
Musical ability and its influence on foreign language pronunciation

Wpływ predyspozycji muzycznych na umiejętność wymowy w języku obcym

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Abstract

This paper aims at presenting the results of a study which addressed the issue of language aptitude with special attention to the influence that musical education exerts on foreign language pronunciation skills. The study was conducted on the basis of the Danish language and consisted of a task that pertained to the production of Danish words and phrases. The participants in the study were two groups of students: musicians from Academy of Music and non-musicians from The Institute of English Studies at the Łódź University. In the present paper the author discusses the results of the task concerning pronunciation skills of both groups of respondents, taking into consideration the point of view of an external consultant, who assessed the performances of the respondents. Moreover, the results of musicians will be juxtaposed with those gained by non-musicians in order to reveal the previously mentioned correlation between musical training and foreign language aptitude. On the basis of the obtained results, it can be concluded that this research indicates that musical and linguistic skills are interconnected.

Key words: musical aptitude, language aptitude, pronunciation skills.

Abstrakt

Artykuł przedstawia wyniki badania predyspozycji językowych, z uwzględnieniem istotnego wpływu jaki edukacja muzyczna ma na zdolność poprawnej wymowy języków obcych. Najważniejszym elementem badania był sprawdzian umiejętności wymawiania słów i zwrotów w języku duńskim. Wzięły w nim udział dwie grupy: studenci Akademii Muzycznej oraz niemający do czynienia z edukacją muzyczną studenci Instytutu Anglistyki Uniwersytetu Łódzkiego. W niniejszym artykule omówione zostaną wyniki obu grup, z odwołaniem do opinii niezależnego konsultanta, który dokonał oceny nagranych wypowiedzi wszystkich studentów. Ponadto, aby wykazać wspomniany wcześniej związek edukacji muzycznej i predyspozycji do nauki języków obcych, rezultaty studentów Akademii Muzycznej oraz studentów Instytutu Anglistyki zostaną ze sobą zestawione. Uzyskane wyniki badań pozwalają zwrócić uwagę na silną współzależność muzycznych i językowych uzdolnień.

Słowa kluczowe: talent muzyczny, talent językowy, wymowa.

Music and language in the acquisition of L1 and L2

From the psychological and linguistic point of view, the interaction between acquisition of music and language begins at a very early stage of life (Fonseca-Mora, 2000). It has been established that the foetus perceives various acoustic signals in the womb. The studies conducted by Dr Alfred Tomatis showed that what the foetus can hear and react to is not limited to the heartbeat of its mother but it can also hear sensory information that comes from outside the uterus (ibid.). The studies revealed that five-month-old foetuses react to phonemes of language. By way of example, Carla Hannaford (1995; cited in Fonseca-Mora, 2000) depicts the following situation:

Using fibre optic cameras, Dr Alfred Tomatis discovered that the foetus will move a specific muscle, in the arm or leg for example, when it hears a specific phoneme. The particular muscle moved varies in each foetus stu-

died, but each time the same phoneme is sounded, the same muscle will move. This early connection of a muscle response to sound suggests the significance of anchoring sensory input with action for learning to occur. This sensory-motor response to phonemes allows the foetus to begin the process of learning language in utero. By twenty-four weeks... the foetus responds to music by blinking its eyes and moving as though dancing to a beat. (Hannaford, 1995: 36)

Therefore, it may be assumed that the process of learning sounds starts even before birth, and that leads to believe that sound perception is one of the earliest processes to develop (Fonseca-Mora, 2000).

Another study that indicated interaction between music and language was conducted by Mehler and Dupoux (1992). They wanted to find out the age at which a child will be able to identify its mother tongue. They recorded a perfect French/Russian bilingual speaker telling a story in both languages. Two groups of French babies were exposed to the stories: a group of four-day-old newborns and a group of two-month-old infants. Both groups distinguished their language. Mehler and Dupoux concluded that four-day-old newborns were capable of distinguishing the typical melodic contour of their language, but not the words, because when they were exposed to French-sounding sentences but with invented words; they also recognized it as their language (Fonseca-Mora, 2000). Fonseca-Mora (2000) continues stating that each language possesses its own intonation and rhythmic properties that may be distinguished even by very young infants. In other words, the study revealed that music is an important part of the process of language learning and it is melody not words that a child identifies at first.

According to James et al. (2002), infants are used to various melodies and rhythms to which they were exposed before birth. By way of example, it will be his or her mother's voice that an infant will identify and respond to most intensively at the very beginning of his or her life (Damstra-Wijmenga, 2009). Generally speaking, infants seem to be extremely sensitive to melody and it may be why they are able to distinguish between languages and speakers whose rhythmical patterns vary.

