DOCTORAL (PHD) DISSERTATION

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Exploring Hungarian Secondary School English Learners' and Teachers' Beliefs about Language Aptitude and Explicit–Implicit Learning Conducive to Success in English Learning:

A Mixed Methods Inquiry

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DOCTORAL DISSERTATION

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EXPLORING HUNGARIAN SECONDARY SCHOOL ENGLISH LEARNERS' AND TEACHERS' BELIEFS ABOUT LANGUAGE APTITUDE AND EXPLICIT–IMPLICIT LEARNING CONDUCIVE TO SUCCESS IN ENGLISH LEARNING: A MIXED METHODS INQUIRY

Supervisor: Dr. Ágnes Albert Ph.D., Senior Lecturer

Budapest, 2023

Statement of Originality

By my signature below, I certify that my doctoral dissertation, entitled *Exploring Hungarian Secondary School English Learners' and Teachers' Beliefs about Language Aptitude and Explicit–Implicit Learning Conducive to Success in English learning: A Mixed Methods Inquiry* is entirely the result of my own work. In my research proposal, I have cited all the sources (printed, electronic or oral) I have used and have always indicated their origin.

Date: 2023. 05. 28.

Signature: Zólyomi Anna s.k.

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List of Abbreviations

AGL	Artificial Grammar Learning Task
AMOS	Analysis of Moment Structures Software
ATI	Aptitude-Treatment Interaction
AVE	Average Variance Extracted
BALLI	Beliefs About Language Learning Inventory (Horwitz, 1987)
CANAL-FT	Cognitive Ability for Novelty in Acquisition of Language – Foreign Test (Grigorenko et al., 2000)
CEFR	Common European Framework of Reference (Council of Europe, 2001, 2018)
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CI	Confidence Interval
CR	Composite Reliability
DI	Differentiated Instruction
DLAB	Defence Language Aptitude Battery (Petersen & Al-Haik, 1976)
EFA	Exploratory Factor Analysis
ELA	Explicit Language Aptitude
EXIS	Explicit–Implicit Language Learning Habits Survey (Zólyomi, 2021a, 2021c)
GFI	Goodness of Fit
GJT	Grammaticality Judgement Test
H_0	Null Hypothesis
Hi-LAB	High-level Language Aptitude Battery (Doughty et al., 2010)

ID	Individual Difference
ILA	Implicit Language Aptitude
INYÉT 6	Ifjúsági Nyelvérzékmérő Teszt [Language Aptitude Test for Youngsters] (Kiss & Nikolov, 2005)
KMO	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
K-S test	Kolmogorov-Smirnov Test
L2	Second Language
LABS	Language Aptitude Beliefs Survey (Zólyomi, 2020c)
LLAMA	LLAMA Language Aptitude Test (Meara, 2005)
MENYÉT	Magyar Egységes Nyelvérzékmérő Teszt
[HUNLAT]	[Hungarian Language Aptitude Test] (Ottó, 2002)
MLAT	Modern Language Aptitude Test (Carroll & Sapon, 1959)
NFI	Normed Fit Index
PCLOSE	P-Value for Test of Close Fit
PLAB	Pimsleur Language Aptitude Battery (Pimsleur, 1966)
RMSEA	Root Mean Square Error of Approximation
SPSS	Statistical Package for Social Sciences
SLA	Second Language Acquisition
SRMR	Standardised Root Mean Square Residual
TLI	Tucker Lewis Index
VIF	Variance Inflation Factor
YILL	Year of Intensive Language Learning

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Abstract

Examining language learners' and teachers' foreign language learning-related beliefs has a long research tradition (Dörnyei & Ryan, 2015; Kalaja et al., 2015). Studies investigating language aptitude and explicit–implicit learning also abound (Granena, 2012; Robinson, 1997) in the quest of finding the optimal way of learning that leads to success. However, there is little research on learners' and teachers' beliefs about language aptitude and explicit–implicit learning, let alone studying these in concert. Investigating the beliefs of the two most important stakeholders in the language learning process might reveal some of the aspects that pave the way to successfully mastering the English language, which is especially relevant and timely in the Hungarian context. Therefore, this exploratory mixed-methods study aims to investigate learners' and teachers' beliefs about language aptitude and explicit–implicit learning, pilot and validate a student questionnaire, discover learner profiles, and explore possible ways to differentiate instruction based on learner profiles in order to maximise the capacities of each individual (Tomlinson et al., 2003). To this end, 787 secondary school students filled in a questionnaire from all over the country, and eight of their English teachers participated in the interview study. This study challenges the hegemony of explicit learning by corroborating to recent studies introducing the potential of implicit learning and extramural English (VanPatten & Smith, 2022). Besides this, the findings indicate that focus should be directed to language use. The implications of this study indicate that implicit learning should play an imperative role in the foreign language learning classroom, which could be implemented by, for example, differentiated instruction through gamification.

1 Introduction and Research Context

Investigating what leads to success in foreign language learning has always been at the centre of attention in applied linguistics research (Dörnyei, 2005; Ehrman & Oxford, 1995; Skehan, 2002). The relationship between success in foreign language learning and language aptitude has been demonstrated by several studies (Carroll & Sapon, 1959; Dörnyei & Ryan, 2015; Ehrman, 1998; Ehrman & Oxford, 1995; Oxford, 1990; S. Li, 2016; Skehan, 2002) as well as the interrelatedness of success and deep-rooted foreign language learning-related beliefs (Dweck, 2006; Mercer & Ryan, 2010). By the same token, emphasis is given to different learning approaches (i.e., implicit and explicit learning) in light of language aptitude, which is alluded to as cognitive aptitudes for explicit and implicit learning (Granena, 2012). How these could be used to maximise learning capacities of individuals, that is, to implement differentiated instruction (DI) is an interesting area to be examined. Studying English teachers' beliefs about DI becomes relevant due to the fact that teachers are important stakeholders in the language learning process and understanding teachers' beliefs about DI could add more to our knowledge about what leads to success and successful attainment in language learning (Tomlinson et al., 2003). Consequently, merging these aspects and exploring language learners' as well as teachers' beliefs regarding these constructs may offer intriguing implications for language learning and language teaching in the Hungarian context.

After providing a brief background to the main topics covered in the present study, the key aspects of the Hungarian language educational context are presented to demonstrate why these topics are imperative to be studied in this context. Hungary, where the study was conducted, stands out as a unique context in light of the fact that it still does not have a favourable position of language learning efficacy owing to the fact that relatively few people speak foreign languages as compared to the European standards, despite the developments in the past 30 years (European Commission, 2006, 2012, 2018; Eurostat, 2021; Lukács, 2002;

Öveges, 2018a; Öveges & Csizér, 2018). Unfortunately, in general, Hungarian language learners have performed poorly in language learning in recent decades (Öveges, 2018a) – fewer people speak foreign languages and at a lower level than in the neighbouring European countries. Vágó et al. (2011) highlighted that we are one of the last countries in terms of the proportion of adults speaking a foreign language. Moreover, according to the latest Eurobarometer (European Commission, 2018), only 2% of Hungarians surveyed speak two foreign languages. Twenty-nine percent of those surveyed can only read and write in their first language.

Despite the fact that Hungarian language learning still does not have a favourable position vis-à-vis the European standards (Eurostat, 2021), it must be mentioned that language knowledge in Hungary has undergone a positive change in the recent decades. While in 1990, 9.1% of Hungarians spoke at least one foreign language other than Hungarian, in 2000, this percentage was 19.2, and in 2011, 25% of Hungarians spoke at least one foreign language (Balázs et al., 2011). As Szénay (2005) argued, this trend seems to be continuing, as language teaching is becoming more and more important in the educational system; consequently, based on Szénay's presumption, young people are learning languages more intensively than previous generations. Therefore, this improving trend suggests that Hungarian language learners are getting better in terms of language skills, and these data seem to be encouraging. Nevertheless, and quite sadly, based on the Eurobarometer report published 11 years ago, around one-third of the population of Hungary seemed to be "particularly unmotivated to learn a language or improve existing skills" (European Commission, 2012, p. 88), and foreign language knowledge in Hungary still seems to fall behind in comparison to the European standards (Eurostat, 2021).

Each school in Hungary follows the National Core Curriculum (NCC) published in the Governmental Decrees [*Decree no. 5/2020.* (I.31.), 2020] and creates its own local curricula and own pedagogical programme based on the NCC and the framework curricula (European

Commission, 2023). Therefore, some differences may exist between schools and even within class programmes. In many cases, foreign language learning classes are divided into two (or more) groups based on language proficiency after completing a placement test. This way, learners are sometimes put into classes based on their different levels of proficiency, meaning that there are some groups that receive less intensive and groups that receive more intensive instruction. This is relevant for this study because many classes and many schools in Hungary apply DI in advance by grouping students based on their proficiency levels. However, it must be noted that oftentimes this grouping is based on random chance, for example, alphabetically (Öveges, 2018b), which is not beneficial. Moreover, even if students are grouped based on their proficiency levels, this might not be the best practice in learning efficacy as ability grouping does not entail students performing better in all circumstances (Francis et al., 2020; Gamoran et al., 1995). Based on previous studies, ability or attainment grouping is particularly unfavourable for low ability students (Francis et al., 2020; Furcsa, 2014). For this reason, attention should be directed towards students' individual differences and student-centred education (Furcsa, 2014). The importance of paying attention to individual differences and avoiding the one-size-fits-all approach is also highlighted by, for example, Mercer (2011a, 2011b) and A. D. Cohen and Henry (2020): "The importance of learner characteristics cannot be overestimated. When students embark on the study of an L2 […] they carry a considerable 'personal baggage' to the language course that will have a significant bearing on how learning proceeds." (p. 165).

