

Doktori (Ph.D.) értekezés tézisei – Summary of Doctoral Dissertation

**A Longitudinal Study on the Interaction between
Secondary-school Students' Language Aptitude, Musical Aptitude
and English Language Development**

Doctoral (PhD) Dissertation

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1 The focus of the dissertation and the contents of its chapters

The link between a good ear for languages and a good ear for music proposes a key role of the auditory system in these two domains. Both language and music aptitude are general constructs, consisting of several auditory skills (e.g., pitch discrimination, interval discrimination, meter discrimination, and phonetic discrimination) and cognitive skills (grammar sensitivity, inductive reasoning, and rote learning). This dissertation is meant to contribute to applied linguistics by exploring these relationships as well as among other individual differences and the learning of English in a secondary school context in Hungary. Many studies have examined the relationships between language aptitude, motivation, and other variables in language learning (Csapó & Nikolov, 2009; Csizér et al., 2006; Nikolov & Ottó, 2006; Hild, 2007; Sáfár & Kormos, 2008; Gardner, 2010). Researchers have investigated the connection between music aptitude and language proficiency (Marques et al., 2007; Posedel et al., 2012; Milovanov, 2008, 2010; Christiner & Reiterer, 2013, 2015; Slevc & Miyake, 2006; Patel, 2008). However, to my knowledge, no classroom study has so far used validated Hungarian language and music aptitude tests together in a Hungarian secondary school context. Findings are even more interesting in the light of longitudinal enquiries integrating students' extramural activities and classroom tasks.

Successful foreign language learning is impacted by multiple variables (Dörnyei, 2005; Deci & Ryan, 2002). Cognitive and affective variables greatly influence second language (L2) learners' language development. These individual differences contribute to learning a new language to a different level and these are what I examined with my students learning English at a secondary school. I aimed to look into how my students' cognitive abilities, their motivation and engagement with tasks they did in and outside their English classes, and other factors contribute to how their English proficiency developed over an extended period.

The dissertation consists of eight chapters in two parts. Part I (chapters 1 to 4) offers the theoretical basis for the empirical studies (chapters 5 to 8) in Part II. In the first part, I overview current knowledge on the most influential cognitive and affective variables interacting in language learning. I provide insights into how music aptitude and computer assisted language learning (CALL) have been related to the processes and results of language learning.

Chapter 1 explores how the construct of language aptitude was defined, measured, and how results of various studies have been used over the years. Chapter 2 presents a less frequently researched variable in connection with foreign language learning and second language acquisition (SLA), the potential role of music aptitude in learning an additional language. Chapter 3 focuses on the construct of motivation and how its multiple conceptualizations impacted various aspects of research into L2 learning. The use of technology is the focus of chapter 4, in which a concise overview of game design elements is given.

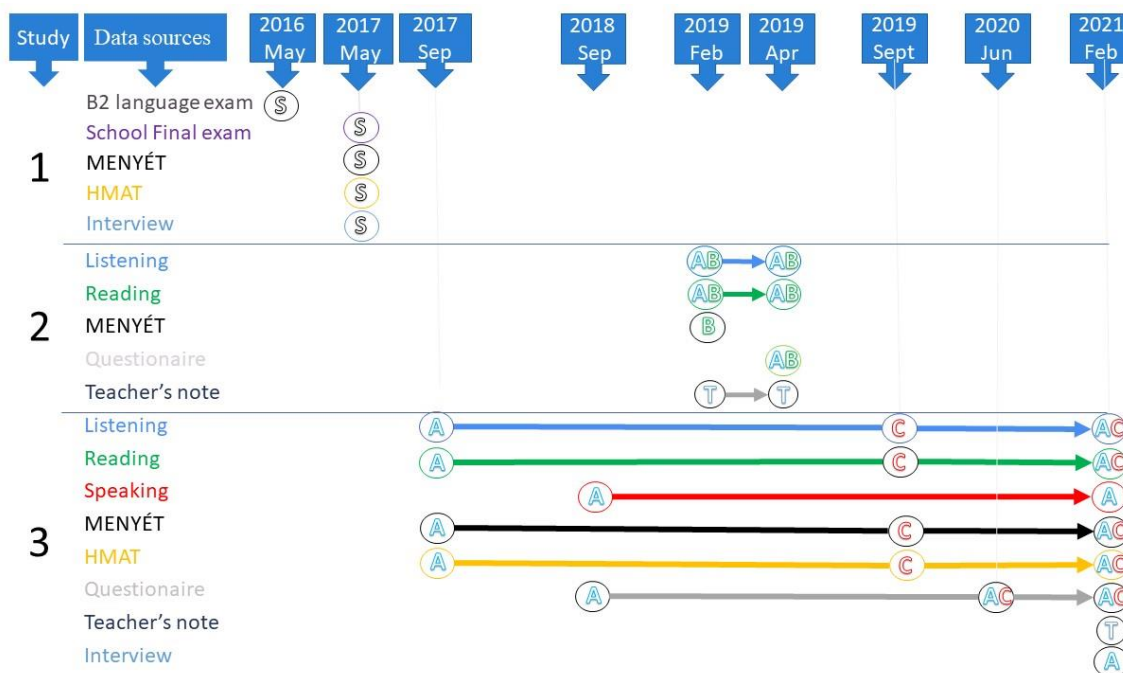
Part II comprises three empirical case studies involving my students I have worked with over the past years. Chapter 5 is an exploratory single case study; it focuses on a talented language and music learner. This retrospective analysis shows how her English proficiency was related to her language and music abilities in Study 1. Study 2, in chapter 6, analyzes and discusses the interactions between innovative, playful, and engaging tasks on grammar school (N=12) and vocational school students' (N=11) listening and reading comprehension scores in English and their language aptitude. Chapter 7 comprises Study 3, a longitudinal classroom-based study on the development of my students' language aptitude, musical aptitude, and English skills in two grammar school groups (N=10 and N=8). It also presents which extramural activities and classroom tasks students found the most enjoyable and engaging during the period between June 2020 and February 2021 when we were forced to work in new ways due to COVID19.