Taking into consideration the process of acquisition of a foreign language, the situation slightly differs as the individuals cannot receive any sonorous stimuli prenatally. The first foreign language auditory input appears in the classroom. Nevertheless, according to Fonseca-Mora et al. (2011: 101), “melodies and music in general, are present in the language teaching context as well.”

By and large, teacher talk in the foreign language classroom is to some extent similar to parental talk, to which young children are exposed when they learn the native language (Arnold & Fonseca-Mora, 2007). There exist a number of similarities between teacher talk and parental talk, namely the frequent use of repetition, formulaic expressions, expansions, preference for simplified vocabulary, change in voice volume, and modification of intonation contours (Fonseca-Mora et al., 2011). Berger and Schneck (2003: 689) argue that “humans are not thinking machines that feel, but rather, feeling machines that think”; thus it may be why speech melodies which act as indicators of emotions exert such a great impact on communication.

Music seems to be one of the most frequently used resources in foreign language classes. However, it is usually treated as an entertainment (Zybert & Stępień, 2009) due to the fact that music generally reduces students’ anxiety caused by their inability to speak or understand a target language (Fonseca-Mora et al., 2011). Zybert and Stępień (2009) state that the use of music in a language classroom should not be limited to recreational activities. They continue saying that most songs should be used as “an excellent pedagogical tool in language teaching” (Zybert & Stępień, 2009: 100). It has to be noted that songs may be really advantageous in foreign language learning as they bring authentic voices from other cultures, strengthen students’ pronunciation skills and provide an excellent opportunity to learn new vocabulary (ibid.). Jolly (1975) and Thain (2010) (cited in Fonseca-Mora, 2011) assume that songs may help develop all four skills: listening, speaking, reading and writing. Furthermore, songs are believed to activate both hemispheres of the brain. According to Brewer and Campbell (1991: 231), “music has the unique quality of integrating emotional, cognitive and psychomotor elements that activate and synchronise brain activity. Not

only does music relax and stimulate the listener simultaneously, it also educates learners with regard to listening sounds and refined architecture of sound”.

The study

The subsequent sections of this paper report on a research project whose paramount objective was to determine whether musical aptitude exerts any influence on foreign language pronunciation skills. It is anticipated that there is a relationship between musical talent and foreign language aptitude. It is hypothesised that among all of the respondents in the research, musicians will appear to be better at pronunciation than non-musicians.

Participants

Due to the fact that musical aptitude is a pivotal factor in this research, the author of the project resolved to ask two groups of subjects: musicians and non-musicians to participate. Hence, the research was conducted in two places: at the Institute of English Studies, University of Łódź and at Grażyna and Kiejstut Bacewicz Academy of Music in Łódź. In each of these places 16 students were asked to take part in the research, half of them male and half female.

The non-musicians were current or former students of English Philology in Łódź. The respondents' age varied from 23 to 26. They represented a high level of proficiency in English. It is vital to note that English Philology students should have a higher level of linguistic awareness.

For the very purpose of this research, musicians are deemed as people who graduated from a Music School and later on chose to study at the Academy of Music. When attending Music School, they played various musical instruments but they also had numerous musical classes such as ear training, history of music, choir or orchestra. They are people who are really well trained in music. Musicians are able to reproduce sounds, as they do it while playing instruments. They are assumed to have a good ear for music, which is assessed during ear training classes, where they write aural, sing both tonal and atonal pieces of music or repeat complicated rhythms. All

of these abilities may be of great importance considering not only musical but also linguistic abilities.

The musicians who took part in the research play various musical instruments such as the violin, piano, percussion, piano accordion, guitar, cello and saxophone. Their age varied from 20 to 26. None of them had had earlier exposure to the Danish language.

Materials and procedure

The instrument of the research was a questionnaire which also included some questions to collect demographic data. The main part of the questionnaire pertained to the foreign language pronunciation skills. There were 17 Polish equivalents of Danish words and short phrases which the respondents were instructed to repeat and record after listening to the recording. The only information that was given to the subjects before the research was that it related to the process of foreign language learning.

The words which respondents were supposed to record were selected by an external examiner, a native-speaker of Danish, and they varied in the level of difficulty. The sound for this task was recorded by the external examiner at a recording studio in Warsaw. The consultant was a 22-year-old woman who was born as well as brought up in Denmark but now lives in Warsaw. Nonetheless, she still stays up-to-date with what happens with the Danish language as she works for a Danish company and communicates with native speakers of this language on a daily basis.