When presenting the research context of their study, besides unfavourable grouping methods, Csizér et al. (2022) identified four main issues where Hungarian language education shows room for improvement, namely, the size of classes, teachers' competences and practices, coursebook use, and the availability of material resources. An additional aspect highlighted by, for example, Csizér et al. (2022), Öveges et al. (2019), and Tartsayné Németh et al. (2018) is

that language education in Hungary is exam-centred to a high extent, and this may be the reason for language educators to put form and accuracy into the focus rather than language use and communicative skills. Based on Öveges and Csizér (2018), English is the most popular language studied as a foreign language in Hungary; however, it is still mostly taught using traditional teaching methods which are not focusing on language use.

For these reasons, it is important to examine what may lead to success or failure in language learning in the Hungarian context, and this is exactly why exploring deep-rooted beliefs concerning the cognitive predictors of successful learning (i.e., language aptitude) is relevant today. Perceptions about language aptitude and the use of different learning approaches as possible limiting beliefs may be the cause of being less successful in foreign language learning. Beliefs are important in driving our actions (or lack thereof), and possible limiting beliefs (Mercer & Ryan, 2010) can have detrimental consequences on the process of language learning. On the other side of the coin, non-restricting foreign language learning beliefs – also referred to as enabling or enhancing beliefs – may lead to constructive and fruitful results. Specifically, studies have shown (Dweck, 2006; Dweck et al., 2014) that beliefs about the malleability of second language (L2) learning skills – which are referred to as L2 mindsets – have major consequences on the success of foreign language learning in the long run (Burns & García, 2017). These mainly concern beliefs about general intelligence and language aptitude. Mercer and Ryan (2010) also highlighted the unquestionable impact of L2 mindsets in shaping learners' goal setting, their approach to the language learning process, and their success in foreign language learning.

This study attempts to fill a niche regarding the exploration of language aptitude beliefs as there is little research dealing with language aptitude beliefs directly as a primary focus of the study (Burns & García, 2017), and to my knowledge, none in the Hungarian context. Beliefs about language aptitude have been addressed only as part of studies with a bigger scope

involving beliefs about other constructs in foreign language learning (Rieger, 2009; Wong, 2010; Yang, 1999). As the construct of language aptitude is seen to be debatable and multicomponential in nature, it is not only important to investigate how English language learners and teachers perceive it but discovering their perceptions may lead to intriguing outcomes for the teaching and learning of foreign languages. Foreign language learning-related beliefs are undoubtedly important and have shown a nexus with other cognitive constructs. Besides this, there are limited research endeavours investigating explicit and implicit aptitude profiles (Granena, 2012). Therefore, tailoring instruction based on the language learning profiles of students may enhance better learning in the long run.

Thus, the main aims of this study are 1) to validate the use of a questionnaire intended to measure beliefs regarding language aptitude, explicit–implicit learning, and intricately related constructs, 2) to discover English language learners' and teachers' beliefs regarding language aptitude and explicit–implicit learning, 3) to explore English language learner profiles based on what language learning habits they report to have on the explicit–implicit continuum, 4) to investigate how English language teachers report they can differentiate in the foreign language learning classroom based on learner profiles (if at all), and finally, 5) to examine how the results of the two types of data (student questionnaire and teacher interview) are related.

In its structure, this dissertation follows the traditional Introduction, Methods, Results, and Discussion (IMRaD) format with additional headings that were found to be relevant within the three main parts. After introducing the topics covered and the research context, by situating the study according to the aims and research niche, the main research questions are presented. Following this, the theoretical and empirical background of the study is provided at the end of which the whole list of research questions is shown, including main–and sub-questions. In the Methods section, the research design, the participants, the instruments, the data collection and data handling procedures, and the ethical considerations and quality control measures are

described. A summary of previous studies closely related to the topics of the dissertation is also offered before the study branches into separate sections. This will offer an overarching, all-encompassing picture of the whole dissertation and specifically a justification as to why the certain constructs are important to be studied. The intention behind discussing this as a separate section is that I found it important to show how one decision led to another, how my previous studies directly informed the upcoming ones.

Following this, as previously mentioned, the study is divided into three main sections based on the topics already presented along the aims and research questions. The first part is about the student questionnaire and its piloting process. The second part is the main study, which is considered to be the most extensive and voluminous part of the dissertation. The third part is about the teacher interview study, which is then followed by the conclusions that can be drawn as a synthesis in line with the mixed-methods research design of the study.

2 Theoretical and Empirical Background

First of all, in this section, a brief introductory review of the pivotal theories that guided the study is offered, the aim of which is to organise the theories in one place so that later on, when reading the dissertation, the reader has the chance to disambiguate interpretations and make sense of the complexity that may be apparent in this study. Secondly, explicit and implicit learning is discussed along with introducing the concept of language learning habits which is then followed by the review of language aptitude. Subsequently, differentiated instruction is elaborated on; and after this, an overview of foreign language learning-related beliefs is introduced along with its definitions. In this section, L2 learning-related mindsets are discussed, as well as two aspects of beliefs are presented by narrowing the construct down to learner beliefs and teacher beliefs. Following this, to establish a bridge between language aptitude and explicit–implicit learning, cognitive aptitudes for explicit and implicit learning are scrutinised

in more detail, and then, a summary of learners' and teachers' beliefs concerning cognitive aptitudes for explicit and implicit learning is provided as this is the main focus of the present study. Finally, a summary of the findings of preliminary studies closely related to the topic of the dissertation is presented, which is then followed by the rationale and research questions.

2.1 A Preliminary Summary of the Seminal Theories that Guided the Study

This study is guided by several theories that are considered to be relevant for the aims and research questions. Although all of these theories are presented here, naturally, not all of them received the same weight in the present study; while some of them are indispensable for the analysis throughout the endeavour, others are described to provide thorough information about the intricately related underlying theories. Regarding beliefs, the main topic of the dissertation, lay theories are considered, which exhibit the beliefs language learners have about themselves, that is, their self-directed assumptions, for example, about their own skills (Molden & Dweck, 2006). When covering lay theories, the recent "invention" of meta-lay theories should also be discussed, which represent "students' perceptions of whether others believe that ability can be improved or not" (Lou & Noels, 2020, p. 1). In this dissertation, meta-lay theories are not covered in their strict sense – if the interpretation of meta-lay theories allows no deviation from the definition of the beliefs language learners have concerning what their teachers' beliefs are regarding the students' skills. However, an aspect that I have not encountered before in previous studies in the form of theories is covered, which stands for the beliefs language teachers have regarding what students' beliefs are about their own skills. In accordance with the definition of lay and meta-lay theories, the aspect followed in this dissertation will be referred to as teachers' perceptions of their students' lay theories. Accordingly, teachers' perceptions of their students' meta-lay theories will denote the beliefs of teachers as to what students perceive regarding how others perceive their abilities.

The following theory is Bandura's (1997) social cognitive theory in which the researcher argues that self–efficacy beliefs subsume an individual's perception about their own ability to perform a task or an activity. Next, mindset theory (Dweck, 2006) exposits that people have firm beliefs on whether ability and skills can be developed or not. Dangerously enough, mindsets are also called implicit beliefs or implicit theories – which are not to be confused with implicit learning (as the two denote completely different aspects). How students interpret their own success and failure, whether based on internal reasons – such as effort – or external – such as luck – (Peacock, 2010) originates from attribution theory (Weiner, 1992).

The next overarching theory is the affective-behavioural-cognitive model (ABC model; Ostrom, 1969), a tripartite approach which exhibits that attitude consists of an affective, a behavioural, and a cognitive component. Borrowing this theory from social psychology, it is hoped that some of the complexity behind language learning examined in this research will be understood. Putting this theory in context, Ostrom's (1969) tripartite approach in this study refers to language learners' learning preferences (affective), their language learning habits and language use (behavioural), and their beliefs, such as the perceived effectiveness of learning approaches (cognitive).