To provide a picture of the studies I conducted, I compiled Figure 1.1. It describes the three empirical studies (Study 1 – Study 3 on the left), the data sources color coded for the same instruments consistently. The top of the figure indicates each point of measurement from May 2016 to February 2021. Participants of the three studies are marked as follows:

Ⓢ=Single case study, ⓐ= Group A (N=12 in Study 2, N=10 in Study 3), ⓑ=Group B (N=12), ⓒ= Group C (N=8), Ⓣ=teacher.

Figure 1.1

Details of participants, data collection instruments, and timeframe of three studies



The Hungarian language aptitude test (MENYÉT) connects all studies in this dissertation, as each study investigates the relationship of language aptitude and English language proficiency. English language proficiency was measured by students' perceptive skills (in Study 1, Study 2 and Study 3), and as productive skills (in Study 1: speaking and writing, Study 3: speaking only). Besides MENYÉT, other data collection instruments were also used. The Hungarian Music Aptitude Test (HMAT) measured music aptitude in Study 1 and Study 3. For English proficiency different validated tests were used: in Study 1, a B2 language exam and the school-leaving school exam (receptive and productive skills), in Study 2 only receptive skills of the Hungarian Authority tests at A2 and B1 level; whereas in Study 3, listening and reading comprehension tests of the Hungarian Authority tests at B1 and speaking abilities of the final school exam's oral test were used. For triangulation, each study was accompanied by an interview (Study 1) or the teacher's notes and a questionnaire in Study 2 and Study 3.

Figure 1.2 illustrates the empirical studies from the point of view of the participants. At first, I believed Figure 1.1 would be suffice for this purpose, but then I realized that another approach could be more helpful to visualize the points of measurement for each group. Coding is the same as in Figure 1.1. The relevant sections of the timeframe for each

study are used for additional help. While Figure 1.1 and Figure 1.2 graphically represented the structure of Study 1 – Study 3, Table 1.1 to Table 1.3 present the research questions and the method of analysis. The first column shows the focal points of Studies 1-3, the second one indicates the numbers of participants (Group A = Grammar school students in cohort 1 September 2017-Feb 2021, Group B = vocational school students in cohort 1 between September 2017-May 2021, Group C = grammar school students in cohort 2 September 2019-Feb 2021). The third column comprises the research questions, and the fourth one the time of the data collection. Data sources can be found in the fifth column and the last column presents the methods of analysis.

Figure 1.2

Overview of groups, data collection instruments, English language skills and timeframe of studies