As far as the task is concerned, it was indispensable to ask the examiner to assess the recordings. She was provided with the evaluation form and after listening to the recordings, she graded each recorded word of the 32 respondents on a 5-point scale ranging from 1 (*very weak*) to 5 (*very good — native like*).

Results and discussion

As depicted in Figure 1., concerning pronunciation of sounds, the musicians appear to have an advantage over the non-musicians.

In the group of musicians, the respondents' pronunciation of words was mostly assessed as good (103 words). Only when giving scores to musicians,

as the consultant stated, was their pronunciation assessed as very good (native like) (19 words). It is vital to note that she was not aware of whether people she assessed were musicians or non-musicians. What is more, the musicians' pronunciation of Danish words was stated to be mediocre 98 times. It seems to be visible that the pronunciation of the overwhelming minority of words (52) was graded as weak or very weak. In comparison, it is noticeable that the results of the non-musicians are definitely weaker. None of the non-musicians pronounced Danish words very well. Their pronunciation was many a time assessed as mediocre (121 times). Only in 37 cases was their pronunciation good. A large number of words was pronounced either weakly (75 words) or very weakly (39 words).

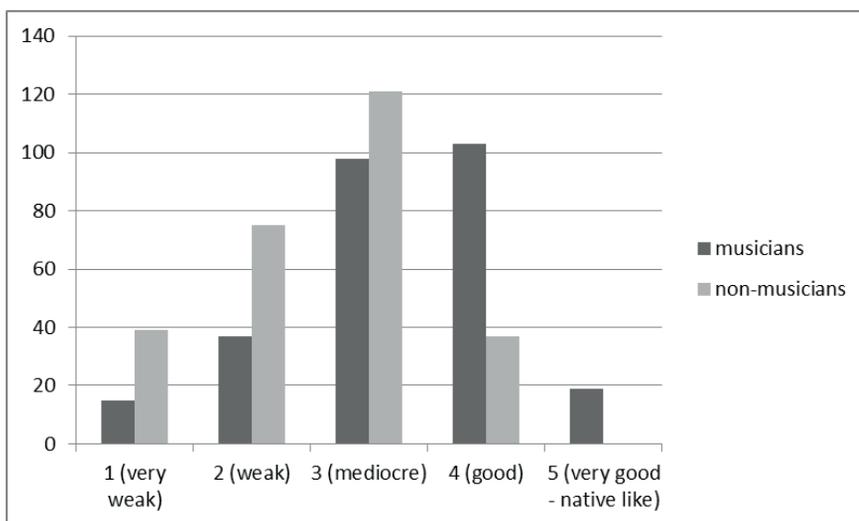


Figure 1.

The relation between musicians and non-musicians concerning pronunciation of Danish sounds

Such results seem to prove that students may benefit from their musical aptitude a lot in terms of foreign language pronunciation skills. However, there appeared some words that caused difficulties for musicians; nevertheless, on the whole they performed better than non-musicians when concerning pronunciation. The reason for such results is

possibly the fact that musicians in general have abilities to reproduce different sounds. While listening, musicians do not necessarily focus on the difficulty of unknown phrases but they hear the melody of the language. Furthermore, they all play musical instruments and are just trained in repeating numerous sequences of complicated rhythms and sounds. Due to the fact that they have to memorize extremely long pieces of music, it may be easier for them to remember the word in a foreign language and repeat it correctly.

The results of non-musicians may be poorer owing to the fact that their musical hearing is not so well developed. They may not have the ability to remember sounds, and they presumably find repeating unknown words difficult. Nevertheless, it seems surprising that the difference between the two groups of respondents should be so considerable. It is because of the fact that the group of non-musicians, being students of philology, trained in phonetics and having linguistic awareness, were expected to achieve slightly better results. However, it transpired that while considering foreign language pronunciation skills, musical aptitude seems to be an extremely important factor.

Figure 2. illustrates the relation of the results between male and female musicians. Although the results of both groups are satisfactory and the difference is not very large, male musicians appear to be slightly better than female musicians. It can be seen that males got more very weak marks than females; nonetheless, they were the only group whose pronunciation was assumed to be native-like (19 times).