The sub-theory linked to the ABC model is the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1975), and subsequentially, two more theories were developed based on this (i.e., the Theory of Planned Behaviour; Ajzen, 1991; and the Reasoned Action Approach; Fishbein & Ajzen, 2010). The TRA model postulates that our behavioural intentions are influenced by our attitude towards a certain behaviour. These theories were chosen primarily because they are overarching and fundamental theories encompassing the underlying relationship between beliefs and behaviour. Although these theories served as theoretical frameworks in social psychology and for attitudes, these models are adopted in applied linguistics for the study of beliefs and behaviour. In this sense, Ajzen and Fishbein's TRA implies that language learners'

choice of learning approaches (behavioural) is influenced by their learning preferences (affective) and beliefs and perceptions (cognitive).

The next theory adopted in this study is the Acquisition-learning Hypothesis in Krashen's (1982) Monitor Model. This hypothesis may not be recent, but it is still not outdated as it is still applied in recent studies (Ajmal Gulzar et al., 2014) and encapsulates an idea highly relevant to this study. This theory posits that there are two main language learning processes where one is conscious (i.e., explicit) and happens through learning, whereas the other is unconscious (i.e., implicit) and happens through acquisition. Last but not least, the Differentiated Instruction model proposed by Tomlinson (1999) indicates that in order to create inclusive classrooms, teachers can pay attention to individual differences and enhance learning efficacy by tailoring their teaching methods.

Before discussing the theoretical and empirical background to explicit and implicit learning, the main research questions are presented as, besides the seminal theories discussed earlier, these questions guided the study:

I. What beliefs does a selected sample of Hungarian secondary school English language learners hold about their perceived language aptitude and explicit–implicit learning?
II. What beliefs does a large sample of Hungarian secondary school English language learners hold about their perceived language aptitude and explicit–implicit learning?
III. What beliefs do Hungarian secondary school English language teachers hold about language aptitude and explicit–implicit learning?
IV. How can the Hungarian secondary school English teachers' and students' beliefs regarding language aptitude and explicit–implicit learning be linked based on the two types of data?

2.2 Explicit and Implicit Learning

Thinking along the following idea, “When a learner wants to learn English as a foreign language, he or she has to find an answer to one simple question: if one wants to learn English really well, what should one do?” (Kalaja et al., 2015, p. 25.), it must be emphasised that the “best” option or approach to language learning may not be existent. Rather, we have to identify the aim of language learning first and specify it cautiously as, based on Illés (2020) and Medgyes (1992), the native speaker level of proficiency as ultimate attainment is an idea that is fundamentally flawed or, at least, highly questionable as to which native speaker we have in mind (Widdowson, 1994). There are, however, tendencies of language learning approaches that are worthwhile investigating regardless specific aims of language learning. This way, learners may find their optimum approaches to language learning (Victori & Lockhart, 1995).

The foundation of the explicit–implicit dimensions of language learning roots in Krashen's (1982) Monitor Theory. This model comprised five hypotheses related to the cognitive processes of language learning. In this dissertation, I am focusing on the Acquisition-Learning hypothesis, which posits that there are two different types of language learning approaches; one is a subconscious process (acquisition) and the other is happening with increased levels of consciousness (learning). Thus, the former is associated with implicit learning and the latter with explicit learning (DeKeyser, 2005).

Defining explicit and implicit learning is challenging, and several researchers produced their own conceptualisations of the constructs. According to Reber (1993), implicit learning is happening outside of consciousness, and it entails learning without awareness (DeKeyser, 2005). Explicit learning, however, is a conscious operation (Long, 2014) involving awareness and intention to learn a particular linguistic element (VanPatten & Rothman, 2015). Jiménez (2002) argued that implicit learning involves the lack of intentionality to learn, the lack of awareness of what is being learnt, and a lack of recognition of any learning taking place.

Implicit induction thus alludes to an "exposure to a set of instances resulting in facilitation and nonintentional learning of patterns" (Granena, 2016, p. 583), and it means unintentional acquisition through certain exposure (Granena & Yilmaz, 2019), while explicit induction covers "intentionally figuring out rules and relations" (Granena, 2016, p. 583). In this study, I am using the terms *implicit learning* and *unconscious learning* interchangeably as these concepts denote the same meaning based on the review of literature.

There are several instruments designed to measure explicit and implicit learning processes; however, these instruments are not at all without limitations. Designing and validating these tests is very challenging (DeKeyser, 2005; Ellis, 2009) mainly because these tests have to be fine-tuned based on at least seven criteria (presented in Table 1). Moreover, predetermining what is intended to be measured is of key importance; whether the learning process during encoding or the knowledge as a product of learning (Ellis, 2009; Leow, 2015). An additional pitfall is that there are two cognate terms closely related to implicit and explicit learning, and these are incidental and intentional learning (DeKeyser, 2005; Hulstijn, 2015). Incidental learning is closer to implicit learning, but the main distinction between the two is that the former belongs to non-intentional learning, while the latter focuses on the lack of awareness in the learning process. Intentional learning is related to explicit learning, but the distinction is the same, the former is happening due to the intention to learn a particular linguistic feature, while the latter implies that the learner is aware of what is being learnt.

Table 1
Criteria for Measuring Implicit and Explicit Knowledge

Criteria	Characteristics of implicit knowledge	Characteristics of explicit knowledge
Response according to the degree of awareness	Instinctively, based on feeling	Using rules
Time constraint	Timed	Untimed

Primary focus of attention	Meaning	Form
Systematicity in responses	Consistency	Variability
Certainty in responses	High degree of certainty	Low degree of certainty
Metalinguistic knowledge	Not required	Promoted
Learnability (which developmental stage is favoured)	Early learning	Late, form-focused instruction

Note. Adapted from Ellis (2005), p. 152.

Another drawback is referred to as the interface issue (Hulstijn, 2015; Long, 2014) which is centred around the puzzling question of whether the product of one type of learning can turn into the other. Supporters of the no interface position are convinced that there is no overlap between implicit and explicit knowledge (what I refer to as *implicit/explicit* distinction in this dissertation). The weak interface position posits that explicit knowledge can become implicit (Long, 2014). The strong interface approach advances that implicit knowledge can become explicit and vice versa (Hulstijn, 2015). Additionally, according to Leow (2015), incidental learning is within implicit learning, while intentional learning on its own could include explicit as well as implicit learning. Though it is quite certain that it is not the very last existing difficulty associated with the measurement of explicit and implicit learning, the following is the last one to be mentioned here. Paciorek and Williams (2015) claimed that providing evidence for the lack of consciousness (i.e., implicit processes) is extremely difficult. Instruments used to tap into implicit learning proved to be less reliable, but as Granena (2020) highlighted, this lack of reliability does not necessarily indicate the lack of importance of implicit learning in predicting achievement in language learning.

Perruchet (2021), in his critical synthesis, also addressed the issue of low reliability concerning implicit learning: “The question arises: Is this attenuated reliability a psychometric glitch that could be easily corrected, or is it a more fundamental problem inherent in implicit learning, with only limited corrective actions possible?” (p. 6); this is indeed a puzzling

question. My own stance on this issue is that delimiting the definition of implicit learning might result in more reliable instruments because without clearly formulating what the concept entails and what it does not subsume, researchers may measure their own interpretations of implicit learning. This unsurprisingly leads to differences in reliability as well as in results and may induce construct validity issues. If we go back to the origins and consider Reber's (1993) *polarity fallacy*, which posits that explicit and implicit learning are not entirely orthogonal (i.e., independent), then it becomes apparent that the extent of overlap should be established. This is also expressed by Reber who coined the term implicit learning, "[…] it becomes incumbent upon the proponent of the theory to sharpen differences and soft-pedal similarities" (1993, p. 23). Therefore, disentangling the two concepts and having agreed-upon definitions would be imperative for future studies. If we intend to measure a construct, we need to go back to the basics of the concept.

Exploring the overall effectiveness of instruction along the explicit and implicit learning processes continuum is gaining more and more attention in the field of applied linguistics (Goo et al., 2015; Littlewood, 1984; Nguyen et al., 2012; Norris & Ortega, 2000; Spada & Tomita, 2010). The focus is especially on the underlying potential of implicit learning, feedback, and instruction (Granena & Yilmaz, 2019; Linck et al., 2013); however, the results seem to be mixed. To illustrate this, researchers conducted meta-analyses (S. Li, 2010; Spada & Tomita, 2010) to investigate whether and how implicit and explicit treatments contribute to learning. S. Li (2010) analysed 33 studies and found that over a short period of time, explicit feedback worked better, while over a long time, it was implicit feedback that was better maintained. Spada and Tomita (2010) analysed 41 studies and concluded that for simple and complex features, explicit instruction has shown larger effect sizes. Goo et al. (2015) conducted a meta-analysis of 34 studies and found that explicit instruction is more effective; nevertheless, highlighted that "comparing A with B concerning the effectiveness of the type of instruction

appears to be somewhat far-fetched" (pp. 445–446), meaning that it is not necessarily worthwhile to compare the effectiveness of explicit and implicit learning. As rightly expressed by Reber (1993), mixing these approaches would be beneficial, "Implicit and explicit systems should properly be viewed as complementary and cooperative functional systems that act to provide us with information about the world within which we function." (p. 24).