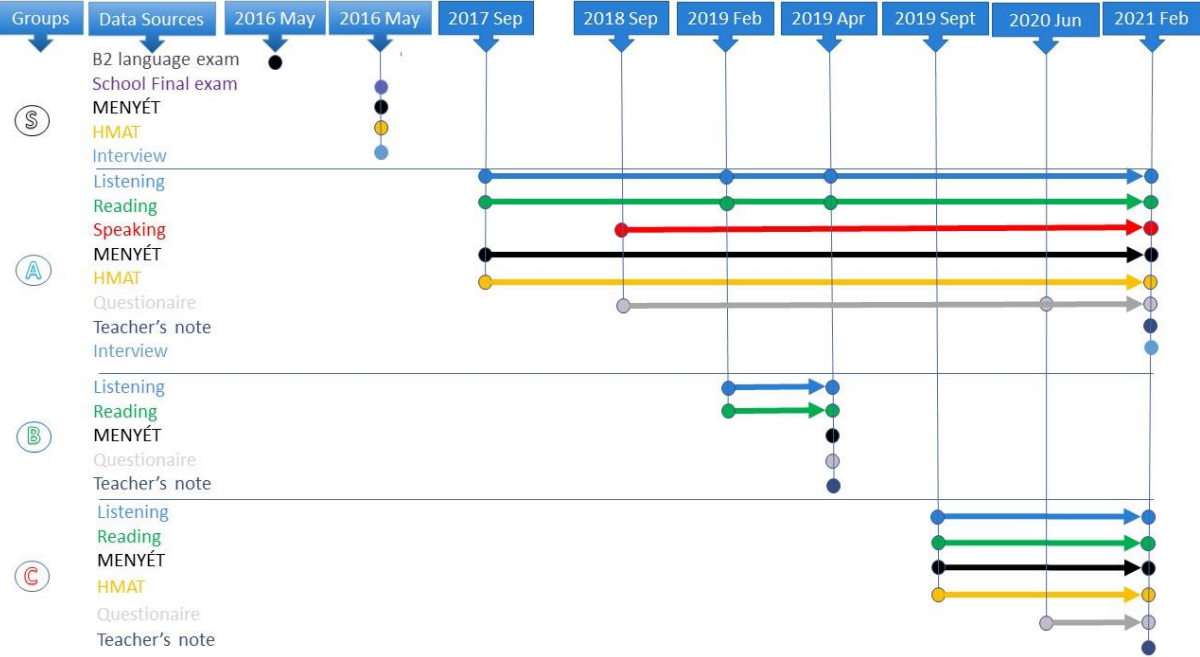


Table 1.1*The structure and contents of Study 1*

Study 1	N	Research questions	Time of data collection	Data sources	Methods of analysis
An exploratory single case study of a musically and linguistically gifted successful EFL learner Maggie.	N=1	Q1 How do music aptitude and language learning aptitude interact in a student's life?	May-2016 May 2017	<ul style="list-style-type: none"> § Language aptitude test (Ottó, 2002) § Music aptitude test (Turmezeyné Heller, 2007) 	§ Descriptive statistics
		Q2 How does the participant evaluate her strengths in language and music learning?		<ul style="list-style-type: none"> § EFL proficiency tests § End of semester school grades in EFL § Semi-structured interview 	§ Content analysis

Table 1.2*The structure and contents of Study 2*

Study 2	N	Research questions	Time of data collection	Data sources	Methods of analysis
How two groups of high-school students benefitted from playful and engaging tasks.	N=12 (Group A) N=11 (Group B)	Q3 How did students Groups A and B benefit from doing innovative tasks?	Sept-2017- April 2019	<ul style="list-style-type: none"> § Observation notes § EFL proficiency tests § Language aptitude test (Ottó, 2002) 	<ul style="list-style-type: none"> § Content analysis § Descriptive statistics § Correlational analysis
		Q4 How did students perceive their progress in English after the treatment period?		<ul style="list-style-type: none"> § Questionnaire on how students self-assessed their progress in English 	§ Content analysis

Table 1.3*The structure and contents of Study 3*

Study 3	N	Research questions	Time of data collection	Data sources	Methods of analysis
A longitudinal classroom-based study on the development of language aptitude and musical aptitude and English skills in two groups.	N=10 (Group A)	Q5 How did students' scores change over years on the components of the language and music aptitude and language proficiency tests?	September 2017- Feb 2021 for Group A	<ul style="list-style-type: none"> § Language aptitude test (Ottó, 2002) § Music aptitude test (Turmezeyné Heller, 2007) § EFL proficiency tests 	<ul style="list-style-type: none"> § Correlational analysis § Descriptive statistical analysis
		Q6 What is the relationship between participants' music aptitude, language aptitude, and their level of English language proficiency over the years?		September 2019- Feb 2021 for Group C	<ul style="list-style-type: none"> § Questionnaires on participants' extramural activities, in class and online tasks how they coped challenges during COVID 19 filled in by the students § Semester school grades in EFL § Language aptitude test (Ottó, 2002) § Music aptitude test (Turmezeyné Heller, 2007) § EFL proficiency tests § Interview
	N=8 (Group C)	<p>Q7 What is the relationship between participants' extramural activities and their level of English language proficiency over the years?</p> <p>Q8 How did students assess classroom and online tasks?</p>			

2 Summary of the main findings

The overarching aim in the three studies was to examine see how language and music aptitude was related to learning English over the years. I focused on a few additional perspectives: how my students' language aptitude, music aptitude and motivation interacted in their English language development in light of what they did to improve their English not only in the classroom but also beyond the classes I had with them. Some of these points are often, others are rarely researched areas of applied linguistics. This study aimed to examine how these domains interact with each other and in what ways they may contribute to success in language learning in a specific secondary school context in three groups of learners I taught English.