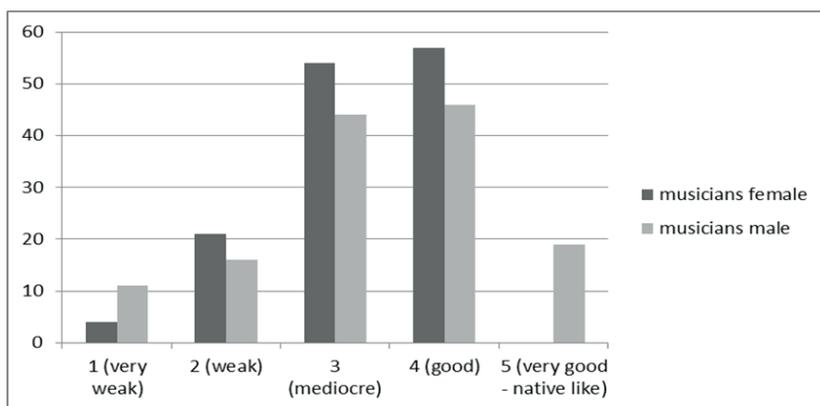


Figure 2.

The relation between male and female musicians concerning pronunciation

In contrast to the results of musicians, where both sexes performed quite well, while analysing the results of pronunciation of both male and female non-musicians, it can be observed that males got undeniably better scores (Figure 3.). Males' pronunciation was assessed to be good 27 times, while females pronounced Danish phrases well only 10 times. Moreover, it is also visible in the case of weak marks as females pronounced Danish words very weakly 27 times, while males got 11 very weak marks.

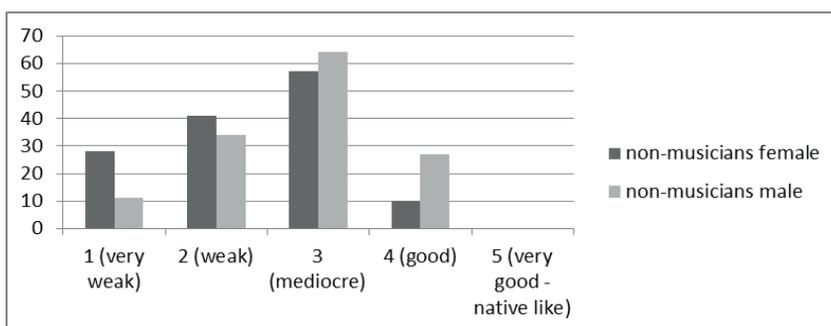


Figure 3.

The relation between male and female non-musicians concerning pronunciation

The results show that, in general, in the case of both musicians and non-musicians, male students gained higher scores than females. Due to the fact that in the case of musicians the difference between the results of males and females was not considerable, it may be assumed that there were some external factors which caused such a large discrepancy between the results of male and female non-musicians.

Figures 4. and 5. are graphical representations of the results obtained by both groups of respondents: musicians and non-musicians. Those graphs display the results concerning each of the 17 Danish words and phrases separately.

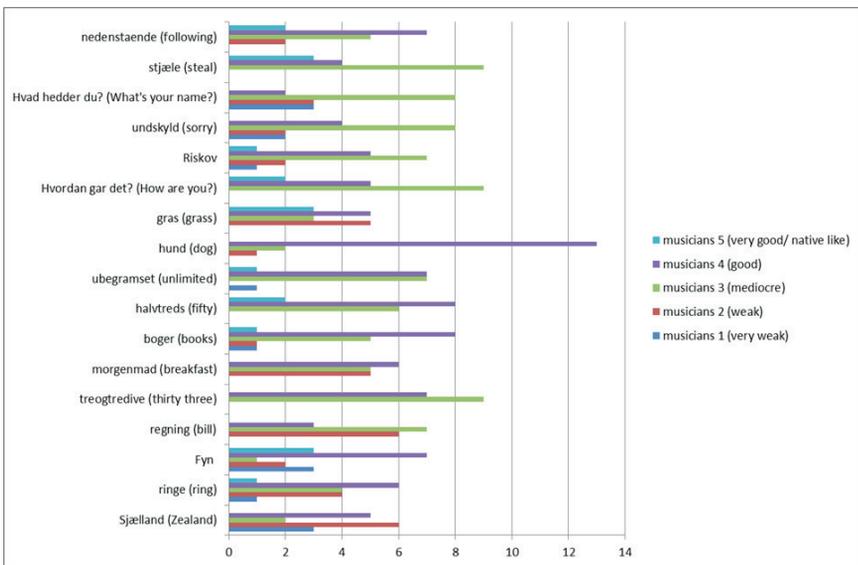


Figure 4.