Since the results appear to be mixed regarding the efficacy of implicit and explicit learning, and since it is not only demanding but virtually almost impossible to design and validate an instrument that can measure purely explicit as well as purely implicit learning processes, a novel approach is proposed in this dissertation to explore the potential of explicit and implicit learning approaches. Instead of a meta-analysis, focus is on learners' and teachers' beliefs of cognitive aptitudes for implicit and explicit learning, as these may be even more important than students' actual scores on the language aptitude test and on tasks measuring (or intended to measure) explicit and implicit learning processes. This is considered to be a novel approach since to my knowledge, no one has ever tried to examine implicit and explicit language learning-related beliefs, let alone in concert with language aptitude beliefs. In the following, in light of explicit and implicit learning approaches, *language learning habits* are introduced – the term I am referring to throughout the dissertation.

In this study, the concepts of *learning processes*, *learning mechanisms*, and *learning approaches* are used interchangeably, but the term *habits* needs clarification as to how it is different from learning styles and strategies. The habits referred to in this study are the patterns, activities, and routines used by the learner, repeated on a weekly basis. Consequently, implicit and explicit language learning habits encompass the kind of activities/behavioural patterns language learners employ regularly, that is, weekly, where a certain amount of learning can take place either consciously (explicitly) or unconsciously (implicitly). Besides the frequency element, language learning habits are different from learning strategies because the latter

involve a “proactiveness in selecting specific made-to measure learning routes” (Dörnyei & Ryan, 2015, p.6.). For implicit language learning habits, this element of proactiveness for learning is not present since learning is not the intention behind the activity, it is simply a by-product. As indicated by Bailey et al. (2000), there is an intention behind the choice of a learning strategy, and that is to promote learning. As regards identifying the distinction between learning habits and learning styles, Bailey et al. (2000) also highlighted that learning styles, besides not being intentional, are automatic, but this is not necessarily true for learning habits. Language learning habits are not momentary decisions, but action tendencies drawn from the learner’s repertoire. Being a behavioural dimension, it can also be aptly called explicit–implicit language learning behaviour. After the extensive review of explicit and implicit learning, language aptitude is discussed.

2.3 Language Aptitude: Past and Present

Many researchers have argued that language aptitude, that is, language talent, as a cognitive individual difference is of pivotal importance in language learning due to its ability to predict foreign language learning success (Lowie & Verspoor, 2019; Plonsky, 2022; Skehan, 1991). In fact, Granena and Yilmaz (2019) stated that language aptitude explains 25% of the variance in foreign language attainment and proficiency among language learners, which is not at all negligible. Ellis (2019) argued that “language aptitude had metamorphosed from a test for measuring learners’ potential for learning to an explanatory factor relevant to just about all the central issues in SLA” (p. xv). A. D. Cohen and Henry (2020) argued that language aptitude is one of the most important variables within the discipline of individual differences, and it can foretell language learning efficacy. Robinson (2013) emphasised that “higher aptitude for second or foreign-language learning predicts more successful adaptation to instructed, or naturalistic exposure to the second language” (p. 221). Ellis (1997) claimed that within individual differences, language aptitude is the most important factor along with motivation.

2.3.1 Revisiting Language Aptitude: The Contrasting Views

Research into language aptitude dates back to the 1930s (Symonds, 1930); however, the most well-known instrument, the Modern Language Aptitude Test (MLAT) was developed in the 1950s by Carroll and Sapon (1959). Over the decades, the aims of the language aptitude tests gradually changed from selective purposes through diagnosing strengths and weaknesses to differentiating instruction (Robinson, 2013). With the advancement of knowledge regarding this construct, the classic approach has received heavy criticism. The earlier instruments are based on the traditional audio-lingual teaching method and highly relying on explicit processes (Granena, 2020), which is outdated as more focus should be directed to language use (Ellis, 2019; Granena, 2020).

In the 1950s, researchers designed language aptitude tests without formulating a definition to it a priori using a bottom-up approach. These are referred to as post-hoc definitions (Carroll & Sapon, 1959) and based on this, Dörnyei (2005) concluded that "language aptitude is what language aptitude tests measure" (p. 35). However, these are problematic conceptualisations as multiple interpretations of language aptitude might arise due to this practice (Dörnyei & Ryan, 2015), and these practices may even cause construct validity issues in instruments (Zólyomi, 2021b).

Various tests are designed to measure language aptitude in the Carrollian approach with its classic interpretation besides the original version of MLAT. The online version of the MLAT was released in 2019 (MLAT-O; https://lltf.net/aptitude-tests/language-aptitude-tests/computer-based-mlat/), which still follows the traditional approach to language aptitude. The Pimsleur Language Aptitude Battery (PLAB; Pimsleur, 1966) is akin to the MLAT, but a notable difference is that the construct of motivation is included in the PLAB as a central part of language aptitude. Another language aptitude test based on the MLAT is the Defense

Language Aptitude Battery (DLAB; Petersen & Al-Haik, 1976), which is used in the military to detect the ability to acquire foreign languages.

In the Hungarian context, two tests have been developed, namely, Magyar Egységes Nyelvérzékmérő Teszt or Hungarian Language Aptitude Test (MENYÉT or HUNLAT; Ottó, 2002) and Ifjúsági Nyelvérzékmérő Teszt (INYÉT 6; Kiss & Nikolov, 2005), and the latter is designed for 12-year-old test-takers. These tests are based on the MLAT which is still considered to be very influential in language aptitude research. Since then, a number of studies have been conducted using these measures in the Hungarian context, for example, Ottó and Nikolov (2003) conducted a study among university students, further demonstrating the predictive ability of the MENYÉT in foretelling language learning achievement. Hild (2007) analysed the response validity of a task of the MENYÉT, Language Analysis, using the think-aloud protocol and concluded that participants did indeed solve the task inductively.

However, besides the post-hoc approach, these language aptitude tests were not at all without limitations. Specifically, these tests weighed in favour of explicit learning (see, for example, Yamashita, 2022) due to the possibility of conscious reflection on language forms; the tests allowed time to think, analyse, memorise, as well as to monitor learning processes; therefore, according to Granena (2014), these tests excluded the possibility of implicit learning. Although we cannot claim with 100% certainty that implicit processes are not present at all, it still must be noted that tests based on the Carrollian approach do not include forms of implicit learning, communication skills, and language use.

To date, researchers have been puzzled by the question of whether language aptitude is dynamic in nature, that is, malleable; or whether it is static, not malleable. According to Carroll (1981), language aptitude is a “state of readiness and capacity for learning a foreign language” (p. 86). Singleton (2017) argued that, based on Carroll's definition, language aptitude is static, that is, innate and incapable of development. However, Singleton (2014) stressed that Carroll's

approach is debatable. Singleton (2017) pointed out that to view language aptitude as an innate ability is an oversimplification: “language aptitude needs to make room for acceptance of the proposition that language aptitude is not as ‘given’ as we may have once thought, and that what happens to us post-natally may influence it very considerably.” (p. 90). As Csizér and Albert (2021) have pointed out, it is more useful to think of some components of language aptitude as a temporary state rather than a permanent trait. Ottó and Nikolov (2003) emphasised the same aspect in their research, where they claimed that students cannot be divided into two groups based on whether they are able to acquire foreign languages or not.

Nowadays, in contrast with earlier views, language aptitude is interpreted as a dynamic construct that is inherently multicomponential involving more skills, and it intends to predict the rate of progress in language learning (Csizér & Albert, 2021). Thus, one approach concerns the static interpretations of aptitude (Carroll, 1990), the idea that aptitude is relatively stable, and the other aspect involves dynamic interpretations (Skehan, 2002), the idea that aptitude can be developed. The latter idea originates from educational psychology expressing that language aptitude can be trained like our muscles through exercise (Dweck, 2006). Based on this updated interpretation, language aptitude should be seen as a way to exploit potential and as a resource rather than a labelling factor (Zólyomi, 2020a). Skehan also (2002) forewarned researchers that they should not interpret aptitude in a dichotomous way. Robinson (2013) deemed the reconceptualisation of language aptitude necessary for the 21st century. Similarly, according to Kormos (2013), the conceptualisation of language aptitude should be broadened instead of strictly following the Carrollian approach.

In the quest of taking a new approach to language aptitude and view it as a dynamic construct, recent language aptitude tests have focused on theory-driven top-down language aptitude testing instead of data-driven bottom-up theory building. The Cognitive Ability for Novelty in Acquisition of Language – Foreign Test (CANAL-FT; Grigorenko et al., 2000) is

focusing on detecting the ability to manage novel situations and ambiguity. A computer-based language aptitude test (LLAMA; Meara, 2005) offers promising potential for measuring implicit learning besides explicit learning. Although the High-level Language Aptitude Battery (Hi-LAB; Doughty et al., 2010) belongs to recent language aptitude tests, it is designed to distinguish high-achieving students from low-achievers, and in my interpretation, this still belongs to the rather stable conceptualisation of language aptitude and does not refute the "anti-egalitarian" (Skehan, 2002, p. 72) view of language aptitude.