In her small lens approach, Ushioda (2006) suggested that motivation-related research should target specific real people and classroom activities instead of mapping general motivation and broadening theoretical research. Even though these three empirical studies did not focus on measuring motivation explicitly, motivation and engagement were included in all studies as crucial factors that positively influenced students' English language development. Ushioda also pointed out the general lack of pedagogically oriented teacher-led classroom research. In my case, teacher-led study of my classes was a necessity, as my full-time job has been at a secondary school. Being a researcher and a teacher allowed me to involve my students in the research naturally. Students were ready to express their thoughts openly in the questionnaires and interviews, which allowed me to interpret their test results, especially regarding the connection between extramural activities and their English language development. Mercer and Dörnyei (2020) and Sunday et al. (2021) warned of the potential danger of using modern technology and its negative impact on academic performance. (e.g., smartphone addiction, lack of concentration, social media and so on). I found that students, all representing the Generation Z, found their own ways to utilize their mobile devices in a positive way, which helped them to establish autonomous learning activities in several instances. So, finding a healthy balance between excessive use of mobile devices and learning not only English but also about the world were possible in my secondary school groups. This outcome is aligned with what Ushioda (2009) labelled as the Person-in-Context Relational view, as 'learners shape and are shaped by context' (Ushioda, 2015, p. 48).

2.1 Study 1: An exploratory single case study of a musically and linguistically gifted successful EFL learner.

Study 1 was an exploratory enquiry into how a musically and linguistically talented secondary school student, Maggie, developed. As a first step in my dissertation, I drew a portrait of an able and highly motivated learner of English. I aimed to answer two research questions by conducting a case study.

Q1 How do music and language learning aptitude interact in a student's life?

Maggie attended a special music program in kindergarten when she was five, and she started to learn English at the age of six. She had a highly supportive family who nurtured her talents. All favorable conditions predestinated her to be successful in both domains. Later, she won several local singing competitions and became a reliable and most professional member of the school's music band. Her talent contributed to high-quality performances at school and town programs. Music, especially singing, played a central part in her life.

Her English receptive skills test scores were high both on the state language exam (B2) and the final school leaving exam, and her achievements in English speaking were even higher. As for her aptitude, she reached the maximum score in rote learning ability (language aptitude) and interval discrimination (music aptitude), and her phonetic coding and pitch discrimination scores were also high. Extramural activities like watching films or videos were not typical, but she listened to music in English as lot in her free time. She was critical of her primary school English teachers except for the last one in grade 8.

Her extensive listening to music and singing allowed her to make the most of her aptitudes which contributed to her excellent English language proficiency.

Q2 How does the participant evaluate her strengths in language and music learning?

Interview and observation data showed that she was highly aware of her abilities and how she could improve them: for example, she explained how listening to songs helped her remember lyrics in English and how her musically rich childhood facilitated her English proficiency. She was convinced that her musicality and language aptitude can be linked: good ears for music helped her develop good pronunciation. She thought that she had inherited her excellent aptitudes and made the best of them.

This single case study offered evidence of important relationships between English language proficiency, language aptitude, and music aptitude, as well as a nurturing home and

school environment. Maggie' outstanding aptitude allowed her to develop fast, as she passed a B2 language exam with excellent results in grade 10 and complete her English school leaving exam in grade 11. She set herself clear goals and was able to achieve them.

2.2 Study 2: How two groups of high-school students benefited from playful and engaging tasks

Study 2 explored and quantified how innovative tasks contributed to developing students' English receptive skills in two groups. One group consisted of grammar school (Group A) and the other group vocational school students (Group B). Participants in the latter group are hardly ever included in classroom-based research projects, therefore, the project was unique in this respect and allowed me to offer insights into less successful learners' experiences and some of the reasons why students in Group A and B differed in their trajectories.

Q3 How did students in Group A and B benefit from doing innovative tasks?

Participants' individual difference variables as well as their English language proficiency were different in the two groups, therefore, students in the two groups benefited from the treatment period partly similarly and also differently. Group A students' English listening and speaking skills developed significantly in the 12 weeks; however, the T-test did not show significant differences between Group B pre-test and post-test scores. Group B students were less motivated when the treatment period started, plus they had fewer weekly English lessons. Their self-confidence in their English was lower than in Group A. Additionally, I observed that Group B students had more difficulties working in groups and comprehending instructions even in Hungarian. Students in Group B had many more difficulties when they created quiz games, whereas their peers in Group A relied confidently more on their more advanced English language skills. Both groups liked playful games, and all participants were deeply engaged in the activities to the extent that they wanted to stay in the classroom during the break so that they could finish the games. A more extended treatment period could have shown more increment in the scores of Group B's receptive skills. Kahoot quiz games enhanced motivation in both groups, and I believe this outcome could be most relevant for Group B students; they experienced success.

Q4 How did students perceive their progress in English after the treatment period?

The survey results revealed that students in both groups felt they had learned by doing the tasks. Interestingly, Group A students were less optimistic than Group B students. I think this can be explained by vocational school students having few opportunities to experience what success feels like and being engaged in classroom activities in connection with their academic development. Group A students were more realistic in their survey responses.