The results of musicians concerning each of the 17 Danish words separately

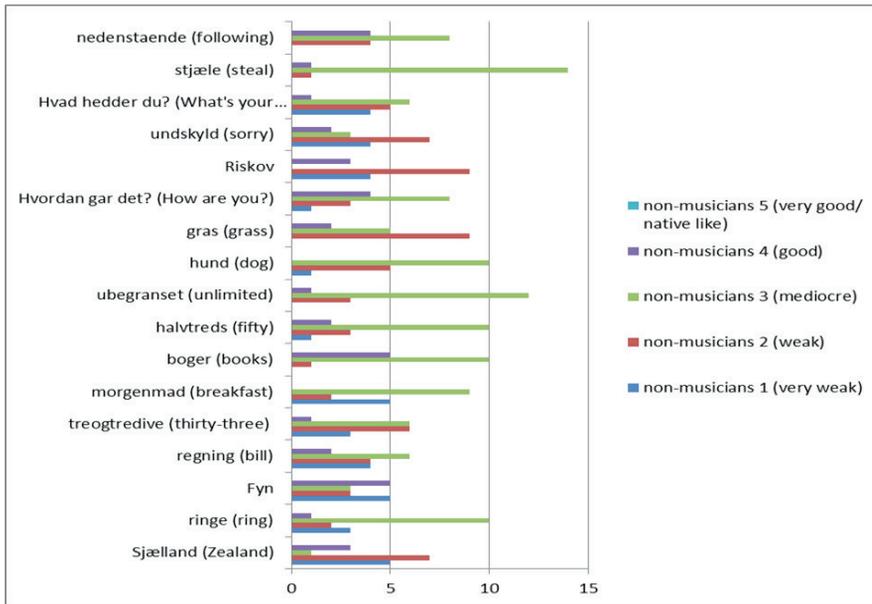


Figure 5.

The results of non-musicians concerning each of the 17 Danish words separately

While analysing both figures, it seems to be quite noticeable that musicians did better in pronouncing sounds.

First of all, it can be seen that only this very group's pronunciation was assessed to be native-like. The musicians performed very well while repeating 9 of the 17 words (*nedensteande*, *Riskov*, *hvordan gar det*, *gras*, *ubegramset*, *halvtreds*, *boger*, *Fyn* and *ringe*). Furthermore, the musicians' pronunciation was good in each of the 17 words that they were supposed to repeat. It is vital to note that many a time the number of well pronounced sounds outweighed the negative marks. In comparison to non-musicians (Figure 5.) it may be seen that not only their pronunciation was not good in the case of each of the Danish words but even if they performed quite well, the majority of the marks were weak.

Further evidence of the fact that musicians have an advantage over non-musicians concerning foreign language pronunciation skills is visible while comparing the results of very weak marks in both groups of respondents. The musicians' pronunciation was graded as very weak in the case

of only 8/17 words. What is more, the largest number of musicians whose pronunciation was stated to be very weak was three people per word. In contrast, non-musicians' pronunciation was assessed as very weak in the case of as many as 12/17 Danish words.

In the first task, among 17 words that the respondents recorded, there were some which will be further analysed. Some of those phrases were pronounced more poorly than others. It happened in the case of the word *gras* (grass). In the group of non-musicians there were 9 people whose pronunciation of this word was weak. In the case of 5 of them, this word's pronunciation was stated to be mediocre and only 2 people from this group pronounced the word *gras* (grass) well. Despite the fact that musicians did slightly better while pronouncing the word *gras* (grass), their results were also not satisfactory. The number of musicians who pronounced this word weakly was 5, as it was in the group of non-musicians. There were only 3 out of 16 musicians whose pronunciation of the word *gras* (grass) was assessed as good.

The reason why both groups of respondents found pronouncing this very word more difficult than others seems to be quite simple. The respondents are generally used to the English pronunciation of the word grass. The Danish equivalent *gras* is undeniably different in pronunciation; nevertheless, those words are similar to such an extent that the majority of the respondents, automatically, tried to pronounce this word as if it was an English one.

Another word whose pronunciation caused some troubles to both groups of respondents was the word *Sjaelland* (Zealand). In the case of this word, the situation was similar to the pronunciation of the word *gras* (grass) in a way that, on the whole, musicians did slightly better. Among musicians there were 3 people whose pronunciation was stated to be very weak, while in the group of non-musicians 5 of them performed very weakly. In the case of weak marks the results of the respondents from both groups were almost the same. Taking into consideration positive marks, 5 students' pronunciation from the group of non-musicians was assessed as good and among non-musicians 3 of them pronounced the word *Sjaelland* (Zealand) well. Here, such results may stem from the fact that this word was first on the list and that may be the reason why the respondents, de-

spite having listened to some Danish passages as well as to all words that appeared in the task before making a recording, found the sounds in the Danish language untypical, thus, not easy to repeat.