More recent conceptualisations of language aptitude include Granena's (2020) definition, "language aptitude is a catch-all, umbrella term to refer to cognitive and perceptual abilities that contribute to high achievement in language learning" (p. 1). As formulated by Granena and Yilmaz (2019), "the current understanding of aptitude is that of a multicomponential construct encompassing abilities from both the implicit and explicit cognitive domains, which may be differentially related to L2 outcomes in different learning contexts and/or instructed conditions" (p. 242). A. D. Cohen and Henry (2020) defined language aptitude as an ability or sense for languages, and they claimed that language aptitude determines the pace of learning and the amount of effort invested in language learning. They argued that with hard work and perseverance, language learners who learn languages more slowly and with greater difficulty can reach the same level of proficiency as language learners who learn languages more quickly and easily. A. D. Cohen and Henry also pointed out that in this sense, language aptitude does not predetermine one's ability to learn a foreign language. In their interpretation, which is in accordance with my understanding of the construct, language aptitude is a dynamic construct which also involves elements of motivation (e.g., invested effort). Dörnyei and Ryan (2015) seem to be right in concluding that there is a nexus between language aptitude and other affective constructs, such as motivation: "one general lesson drawn from a review of aptitude research has been that cognition does not function in isolation but

interacts with other mental functions such as motivation and emotion" (p. 71). The possible constructs that influence language aptitude are discussed in more detail in section 2.3.4.

A number of synonymous terms exist in the new approach for students with high language aptitude, just to mention a few examples: *exceptional* learners (Dörnyei & Mentzelopoulos, 2022), *gifted* students (Matheis et al., 2017; Matthews & Jolly, 2022; Ziegler & Bicakci, 2023), *talented* students (Alshareef et al., 2022), and *high-achievers* (Doughty et al., 2010). A fundamental issue is that our beliefs are idiosyncratic in the sense that being exceptional or gifted means something different for every stakeholder. For the developers of the language aptitude tests, those who score high on the test are considered high-achievers. For Dörnyei and Mentzelopoulos (2022), those who achieved native-like proficiency are considered to be exceptional learners, despite the heavy criticism of this idea earlier (Illés, 2020; Medgyes, 1992). Ziegler and Bicakci (2023) rightly questioned whether all gifted students are likely to be given the label *gifted* as we do not seem to follow an agreed-upon definition as to whom belongs to this category. According to Matthews and Jolly (2022), the problem with the term gifted (and any of its synonyms, might I add) is that it implies a certain innateness, which is not favourable in the era where the new approach is to be followed. Dörnyei (2005), also emphasised that "although some scholars distinguish between ability and aptitude, in typical practice the two are used synonymously" (p. 32; cf. Wen et al., 2017). This is problematic because ability, as such, is associated with innateness (Tomlinson & Imbeau, 2010).

Due to this limiting conceptualisation of language aptitude, research declined between the 1970s and 1980s because researchers claimed that it is an undemocratic practice to pigeonhole language learners as having good or poor language aptitude (Skehan, 2002). In addition, Skehan stated that research on language aptitude was barely relevant for communicative language teaching. Researchers at that time regarded language aptitude as static and therefore inapplicable for the highly practice-oriented communicative language teaching.

Besides this, the Carrollian approach to language aptitude was considered to be conceptually outdated (Skehan, 2002). Moreover, communicative language teaching focused on unconscious (implicit) learning processes, whereas language aptitude was considered to be related to conscious (explicit) learning (DeKeyser, 2000, 2013). In recent studies, however, language aptitude in relation to implicit learning has received increasing attention, to the extent that recent research has separated explicit and implicit language aptitude (Granena, 2020). In the quest of formulating language aptitude to be a more democratic construct, researchers started to focus on interventions, which are discussed in the following subsection.

2.3.2 Practical Approaches to Language Aptitude

In the 1990s, there was a resurgence of interest in language aptitude-related research (Singleton, 2017), as researchers realised that learners with lower language aptitude can compensate for their learning difficulties (*compensatory approach*; Skehan, 2002), for example, by high motivation or effective language learning approaches (A. D. Cohen & Henry, 2020). This implies that learners with lower language aptitude can also learn a foreign language. By the same approach, Tánczos (2006) summarised that even if language learners have good language aptitude, foreign language learning is still a laborious task that demands perseverance and patience from the stakeholders.

There were many attempts to tailor teaching methods based on learners' aptitude profiles, and researchers started to explore how learners may benefit from different kinds of instruction (Robinson's, 1997, *aptitude complexes*; Granena's, 2012, *aptitude profiles*). According to Robinson (1997), aptitude is inherently complex and subsumes more components, while Granena (2012) claimed that a cognitive aptitude is apparent for explicit learning as well as for implicit learning and that based on these dimensions, learners can be clustered into aptitude profiles. What is highlighted by Dörnyei and Ryan (2015) is that exploring language aptitude profiles offers intriguing potential for further research: "aptitude tests can be used to

identify the particular cognitive strengths and learning style preferences of groups of learners, so that this diagnostic information can be used to tailor the quality and quantity of language instruction accordingly" (p. 47). Specifically, Granena (2012, 2014) proposed that providing differentiated instruction based on different aptitude profiles might enhance better foreign language learning (see Wesche, 1981). As mentioned above, one example of this is the compensatory approach (Skehan, 2002) with which instruction would be suited to address and overcome learners' aptitudinal weaknesses (Dörnyei & Ryan, 2015). Another popular approach in an attempt to modify teaching methods based on learners' aptitudinal constraints is named *aptitude-treatment interaction* (ATI; Robinson, 1997). Robinson analysed aptitude under four different conditions: instructed, rule-search, implicit, and incidental, and the researcher referred to aptitude complexes emphasising the complexity of this construct.

If we follow the new approach to language aptitude and assume that it can be developed, then this gives the green light to many opportunities in language pedagogy. S. Li (2016) concluded based on his meta-analysis that different language aptitude components have different predictive validity in different aspects of learning. This is an intriguing result as this opens up the possibility to develop language aptitude along its subskills (Kormos, 2013) based on, for example, Robinson's (1997) aptitude complexes.

2.3.3 Constructs Influencing Language Aptitude

In terms of redefining language aptitude (Kormos, 2013), it would be essential to examine the role of affective as well as other cognitive factors in relation to language aptitude. According to Skehan (1991, 2016), it would be important to establish whether language aptitude has a psycholinguistic basis, for example, whether it is related to conscious and unconscious learning processes (Robinson, 1997; Zólyomi, 2021b). McLaughlin (1990) suggested that perhaps new studies in cognitive psychology might lead to the development of new tests of language aptitude that would be more effective in measuring this construct. An example is the CANAL-FT test

developed by Grigorenko et al. (2000), where new factors, such as the ability to cope with novelty in language learning, have been added to the concept of language aptitude.

Despite the extensive research on language aptitude, there are still many questions regarding the factors that influence this construct (S. Li, 2016). Therefore, S. Li conducted a comprehensive meta-analysis of 66 studies involving a total of 13,035 language learners over the last 50 years and concluded that language aptitude is independent of other cognitive and affective factors. However, a number of studies have demonstrated the opposite (Dörnyei, 2005, 2010; Dörnyei & Ryan, 2015; Sáfár & Kormos, 2008; Sasaki, 1993). Among these endeavours, for example, the interrelationships and overlap of cognitive factors and motivation are receiving increasing attention in cognitive psychology and foreign language acquisition (Dörnyei, 2010). In this regard, S. Li (2016) argued that motivation and language aptitude are two different factors. Although it can be said with almost absolute certainty that motivation and language aptitude do not completely overlap, several studies indicate that there is some connection between the two concepts and thus between affective and cognitive factors (Dörnyei, 2010). Dörnyei explicitly stressed that cognitive and affective factors should not be considered as constructs completely independent of one another. S. Li (2016), for example, observed a negative correlation between language aptitude and anxiety based on the meta-analysis, that is, when one increases, the other decreases (Sparks & Ganschow, 2007). Studying the interrelationship between language aptitude as a cognitive individual difference with affective variables is relevant since as these factors all play a role in language learning, these also play a role in language aptitude (Kormos, 2013).

S. Li (2016) also examined the relationship between language aptitude and other cognitive constructs. Although intelligence and language aptitude are certainly not the same, there is some overlap between them based on previous research. As A. D. Cohen and Henry (2020) put it, language aptitude is best viewed as "the language-related aspect of intelligence" (p. 166).

Robinson (2002) emphasised that just as there are multiple intelligences (multiple intelligence theory; Gardner, 1983), there are also multiple language aptitude components. Dörnyei and Ryan (2015) also argued that language aptitude is a multicomponential construct, and thus can be divided into several sub-skills. This was also confirmed by Skehan (1991), who argued that language aptitude is composed of elements that can vary independently of each other, which can be called "patterns of aptitude" (p. 277). It follows from this that even if there is a relationship between intelligence and language aptitude, the two factors are essentially distinct constructs subsuming more subcomponents.