Q5 How did students' language aptitude results relate to their progress in English?

There was a significant difference between the two groups' language aptitude scores. Phonetic coding and inductive language learning were significantly different in favour of Group A. A smaller difference was indicated in grammar sensitivity and Group A outperformed Group B in their rote learning ability scores. These differences in students' aptitude and lower motivation were responsible for the slower development of Group B. Low language aptitude scores tend to impact the rate of language learning. The subtests of the Hungarian language aptitude tests, phonetic coding (short term phonological memory), inductive language learning, grammar sensitivity (inductive reasoning), and rote learning (short term memory) are all required in general learning, not only the learning of a new language.

Additional findings

Based on the English proficiency test results, it may seem that Group A benefited more from the twelve weeks than students in Group B. Despite the statistical results, I would approach the findings differently. The smaller and non-significant increase in the results of vocational school students in Group B could be interpreted as an important success for them, perhaps even more than the better scores for grammar school students in Group A.

- § Superior results were expected from grammar school students, as they participated in a more intensive course in seven lessons per week.
- § Aptitude results were significantly higher in Group A, therefore their faster progress was also expected.
- § Overall, Group A students had more opportunities to play and create engaging quiz games and received more instruction.
- § Group A students had better socio-economic background.
- § Most importantly, success was less common in the school context for Group B students. Playful games in the long term can help vocational students regain their self-confidence and feel less like the underdogs of the education system.

2.3 Study 3: A longitudinal classroom-based study on the development of language aptitude, musical aptitude, and English language learning in two groups

Study 3 examined the complexity of interactions in two groups of students: Group A and Group C. This longitudinal project aimed to document, measure, and observe how students' language aptitude, music aptitude, their engagement in extramural activities and playful tasks in and beyond the English classes contributed to their development in English over two to four years.

Q6 How did students' scores change over the years on the components of the language and music aptitude and English proficiency tests?

Students' listening and reading comprehension abilities in both groups, and additionally speaking skills in Group A improved significantly during the longitudinal study. In Group C, I did not measure speaking skills. There is nothing special in this development as it is expected that students benefit from attending English lessons for multiple years. However, the two groups were different in many aspects. In Group A, there were three beginners, while in Group C, all students had studied English for 6-8 years. The scores on their first proficiency tests (in Group A in 2017, in Group C in 2019) revealed large and significant differences between the mean scores in the two groups. The mean scores were almost twice as large for the more experienced Group C students at the first measurement point. Between 2017 and 2021, Group A was close to catching up with the scores of Group C in 2021. The results of the English proficiency tests reflected that previous language learning experiences greatly impacted later outcomes.

Key outcomes of the study offered evidence that both students' language and music aptitude scores changed between the points of measurement. Group A's MENYÉT and HMAT scores improved between 2017 and 2021 twice as much as Group C's scores between 2019 and 2021. Furthermore, on the Hungarian language aptitude test, in Group A's phonetic coding subtest improved significantly.

In Group A interval discrimination, in Group C, interval discrimination and pitch discrimination changed significantly at the points of measurement. These important results in these small samples raise questions about the aptitude constructs' stability over time and they are in line with results indicating that aptitudes are dynamic constructs and can change over time.

Q7 What is the relationship between participants' music aptitude, language aptitude, and their level of English language proficiency over the years?

In the longitudinal Study 3, meaningful relationships were not indicated between the total language aptitude and English proficiency test scores. However, the same subtests correlated significantly in both groups. In Group A, reading comprehension and grammar sensitivity scores in 2021 and listening and grammar sensitivity scores in 2021. Group C's subtests correlated with the same skills; the only difference was that the correlation between listening and grammar sensitivity was more significant than that between reading and grammar sensitivity scores. The correlations between English reading and grammar sensitivity scores were stronger in both groups.

I found no significant correlations between the total Hungarian music aptitude test battery and English proficiency test scores. Significant relationships were indicated between pitch discrimination and pronunciation and pronunciation and interval discrimination in Group A. I expected to find meaningful relationships between auditory-related skills and abilities such as phonetic coding and English listening comprehension test scores, and phonetic coding and pronunciation scores; however, no significant relationships were indicated in Study 3.

Q8 What is the relationship between participants' extramural activities using English and their level of English language proficiency over the years?

In both groups, extramural activities were similar; the most popular ones related to the extensive use of auditory skills. Watching series/videos/films was the most frequently mentioned activity. Listening to music was the second favorite in both groups; playing games in Group A and speaking with friends in Group C were marked as activities students believed helped them most in their English learning. On average, students reported that they spent two hours a day watching authentic programs in English. This indicated a lot more intensive exposure to English than school instructions. I believe that students' extramural activities greatly contributed to their English language development. The formal classes supplemented by the students' own choices most probably impacted their English development favorably.

