire, which was answered by 41 primary school teachers during March and April 2021, we select the following ones:

1. Do you use your own teaching aids in music lessons?

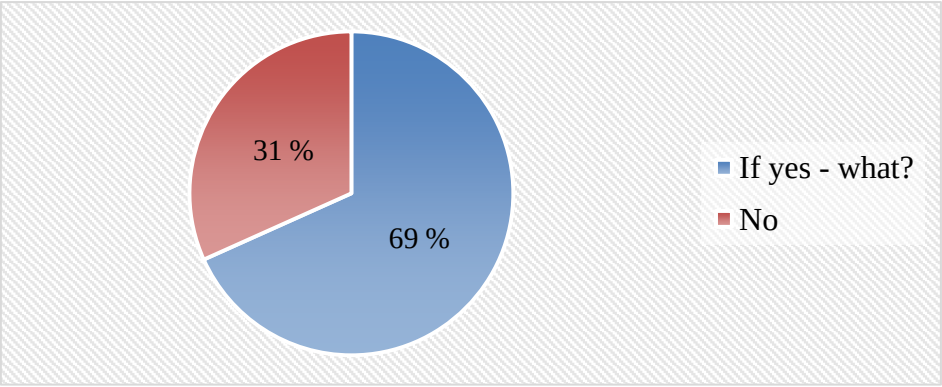

Fig. 6. Use of their own teaching aids

Thirteen respondents answered that they do not use their own teaching aids on music lessons. Twenty-eight teachers use them, particularly the following ones:

- **Rhythmic instruments** – simple hand-made instruments, graphic rhythmic scores, rhythmic cubes, rhythmic instruments made of cardboard, rattles made of plastic bottles, bottles filled with pasta and legumes, so-called Chinese rain, Chinese mallets, boom whackers, cards with rhythmic values,
- **Classical and electric musical instruments**: such as piano, flute, violin, children's musical instruments, musical instruments made by children,
- **Orff instruments** – classic and made by students,

- **ICT aids** – computers, recordings, interactive whiteboards, magnetic and interactive whiteboards, data projector, own PowerPoint presentations,
- **Perceptual** – recordings, speakers, radio, mp3 players,
- **Visual** – own musical memories, puzzles, educational games, own made posters with musical nomenclature and solmization exercises, production of own aids and musical activities, musical signs for the so-called logs, plastic plates, cups, scarves, own secrets, octagons, puzzles, various games with scales, musical instruments made with children, cards with notes and questions, sheet music, TV, professional literature.

The answers indicate that teachers make great use of their creativity. Motivation to listen to classical music is currently challenging, so the teacher must be creative in the selection and application of teaching aids and teaching techniques. Educators also reach for non-traditional teaching aids and are increasingly trying to apply their imaginativeness.

2. What tools do you use most often?

In this open-ended question, pupils stated that they most often use the following aids:

- **Orff instruments,**
- **Classical and electric musical instruments** – piano, violin, guitar, flute, accordion,
- **Rhythmic instruments,**
- **Visual aids** – various visual aids, colouring books for students, various memory games, music cards, worksheets by Vozár, songbooks, textbooks, cut records of songs,
- **ICT teaching aids** – data projector, radio, internet, whiteboard, interactive whiteboard, computer, own presentations, musical instruments such as piano, guitar and violin, worksheets by Vozár, various songbooks, textbooks, cut songs, microphones, speakers.

The answers indicate that teachers most often rely on ICT in music lessons and bring their own musical and hand-made instruments.