The interrelationship between working memory and language aptitude has been highlighted by several studies (Miyake & Friedman, 1998; Kormos & Sáfár, 2006; Wen, 2019; Wen & Skehan, 2011). Wen (2019) argued that working memory is an important component of language aptitude, while Miyake and Friendman (1998) proposed that working memory is language aptitude itself (working memory as language aptitude hypothesis). Based on Li's (2016) meta-analysis, central executive working memory showed a stronger relationship with language aptitude than phonological short-term memory; consequently, working memory plays a major role in language aptitude but is unlikely to be interpreted as the same construct.

The next question regarding the constructs influencing language aptitude is to what extent language aptitude is specific to the language itself, that is, to what extent it can be considered language-dependent, and what role the first language plays in this. Carroll (1973) argued that language aptitude is to some extent a kind of residue of the ability to acquire the first language, a claim supported by Skehan and Ducroquet (1988). Shortly afterwards, Sparks and Ganschow (1993) proposed the Linguistic Coding Deficit Hypothesis (LCDH), which posits that the first language has an effect on foreign language acquisition and that native language cognitive abilities are thus related to foreign language cognitive abilities. Consequently, there seems to

be a relationship between language aptitude and the language itself (this is also highlighted by Sternberg, 2002).

If we formulate the hypothesis that working memory – with its limited capacity – is an integral part of language aptitude, then by expanding working memory capacity, we might be able to develop language aptitude (Singleton, 2017). Kormos (2013) confirmed that some components of language aptitude might be developed during language learning. This is also supported by Sáfár and Kormos (2008), as their study compared two groups of intensive learners who had significant changes in language aptitude scores. As also emphasised by Chalmers et al. (2021), "L2 aptitude could in fact be amenable to training, a prospect which directly contradicts the notion that L2 aptitude is an immutable gift of the fortunate few." (p. 21). Consequently, evidence from recent studies in the new approach refer to the dynamic nature of language aptitude and thus to the possibility of developing it. How it could be developed is an intriguing question to which scholars could not find a definite answer yet. However, there seem to be potential in the practical approaches of interventions and treatments, and the impact of other constructs (be them affective, behavioural, or cognitive) is also worth to be taken into consideration.

2.3.4 Explicit and Implicit Language Aptitude Profiles

As a bridge between language aptitude and explicit–implicit learning, we can differentiate explicit language aptitude (ELA) and implicit language aptitude (ILA) based on the updated interpretation of language aptitude. The former includes reasoning and deliberate hypothesis testing processes with an instructional phrase, study time, and working out relations (i.e., problem-solving) intentionally, and it allows conscious strategy use (Granena, 2012, 2020). Language analytical ability, for example, a component measured by MENYÉT (Ottó, 2002) intends to measure explicit language learning processes (Yamashita, 2022). Implicit language aptitude, the other end of the continuum, means acquiring patterns in the input without being

aware of the rules, there is no study time, and it involves online processing and minimal demands on the executive functions of the working memory (Granena, 2012, 2020).

Granena (2016) concluded that there are two cognitive aptitudes, namely, explicit language aptitude eliciting "conscious, logical, analytical, and effortful" (p. 594) learning, and implicit language aptitude drawing on "nonconscious, associative, holistic, and effortless" learning (p. 594). As it is emphasised by Granena and Yilmaz (2019), language aptitude is not only multicomponential in nature but subsumes capabilities "from both the implicit and explicit cognitive domains, which may be differentially related to L2 outcomes in different learning contexts and/or instructed conditions" (p. 242). With the help of the aptitude-treatment interaction (ATI) design, researchers can analyse the effects of different types of instructions in the light of explicit and implicit language aptitudes (Granena & Yilmaz, 2019); therefore, analysing how teachers differentiate based on cognitive learner profiles is intriguing to be examined. Specifically, Granena (2020) emphasised that as a form of pedagogical intervention, language teachers can tailor their teaching methods to the language learners' cognitive profiles based on individual differences (IDs), thus adding to the following idea, "teachers […] may need to adjust their approach to create the optimal conditions for a good result." (Dewaele et al., 2022, p. 19). Granena added two arguments as to why studying implicit and explicit language aptitude is indispensable in second language acquisition (SLA): first, by exploring these approaches, we can understand IDs concerning success; second, we can make suggestions to language teachers and language policymakers amongst other important stakeholders.

Relatively recent language aptitude tests (e.g., Hi-LAB; Doughty et al., 2010; LLAMA; Meara, 2005) involve explicit as well as implicit aptitudinal constraints. More specifically, Hi-LAB involves explicit induction and rote learning to measure explicit learning and priming and serial reaction time anticipations to measure implicit learning. The LLAMA B, E, and F are aimed to measure explicit learning, while the LLAMA D is designed to measure implicit

learning. According to Skehan (1986), patterns of language aptitude can be identified based on learner types, concluding that tendencies can be observed concerning IDs. That is exactly why exploring learner profiles based on the perceived cognitive aptitudes for implicit and explicit learning might offer much potential. In the following, differentiated instruction will be discussed.

2.4 Differentiated Instruction: Much Ado about Teaching

The theoretical foundation of differentiated instruction (DI) lies in what is referred to as the zone of proximal development by Vygotsky (1978). This notion encompasses that students learn through scaffolding, that is, with the help of more knowledgeable stakeholders (Ellis, 1997). According to Tomlinson and Imbeau (2010), if one is to implement DI in their classroom, they should be aware of the students' needs regarding scaffolding.

A relatively recent theoretical framework, referred to as the Personalised Learning paradigm, is proposed by Vuong and Wong (2019). The researchers advocated that there are three main aspects of this framework. Firstly, there is a need to cater for individual differences (IDs) as learners do not (and cannot) equally benefit from the same type of instruction. Secondly, learners' IDs are, amongst others, influenced by behavioural constituents. Thirdly, these IDs should be addressed in order to achieve efficient learning for each individual.

These notions are related to DI, which is a complex set of principles with an aim to maximise the learning opportunities of each learner and thus establish inclusive classrooms (Valiandes, 2015; Vantieghem et al., 2020). With the emerging role of IDs in applied linguistics research (Dörnyei & Ryan, 2015) and the demand to create inclusive classrooms (UNESCO, 2017), investigating teachers' beliefs and reported practices concerning differentiation gains more and more importance. As teachers' beliefs shape their pedagogical practices (Borg, 2003; Kalaja & Barcelos, 2003; Nishino, 2012; Tomlinson et al., 2003), and as the role of IDs in successful language learning concerns itself with responding to the needs of learners

(Tomlinson & Imbeau, 2010), it is clear that examining beliefs regarding differentiation is becoming increasingly crucial. DI and focusing on learners' IDs have proven to be of key importance in responding to the needs of learners and in fostering a more efficient way of learning (Tomlinson & Imbeau, 2010; Valiandes, 2015).

Previous research has shown that teachers' beliefs have a fundamental role in shaping their pedagogical practices (Borg, 2003; Kalaja & Barcelos, 2003; Nishino, 2012; Tomlinson et al., 2003), and thus the choices they make during language instruction. With regard to differentiation, it is well known today that it is important for the success of language learners to pay attention to IDs, thus avoiding a one-size-fits-all approach.

To uncover what is behind the "fuzzy" (Deunk et al., 2018, p. 32) concept of differentiation, in what follows, early as well as recent conceptualisations are also reviewed. Probably the earliest definition is that of Tomlinson's (1999), which clearly demonstrates that teachers – and researchers – did not previously put due emphasis on IDs in the classroom. Tomlinson (1999) focused on taking IDs into account in order to enhance the effectiveness of the learning process: "In a differentiated classroom, a teacher [...] is guided by general principles of facilitating a classroom in which attention to individuals is effective" (p. 14).

It is important to note that Tomlinson (1999) mentioned that the teacher is following general principles, which means that rather than being one single practice, differentiation is a set of principles or approaches to be implemented in the classroom. According to Deunk et al.'s (2018) meta-analysis, the implementation of differentiation is complex by the very nature of DI. Tomlinson and Imbeau (2010) claimed that for effective DI, teachers need to assume a leadership role in the classroom with a wide array of techniques: "For these teachers [leader teachers], differentiation is not a set of strategies but rather a demographically necessary, ethically focused, pedagogically informed, and empirically tested way of thinking about the work they do" (p. 10). Consequently, in order to maximise the capacity of each individual in

the classroom, the teacher is encouraged to employ classroom routines based on a set of principles (Tomlinson et al., 2003; Tomlinson & Imbeau, 2010). Responding to learners' needs and differences proactively is emphasised by Tomlinson (1999): "differentiation is an organized yet flexible way of proactively adjusting teaching and learning to meet kids where they are and help them to achieve maximum growth as learners" (p. 14), and this idea is additionally enforced by Tomlinson et al. (2003). The element of achieving the maximum capabilities in each student is further highlighted by Vantieghem et al. (2020), who also indicated that DI is not a single practice that teachers can or cannot do but is rather a framework of teaching. Vantieghem et al. added that the main aim of DI is to create inclusive classrooms where each and every individual's needs are taken into consideration.