Q9 How did students assess classroom and online tasks, and how did these tasks relate to their English language proficiency?

The outcomes of the survey using a Likert scale showed that all students enjoyed playing Kahoot quiz games more than creating them. The lyricstraining game was the second favorite task in both groups. I found it helpful to see that students also enjoyed working with

coursebooks. However, the popularity of using workbooks and textbooks decreased in Group C and increased in the other group who took the school leaving exam in three months from the time I asked them in February. In the light of the findings to Q6, the significant correlation between the English reading and listening comprehension and grammar sensitivity scores could be linked to the popular classroom tasks. My conclusion is that students found using their inductive reasoning skills motivating in the activities, and they enjoyed using them while doing classroom tasks as well as when they watched and listened to authentic programs and music.

Furthermore, SPSS indicated significant and strong correlations between students' preferences for working on and creating Kahoot quizzes and their reading scores, between their enjoyment of using lyricstraining and pronunciation, and creating Kahoot games and tasks in coursebooks in Group A. The latter may look unusual, but the task was to create quiz games based on the unit they studied in the book. Therefore, students must have realized that creating a link between fun and less fun activities resulted in enjoyable and motivating experiences in both groups, although to a lesser extent than playing games.

2.4 Connections across the studies

2.4.1 The relationships between the two constructs of aptitude.

No meaningful relationship was found between the total MENYÉT and HMAT scores in either group at any time of measurement. This outcome means that the two aptitude constructs comprise different abilities. Out of the large correlation matrixes, I found only one instance of a significant correlation between language and music aptitude: pitch discrimination (2019) and rote learning (2021) in Group C.

2.4.2 Differences in the English proficiency development in musician and non-musician students.

There were five musicians in Group A, so I could compare their language and music aptitude and language proficiency scores. The five musicians' receptive skills improved similarly to those of the non-musicians; however, musicians outperformed non-musicians in their speaking and pronunciation performances. Musicians had higher language and music aptitude scores, which could explain why they developed faster. The largest differences were indicated between phonetic coding and pitch discrimination scores in favor of musicians. Therefore, I assume that the musicians' better auditory skills were manifested in their better speaking and pronunciation results in English.

2.4.3 Differences in the English language development in beginners and more experienced students.

Group A students were more heterogeneous than Group C in their previous language learning experience. Three students started learning English at secondary school. The three beginners' higher language aptitude scores resulted in a significant increase in listening and speaking scores. Musicians' higher scores on the aptitude tests resulted in a faster rate; by the end of the last measurement, they managed to achieve similar results to the more experienced students.

2.4.4 The positive and negative effects of COVID19.

The lockdown periods of COVID19 overlapped with the school teaching periods between March and June 2020 and November and February 2021. This fact was especially critical for students in Group A as they had to take their school leaving exam in May 2021. Nevertheless, despite the significantly fewer English classes in the classroom, both groups' English proficiency scores increased by the end of the research period. From the survey of extramural activities, patterns of regular autonomous learning emerged.

Carreira et al. (2013) found that teacher created context can promote learners' autonomy and intrinsic motivation in primary school students. Even though their study was conducted at a primary school I believe this approach could be equally successful in secondary school context.

3 Limitations of the studies

Case studies are not meant to find general tendencies; generalization of findings is not possible or very limited. Results of the case studies in this dissertation are only valid within the framework of this school and these students. Statistical analysis based on small sample studies is only indicators and, without additional data, difficult to interpret. Hence, mixed method was used, and qualitative data allowed me to go beyond the surface and understand the results of descriptive and inferential statistics better by comparing and contrasting them with the students' reflections. Specific statistical calculations were not possible and practical to run. The variance was so too small for regression analysis; therefore, I could not work towards building a model based on my datasets.

An additional limitation concerns my dual role of teacher and researcher. As a teacher I had to follow the curriculum and experiment with innovative teaching techniques and tasks within the rules and regulations of the school. I invited my students to take multiple tests, involved them in their own English development and my research project at the same time. In my view, the studies I implemented have impacted their motivation and learning of English in positive ways, and by using member checking I could make sure that their voices were also heard and included. However, my biases and beliefs cannot be ruled out.

Assessing students' English speaking and writing abilities would have allowed me to offer a fuller picture of their English proficiency. Writing skills were not examined, and speaking skills were tested only in Group A. Even though it would have been more insightful to document the development and relationships of all the four skills and aptitudes in all groups, I had to limit my focus to those skills and abilities I was the most interested in. I had to bear in mind what is and is not feasible in a specific period. The unexpected lockdown periods also limited my options of what to measure, how, and when. The available time to work on the studies further narrowed what I could aim for. As a full-time in-service teacher at a secondary school and a part-time teacher at the Faculty of Music, University of Pécs, plus my role as a webmaster and translator for a Music Instrument Company, and a father of two, I had to make sure I had time for what I set out to study.