3. What types of teaching aids do you use in music lessons? (Provide more answers.)

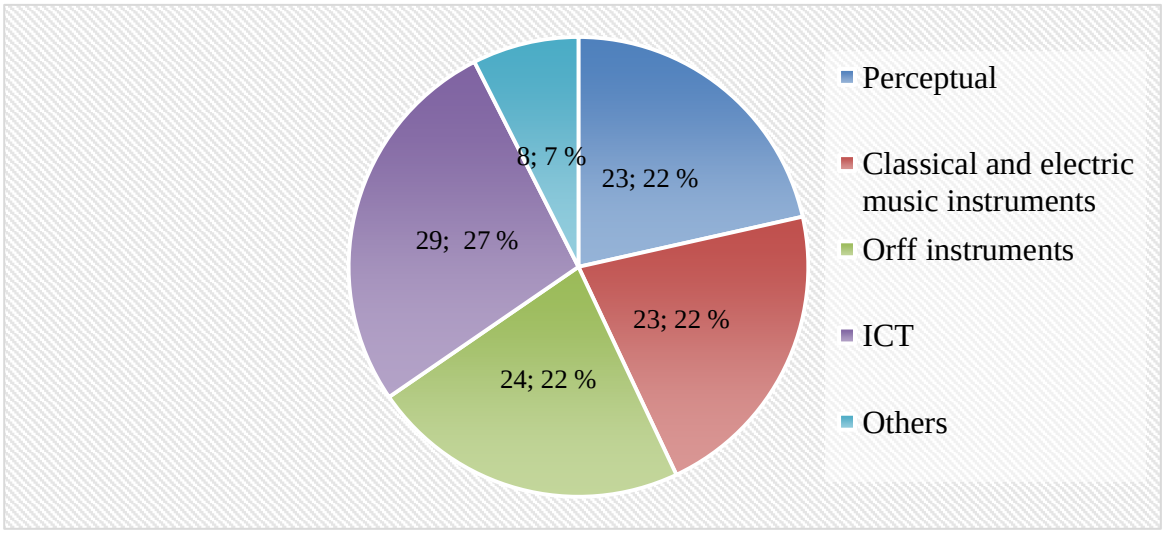

Fig. 7. Teaching aids

To this question, respondents had the opportunity to indicate more options. Most teachers (30 respondents) rely on information and communication technologies. ICT is currently an important part of the teaching process, through which teachers give students their own presentations, various videos, demonstrations, recordings of songs, pictures related to the topic of the lesson. They provide textbooks, sheet music, rhythmic and intonation exercises and much more. 23 respondents answered that they use perceptual musical aids during their music lessons. The perception of music is very important, because it develops the auditory perception of students, which is based on the answers of music teachers are aware. The answers of 25 respondents show that primary school teachers like using Orff instruments. 24 respondents indicated that they use classical and electric musical instruments such as piano, flute or guitar in music lessons. In some primary schools, teachers do not have the opportunity to use classical tools because they are missing in the school premises, so we are surprised by this result. 2 respondents try to use all the aids, of course not in one hour to diversify the hour. And finally, 1 respondent stated that, in addition to these aids, she uses other aids and musical instruments, such as various caps and aids from the area. There were also answers such as the flute, the so-called boom whackers, and their own hand-made aids.

Music is an art that we cannot see, and we cannot do with an auditory imagination alone during music lessons. By creating different perceptions, we develop the personality of pupils comprehensively. According to the respondents, the significance of creating different perceptions also lies in the fact that teaching is more attractive. The child develops not only musically, but also emotionally. With interesting musical aids, the teacher attracts the attention of pupils, draws them into the lesson and they receive information more effectively. Thanks to teaching aids, pupils can get auditory ideas about the sounds of musical instruments. They also understand the context of real subjects and demonstrations. Teachers give great importance to teaching aids.

6. Recommendations for Practice and Conclusions

Music education is a subject that does not have a dominant position in the teaching process in contemporary consumer society. Some teachers do not realize that music education can be more colourful by singing songs and creating simple rhythmic and melodic accompaniments and much more than that. It is necessary to reach for teaching aids that are unconventional, attractive, and interesting for pupils. It is important that not only teachers but also pupils work with teaching aids. In the practical application of didactic techniques or teaching aids, we adhere to didactic principles. We apply the connection of the pupils' opinion and creative contact with the object, by experimentation or active use. We consider sensory perception to be the basic source of concepts and thinking. Music teachers should be careful to pay attention to the principles of adequacy, systematicity, feedback and individual approach to pupils to be as clear as possible, use modern teaching techniques, and teaching aids.

The constant development of technologies was also reflected in the subject of music education. However, modern teaching technologies should primarily be a

means of communication effectiveness and quality of education, not a compensation for superficiality, inconceivability, and not systematic work of a music teacher (L. Fridman, 2013). Didactic technique – a tablet can be a valuable source of motivation and creativity for many pupils in distance learning, who can work on tablet and be also creative with it.

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