Tomlinson (1999) went even further and established an overarching difference between traditional and differentiated classrooms and concluded that differentiated classrooms are more successful in several aspects in the long run. Likewise, Báthory (2005) argued that differentiation in the traditional classroom is only happening internally, meaning that it is solely centred around differentiating the teaching methodology and the lesson itself. However, there is a vast array of other aspects to consider concerning DI. Based on Tomlinson's (1999) model of DI, teachers can differentiate the content, process, and product by taking into account IDs regarding students' readiness, interests, and learning profiles. Tomlinson and Imbeau (2010) added differentiation based on affect/environment and claimed that the differentiational techniques employed are also shaped by teachers' mindsets.

Teachers' mindsets shape their philosophy of implementing DI (Tomlinson, 1999). For example, Coubergs et al. (2017) have developed the Differentiated Instruction Questionnaire (DI-Quest) to measure teachers' perceptions about DI, and using exploratory and confirmatory factor analysis, they established that mindset, specifically, fixed mindset, is one of the components affecting DI philosophy. Teachers having a so-called *growth mindset* believe in

the role of the individuals' invested effort in learning, while teachers having a *fixed mindset* have the proclivity to think that while some students are born talented and can learn the material, others simply cannot, even if they expend great effort in learning it. This is based on Dweck's (2006) mindset theory, which expresses the notion that beliefs are shaped by mindsets, and it is crucial to develop a true growth mindset in order to enhance success. This theory has received substantial empirical support in different fields, including language learning (Lou & Noels, 2019; Mercer & Ryan, 2010).

The implementation of DI shows beneficial effects not only in domain-general terms but in language learning as well (Baecher et al., 2012; Blaz, 2016; Ortega et al., 2018). In the domain-specific area of language teaching, Baecher et al. (2012) proposed 10 principles for DI, namely, exploring learners' strengths and weaknesses, setting a common learning objective, making DI feasible and implementable for teachers, making learning accomplishable for learners through DI, establishing learning opportunity for higher-level learners, avoiding always pairing high-level learners with lower proficiency students, applying flexible grouping, giving a repertoire of opportunities so that the students themselves can choose the activities, acknowledging that tasks should be at an equal level of cognitive complexity as learners' language proficiency, and finally, assigning equal completion time for differentiated tasks. As Ortega et al. (2018) summarised, with the help of implementing systematic DI in the language learning classroom, the process of learning a language may be greatly enhanced and facilitated for students.

Despite the many advantages DI presents, a number of issues are surrounding DI pinpointing the complexity of implementing DI strategies. The main issue concerning differentiation, as shown by recent research, is that teachers believe that they would need further education on how to differentiate in the foreign language learning classroom, and they perceive differentiation as a particularly challenging task (Kótay-Nagy, 2023; Öveges & Csizér, 2018;

Smid & Zólyomi, 2021; Suprayogi et al., 2017; Zólyomi, 2022a). Subsequently, recent studies have emphasised that teachers need more instruction on ways to differentiate, including conferences and workshops dedicated to the topic, where teachers could familiarise themselves with various DI strategies (Kótay-Nagy, 2023; Öveges & Csizér, 2018; Smid & Zólyomi, 2021; Suprayogi et al., 2017; Zólyomi, 2022a).

Tomlinson et al. (2003) and Tomlinson and Imbeau (2010) have shown that only a very small number of teachers make conscious and deliberate decisions to adjust their teaching methods to create inclusive classrooms, which suggests that teachers in general scarcely take IDs into account. Nevertheless, such considerations would be of pivotal importance and conducive to success in language learning, as "what we do know is that current classrooms are more academically diverse than ever and that most of those classrooms are ill-equipped to deal with the range of needs" (Tomlinson et al., 2003, p. 136). The ubiquity of diverse classrooms calls for the implementation of DI and adapting teaching strategies accordingly. Even to a greater degree today, as it should be taken into consideration that Tomlinson et al. posited the need for differentiation 20 years ago. However, based on the randomly selected 32 schools in Öveges et al.'s (2019) study in the Hungarian context, differentiation is not addressed at the local curricula level. They reported that differentiation within groups and age-related IDs are not even mentioned in the local curricula of the selected schools. As summarised by Tomlinson et al. (2003), examining teachers' beliefs about differentiation is of key importance in achieving effective learning because teachers' beliefs influence their knowledge of student IDs.

Consequently, analysing teachers' beliefs concerning differentiation along with their reported DI practices is not only important but also deemed necessary in order to understand their choice of teaching methods. A key aspect regarding DI which is closely related to the present dissertation is highlighted by Granena (2020), who, besides acknowledging the challenge posited by DI in the form of face-to-face teaching, issued a clarion call for

implementing online DI: “differentiation […] is highly promising for online adaptive language learning contexts because of the possibility to customise and systematically match learners to particular instructional modules after determining their cognitive strengths.” (p. 39).

This could be achieved, by, for example, diagnostic tests or questionnaires that cluster language learners based on either their cognitive strengths or behavioural dispositions. These, of course, would be ideal if applied regularly to analyse students’ needs as these may change over time. Note that Granena (2020) emphasised the detection of strengths rather than strengths and/or weaknesses. This strengths-based approach comes from the advancement of positive psychology, when researchers realised that it would be more beneficial to focus on strengths-based approaches and fight the earlier deficiency models (Dewaele, 2022; MacIntyre et al., 2019). In what follows, learners’ and teachers’ beliefs are discussed in detail.

2.5 An Overview of Beliefs

Although a growing body of research is conducted on beliefs in foreign language learning both in Hungary and internationally (Bacsa, 2012; Kalaja & Barcelos, 2003), it is still considered to be rather challenging to conceptualise this mental construct. Beliefs per se are “preconceived ideas” (Csölle & Kormos, 2004, p. 47) or preformed opinions that can have an effect on foreign language learning (Dörnyei & Ryan, 2015). Beliefs comprise a group of complex assumptions regarding the use and the nature of the language as well as the whole language learning process (Hüttner et al., 2013). Perhaps the most well-known instrument intended to measure language learning-related beliefs is the Beliefs About Language Learning Inventory (BALLI; Horwitz, 1987); however, this inventory was heavily criticised by, for instance, Kuntz (1996) due to its validity issues. Despite the criticism, this instrument and its adopted or modified versions are still popular and widely used in beliefs research (Aslan & Thompson, 2018).

The understanding of the nature of beliefs experienced a shift around the 2000s. According to pre-2000 studies (Pajares, 1992), beliefs are less likely to change over a short

period of time, from one day to the other. As opposed to this interpretation, many recent studies highlight that beliefs are to be seen as dynamic in nature (Barcelos, 2003; Barcelos & Kalaja, 2011; Dörnyei & Ryan, 2015; Dufva, 2003; Hüttner et al., 2013; D. Woods, 2003). Despite these debates, what is commonly acknowledged by all of these studies is the notion that beliefs have a strong influence on attitudes, behaviour, actions, and practices. Pajares (1992) and Hüttner et al. (2013) specifically acknowledged that beliefs, attitudes, and behaviours are intertwined, while Borg (2003) and D. Woods (2003) indicated that beliefs are interrelated with other cognitive dimensions. Pajares (1992) added that beliefs are not in isolation from emotional (affective) dimensions. Hüttner et al. (2013) and D. Woods (2003) claimed that beliefs are socially constructed and formulated. According to recent studies, beliefs are dynamic by their very nature, can change over time and in different situations (Dufva, 2003), and thus may even be contradictory (Hüttner et al., 2013). Subsequently, beliefs shape how students perceive their foreign language learning experiences, and this affects how they construct their own learning (Mercer & Ryan, 2010).

An all-encompassing summary of the characteristics of beliefs is offered by Barcelos and Kalaja (2011, pp. 285–286), who claimed that beliefs are (1) *fluctuating*, meaning that within an individual, beliefs about an L2 learning-related issue can change over time; (2) they are *complex* and dialectical; meaning that beliefs do not function as simple dichotomous views and are not unidimensional; (3) they are *related to the micro-and macro-political contexts and discourses*, so beliefs are socially and politically constructed; (4) they are intrinsically related to other affective constructs; therefore, beliefs are intertwined with emotions and other affective dimensions; (5) they are *other-oriented*, as the name suggests, beliefs are constructed by the influence of others – teachers and significant others, for example, parents; (6) they are *influenced by reflection and affordances*, so beliefs may be refined, fine-tuned or even changed after self-reflection or after emotions are triggered; (7) they are *related to knowledge in intricate*

ways, which means that beliefs are shaped by experiences; and (8) they are *related to action in complex ways*, which points to the dynamic relationship of actions and beliefs. Consequently, beliefs nowadays are to be seen as presented in the above-mentioned classification of Barcelos and Kalaja (2011).