4 Pedagogical implications

All studies agree that motivation is one of the critical components of success in learning a new language. From the learners' and parents' perspectives, it is the teacher's role to motivate students over time and to establish and maintain a positive learning context. However, motivational strategies do not come automatically for teachers. Therefore, as a teacher I had to think about ways of making my teaching as motivating as possible and to vary the tasks I set for my students. This process of trying to match what students find worth engaging in, what I assume to be conducive to their learning of English, integrating what the curricular goals include is challenging and rewarding at the same time. Involving my students in their own learning has been one of the most exciting outcomes of my studies. The fact that my datasets document how my students became autonomous learners and found the most beneficial ways of improving their English on their own is my own reward.

There is a tendency in teaching material developers to promote their new products, which include downloadable media files instead of CDs or DVDs. This is a welcome

approach but far from being enjoyable for students. Instead of simply adding supplementary audiovisual materials to coursebooks, students' needs should be reflected in the coursebook-related tasks and content.

Based on my findings of this research, I found that gamification elements in playful tasks contributed to motivating students, regardless of their English proficiency and language aptitude. Teaching material developers should create platforms like Kahoot and use gamification elements in language tasks either by integrating them into their materials or by supplementing the coursebook materials. This would establish a bridge between focus on forms, focus on content, and focus on authenticity. Immediate feedback on results is a key element which provides useful information for students on their own development. As all results appear immediately as diagnostic test results, students and teachers get a clear picture of what is understood and what needs more clarification and practice.

From a testing perspective, engaging quizzes with gamification elements can replace the need to use quick tests. High stakes tests function as demotivating factors for language learning, and most probably any learning. Implementing playful low stakes quizzes as a special form of additional assessment can help students overcome their anxiety and save time for teachers. Even though I only have initial results of this using quiz games as a tool for assessment, students' responses were unanimously positive about getting marks based on their game playing results. The average of the three marks from playing games equaled a full value mark.

Another platform would be helpful where students and teachers could create content for engaging games using a template. Similar to Kahoot, the content could be uploaded and would be accessible to all students and teachers worldwide using the same coursebook. These authentic tasks could create a potential for creating meaningful content based on the specific units of the coursebook.

Knowing as much as possible about my students, involving them in the interpretations of the datasets also have their advantages. Even though I have been using end of term surveys for more than twelve years to find out what tasks, activities work for students, these studies helped me to understand in more detail how the examined individual differences work within the groups and in different ability groups. According to the findings of these studies, I feel more secure that focus on learners' needs, involving them as much as possible in their learning process by encouraging them to use and enjoy extramural activities in English could promote my students' more and more autonomous learning.

5 Further research

Initially, the dissertation aimed to examine SLA from a broader perspective. Data on tasks and coping mechanisms during school lockdowns in primary school were also collected. I was also interested to see what tasks were used in English teaching and how these tasks worked in a primary school (involving two primary school teachers and two students) and in a secondary school (three secondary school teachers and 18 students) context. MENYÉT and MAT tests were administered, and interviews were recorded with students at the Faculty of Music, University of Pécs. I wanted to examine students' learning strategies and methods at a higher level of proficiency than the B2-level language exam. I was also curious to find out how the two aptitudes and learning strategies related to students' English language proficiency and musical instruments. The role of the absolute pitch was also to be examined in two students with this unique ability.

As a next step, it would be useful to try to work towards building a model and see how the variables included in these studies would interact with one another in a larger sample. I assume that it would be interesting to draw parallels with studies proposing models. For example, Carreira et al. (2013) found that teacher-created contextual factors can promote learners' autonomy and intrinsic motivation in primary school students. Even though their study was conducted with younger language learners, this current study showed that this approach could be equally relevant and meaningful in the secondary school context.