It seems to be interesting to point out that there was such a large discrepancy between musicians and non-musicians concerning their results in the case of the pronunciation of the word *hund* (dog). In the group of musicians, despite the fact that none of them got a very good mark for this very word, the pronunciation of most of them (13 students) was assessed as good, which was the best result in the whole task. Only 3 people from this group performed weakly or very weakly. Such good results are probably caused by the fact that the musicians' attitude towards the word *hund* (dog) was positive. This group of respondents found the pronunciation of this word funny which resulted in their great effort to say it correctly. Furthermore, even after the research they practised the pronunciation of this very word.

Due to the fact that in the group of musicians the results were so satisfactory, it seems to be difficult to say why among non-musicians the word *hund* (dog) was one of the phrases pronounced so poorly. First of all, none of non-musicians performed well. The pronunciation of 10 of them was assessed as mediocre and as many as 6 respondents performed weakly or very weakly. In the case of the word *hund* (dog), where the difference between the results of both groups of respondents was so meaningful, it seems to be evident that musicians took advantage of their musical talent a lot. The Danish equivalent of the English word *dog* is in no way similar. The pronunciation of the word *hund* may be challenging in a way that it is of paramount importance to say it quickly as this word is a short one and may be easily misunderstood with another Danish word *hun* (she) that is a little longer. Therefore, for musicians, trained in sounds and the length of sounds, it was obvious how to repeat this word as they paid more attention to the melody of the word. In contrast, non-musicians, who may focus on sounds less, probably did not hear the length of the word or even did not perceive this factor as really important. What is more, they do not have the ability to reproduce sounds developed and that may be the reason why the results of the non-musicians were so poor.

On the basis of the obtained results of the task that pertained to the foreign language pronunciation skills, it seems to be clear that musical aptitude exerts an influence on this process. The scores of the musicians who took part in the research were better probably owing to the fact that they had undergone really intensive musical training so far and they made an in-depth analysis of sounds when repeating Danish phrases. According to Kishon-Rabin et al. (2001), there are substantial differences in the organization of the brain when comparing musicians and non-musicians. What is more, such differences may be related to the fact that, as argued by Pantev et al. (1998), musicians are more sensitive to the types of sounds which non-musicians may not identify. Therefore, while participating in the research, musicians were undoubtedly more likely to pronounce the Danish phrases correctly as they heard every nuance of an unknown word.

Conclusion and pedagogical implications

The research study reported in this paper confirmed the assumptions that musicians deemed as people who possess some kind of a musical talent may take advantage of this capacity in terms of pronunciation skills in the context of foreign language learning. The research and its results may become a source of information for those who are interested in the correlation between language and music, and strictly speaking, the positive effects that music may exert on foreign language learning.

Apart from the wide knowledge of vocabulary and various grammatical structures that a good language learner should possess, it is vital to realize that one's pronunciation is also extremely important in the context of foreign language learning. While learning vocabulary or grammar is more about memorization or understanding, the process of learning pronunciation skills seems to be much more difficult. It may be easily observed by teachers that there are students who have this kind of natural talent to pronounce words correctly, and students whose pronunciation, even if practised, still leaves a lot to be desired. A number of researchers have conducted studies into the influence of music on foreign language pronunciation skills and it transpired that music may be really advantageous for the development of this ability.

While conducting the research, the author realized that people with highly developed musical abilities may benefit from them in terms of pronunciation skills. The obtained results suggest that it would be helpful for foreign language learners to practise their linguistic and musical skills at the same time. Bearing in mind that not all students appear to be interested in music to such an extent, it seems to be crucial to consider increasing the use of music in the language classroom. It is suggested that teachers should provide more listening tasks for students. Only while listening may students notice the unique melody of a language, and then, try to imitate the accent. It is important to note that songs that are used by teachers during classes should not be used randomly. The teachers should select them carefully so that students may listen to the correct pronunciation and learn new grammatical structures or vocabulary at the same time. A vital point to note is that not only should music be treated as some kind of entertainment for students, but one should also notice the great potential that music constitutes in terms of foreign language learning and, undeniably, take advantage of this tool.

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