References

- Christiner, M., & Reiterer, S. M. (2013). Song and speech: examining the link between singing talent and speech imitation ability. *Frontiers in Psychology*, 4, 874. 1–11.
- Christiner, M., & Reiterer, S. M. (2015). A Mozart is not a Pavarotti: Singers outperform instrumentalists on foreign accent imitation. *Frontiers in Human Neuroscience*, 9, 482. <https://doi.org/10.3389/fnhum.2015.00482>
- Csapó, B., & Nikolov, M. (2009). The cognitive contribution to the development of proficiency in a foreign language. *Learning and Individual Differences*, 19(2), 203-218. <https://doi.org/10.1016/j.lindif.2009.01.002>.
- Deci, E. L., & Ryan, R. M. (2002). The paradox of achievement: The harder you push, the worse it gets. In Aranson, J. (Eds.) *Improving academic achievement* (pp. 61-87). Academic Press.
- Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Lawrence Erlbaum Associates.
- Dörnyei, Z., Csizér, K. & Németh, N. (2006) *Motivation, language attitudes and globalisation: A Hungarian perspective*. Multilingual Matters.
- Gardner, R. C. (2010). *Motivation and second language acquisition: The socio-educational model*. Peter Lang.
- Hild, G. (2007). Investigating a Hungarian language learning aptitude test with think-aloud protocol. *UPRT 2007: Empirical Studies in English Applied Linguistics*, 255-267.
- Marques, C., Moreno, S., Luís Castro, S., & Besson, M. (2007). Musicians detect pitch violation in a foreign language better than nonmusicians: behavioral and electrophysiological evidence. *Journal of Cognitive Neuroscience*, 19(9), 1453-1463.
- Milovanov, R., Huotilainen, M., Välimäki, V., Esquef, P. A., & Tervaniemi, M. (2008). Musical aptitude and second language pronunciation skills in school-aged children: Neural and behavioral evidence. *Brain Research*, 1194, 81-89.
- Milovanov, R., Pietilä, P., Tervaniemi, M., & Esquef, P. A. (2010). Foreign language pronunciation skills and musical aptitude: A study of Finnish adults with higher education. *Learning and Individual Differences*, 20(1), 56-60.
- Nikolov, M. & Ottó, I. (2006). A nyelvi előkészítő évfolyam: Az első tanév eredményei angol és német nyelvből [The intensive language preparatory year: Results of the first cohort of students in English and German]. *Iskolakultúra*, 5, 49-67.
- Ottó, I (2002). *Magyar Egységes Nyelvértékmérő Teszt* [Hungarian Language Aptitude Test]. Mottó-Logic Bt.

- Patel, A. D. (2008). Music and the brain: Three links to language. In S. Hallam, I. Cross, M. Thaut (Eds.), *The Oxford Handbook of Music Psychology* (pp. 208–216), Oxford University Press.
- Posedel, J., Emery, L., Souza, B., & Fountain, C. (2012). Pitch perception, working memory, and second-language phonological production. *Psychology of Music, 40*, 508–517.
- Sáfár, A. & J. Kormos (2008). Revisiting problems with foreign language aptitude. *IRAL 46*, 113–136.
- Slevc, L. R., & Miyake, A. (2006). Individual differences in second-language proficiency: does musical ability matter? *Psychological Science, 17*(8), 675-681.
- Turmezeyné Heller E. (2007). A tanító- és óvodapedagógus-képzésbe belépő hallgatók zenei hallásának vizsgálata. [A study on first year university students' music achievement test]. *Pedagógusképzés, 2007/1-2*, 85-96.

The candidate's publications related to the topic of the dissertation

Hetesi, S. (2019). Authentic tasks and games for EFL learning in two secondary-school groups. In A. Fekete, M. Lehmann, & K. Simon (Eds.), *UPRT 2020: Empirical studies in English applied linguistics in honour of József Horváth* (pp. 122-142). Lingua Franca Csoport.

Hetesi, S. (2017). The interplay between language and music aptitude: A Case study. In M. Lehmann, R. Lugossy, M. Nikolov & G. Szabó (Eds.), *UPRT 2019: Empirical studies in English applied linguistics* (pp. 252-270). Lingua Franca Csoport.

Hetesi, S. (2017). XCLASS. *Tesl-Ej*, 20(4), n2. <https://tesl-ej.org/wordpress/issues/volume20/ej80/ej80m1/>

Hetesi, S. (2021). 3 A comparative review of Kahoot and Socrative. *Tesl-Ej*, 24(4), n2. <https://tesl-ej.org/wordpress/issues/volume24/ej96/ej96m2/>

The candidate's conference presentations related to the topic of the dissertation

Hetesi, S. (2017, June). The interplay between language and music aptitude. UPRT 2017 (University of Pécs Round Table), Pécs, Hungary.

Hetesi, S. (2017, June). Az idegen nyelvű hallott szövegértés fejlesztésnek innovatív megközelítése. HORIZONTOK ÉS DIALÓGUSOK III., Pécs, Hungary.

Hetesi, S. (2017, October). Language and music aptitude: A multiple case study. IATEFL-Hungary., Budapest, Hungary.

Hetesi, S. (2018, May). The importance of inter-rater reliability. HORIZONTOK ÉS DIALÓGUSOK IV., Pécs, Hungary.

Hetesi, S. (2018, May). A comparison of reading comprehension tasks of Hungarian secondary school leaving language exam and other language exams. HORIZONTOK ÉS DIALÓGUSOK IV., Pécs, Hungary.

Hetesi, S. (2019, June). Authentic Tasks and Games for EFL Learning in Two Secondary-School Groups. UPRT 2019 (University of Pécs Round Table), Pécs, Hungary.

Hetesi, S. (2021, November). A longitudinal study on the interaction between secondary-school students' language learning and musical aptitude and English skills development. Jubileumi Interdiszciplináris Doktorandusz Konferencia, Pécs, Hungary.