2.5.1 Learners' Beliefs

Learners' beliefs include a set of assumptions regarding the language learning process and the factors influencing it (Victori & Lockhart, 1995). Based on, for example, Victori and Lockhart (1995) and Mercer (2011a, 2011b), these assumptions also subsume the theories language learners have about themselves. When discussing beliefs, implicit beliefs or implicit theories, in other words, mindsets (Dweck, 2006; Dweck & Leggert, 1988) also need to be scrutinised, as mindsets play an immense role in foreign language learning success (Lou & Noels, 2019). Dweck (2006) formulated two theories that are linked to implicit beliefs. The first is the incremental theory linked to growth mindsets comprising the belief that L2 learning skills can be changed (i.e., dynamic). The second is the entity theory associated with fixed mindsets encompassing the belief that L2 learning skills cannot be changed and thus are static (Dweck, 2000). What is referred to as L2 mindsets in previous research concern whole belief systems related to cognitive constructs – such as intelligence, aptitude, and personality – and if these cognitive skills can be changed or improved (Dweck, 2006; Lou & Noels, 2019). Dweck (2015) explained that mindsets concern how individuals perceive their own skills or abilities. For example, if the language learner is convinced that their language aptitude can be changed, then they have a growth L2 mindset, and if they perceive this skill to be innate, they have a fixed L2 mindset (Dweck, 2006; Lou & Noels, 2019). In general, mindsets subsume the way learners perceive the challenges they face in everyday life, the obstacles they must overcome, the efforts they have to make to achieve their goals, the criticisms they receive, and the success of others (Dweck, 2020).

Studying mindsets is particularly intriguing because, according to Dweck (2020), it is possible to develop a growth mindset, which is associated with becoming more successful. A notably imperative point Dweck (2006) highlighted is that the path to success is planted in effort. A novel aspect revealed by recent studies is that it seems possible to possess a growth and a fixed mindset at the same time (Dweck, 2020; Lou & Noels, 2016). Interestingly, recent studies have shown that, in terms of skills and abilities, individuals seem to hold a combination of both mindsets, and this is referred to as mixed mindsets (Dweck, 2020; Lou & Noels, 2016). In fact, Dweck (2015) argued that every single individual owns a mixture of growth and fixed mindsets related to the whole repertoire of abilities.

Mercer and Ryan (2010) formulated the idea of a mindset continuum – akin to mixed mindsets – which shows that mindsets appear to exhibit tendencies rather than dichotomies. To narrow the focus down to the scope of this study, people with a fixed L2 mindset regard intelligence and language aptitude as innate capabilities that cannot be changed, whereas people with a growth L2 mindset believe that these skills are malleable and can be developed with effort (Mercer & Ryan, 2010).

According to Lou and Noels (2017), there are two camps of learners; the essentialists, who have a fixed mindset and believe that skills cannot be developed (entity theory), and constructivists, who have a growth mindset and believe that skills are malleable (incremental theory). As such, those students who are convinced of the mutability of, for example, their language aptitude (Singleton, 2017) tend to have a growth mindset towards language learning. In contrast, a fixed mindset "leads people to interpret setbacks as a reflection of their underlying incompetence and to show defensive or ineffective self-regulatory strategies in the face of threat" (Dweck & Molden, 2017, p. 137). Along with this theory, those who do not have a fixed mindset towards their skills are more willing to invest effort in language learning, perceive their language aptitude as mutable and may have higher self-efficacy beliefs.

However, mindset theory was heavily criticised and led to controversial results in recent studies (Foliano et al., 2019; King & Trinidad, 2021; MacNamara & Rupani, 2017; Moreau et al., 2018; Sisk et al., 2018). These studies found that mindset has a poor association with achievement and academic outcomes, either by a lack of significant correlation between the two constructs or by showing only weak correlations. The authors were investigating other constructs as well besides achievement in light of mindsets. For example, mindset interventions showed different results concerning the relationship between mindsets and socioeconomic status. While King and Trinidad (2021) claimed that growth mindset contributes to achievement only in the case of students who have a more stable financial background, Sisk et al. (2018) found in their meta-analyses that mindset interactions can be beneficial for students with low socioeconomic status. Another three factors, intelligence, intelligence mindset, and gender were analysed by MacNamara and Rupani (2017), who stated that there is weak or no relationship between these constructs. MacNamara and Rupani summarised that those who support mindset theory have two main beliefs. One is that while having a growth mindset is advantageous, having a fixed mindset is disadvantageous, and the second is that differences between intelligence and intelligence mindsets are heavily influenced by gender. The latter one, however, does not appear originally in Dweck's (2006) mindset theory, MacNamara and Rupani (2017) seem to draw conclusions from results lacking solid evidence.

Nonetheless, these criticisms did not remain unanswered by the developers of mindset theory. Yeager and Dweck (2020) addressed the criticisms and concluded that the original foundations of mindset theory are solid and reliable. The researchers emphasised that the controversies may result from poor mindset measures. In fact, there are studies emphasising the importance of mindsets in general domains: "Children's beliefs become the mental 'baggage' that they bring to the achievement situation." (Blackwell et al., 2007, p. 259). In the domain-specific context of language learning, for instance, based on Lou and Noels' (2016) results,

promoting an overall growth mindset in students can help in maintaining students' motivation and resilience when facing difficulties. In a recent study, Ozdemir and Papi (2021) showed that while fixed L2 mindset seemed to be a predictor of L2 speaking anxiety, growth mindset contributed to L2 speaking self-confidence. In Khajavy et al.'s (2020) study, students having a growth mindset showed better L2 achievement. All in all, the disparity of the findings in mindsets research (Collett & Berg, 2020) should be a cause of concern, both from a theoretical consideration and from the point of view of questionable construct validity when designing instruments.

Another aspect of studying language learners' beliefs about L2 learning is based on attribution theory (Weiner, 1979). Gobel and Mori (2007) explored the perceived reasons for success and failure in foreign language learning and signalised that teachers could greatly impact learner attribution. More importantly, and related to L2 learning mindsets, the researchers emphasised the importance of beliefs about language learning ability (i.e., language aptitude): "in fact, lack of ability is often seen as the least desirable attribution because it is considered stable and outside of a person's control" (Gobel & Mori, 2007, p.165). In doing so, the researchers argued that fixed L2 learning mindsets are not to be aimed at. This is because while some beliefs are useful in foreign language learning, language learners can develop harmful or even false beliefs that can have undesirable consequences (Horwitz, 1995). Some misconceptions may be detrimental, may undermine learners' success in language learning, and can be highly counterproductive to the language learning process (Barcelos, 2003). Consequently, it is particularly relevant that language learners' beliefs are explored to find out what leads to success and failure in foreign language learning.

Concerning learners' beliefs, Lightbown and Spada (2013) claimed that language learners' beliefs are formed based on their previous experiences; therefore, beliefs have a considerable role in foreign language learning as these beliefs have an impact on what kind of

learning strategies the students use when acquiring new linguistic features. Dörnyei and Ryan (2015) emphasised that learners' beliefs also have a substantial influence on learners' behaviour. As argued by Mercer (2011b), when analysing learners' beliefs, it is important to pay attention to the individual's belief system as the "one-size-fits-all" (p. 71) approach is certainly questionable. Barcelos (2003) concluded that examining learners' beliefs is of key importance in understanding their future behaviour in specific contexts (i.e., in-class and outside the classroom), and this is where teachers' beliefs may be undeniably relevant. In addition to this, learners' beliefs have an impact on their language learning success (Cotterall, 1999).

In this study, what is referred to as self-related lay theories or self-concept subsume "a complex, multi-layered, multidimensional network of interrelated self-beliefs" (Mercer, 2011a, p. 335). Mercer claimed that self-related beliefs research is in its infancy and more investigations would be needed to have a fuller understanding of the complex nature of beliefs. Therefore, to address this research niche and Mercer's call for employing multiple perspectives, besides learners' beliefs, teachers' beliefs are also in focus of the dissertation.

2.5.2 Teachers' Beliefs

Previous research has shown that teachers' beliefs have a fundamental role in shaping their pedagogical practices (Borg, 2003; Kalaja & Barcelos, 2003; Nishino, 2012; Tomlinson et al., 2003). Teachers' beliefs have lately been included under the umbrella term *teacher cognition*, subsuming what teachers think, know, believe, and do (Kalaja et al., 2015). According to Borg (2003), there is a connection between teacher cognition and their classroom practices. Teachers' beliefs have been shown to affect their teaching practice in the form of hidden agendas or hidden pedagogies (Freeman, 2002; Shohamy, 2006). For instance, – and primarily related to the topic of the dissertation – recent studies have shown (Öveges & Csizér, 2018) that teachers believe that they would need further education on how to differentiate in the foreign language learning

classroom and that differentiation is very challenging (Smid & Zólyomi, 2021; Zólyomi, 2022a). Borg (2003) reviewed 64 studies investigating teachers' beliefs published between 1976 and 2002 and concluded that teacher cognition is personal in nature, and previous experiences play a role in shaping beliefs. Besides this, Borg (2003) acknowledged that teaching practice and teacher cognition are intertwined.

Closely related to the role of experiences is the notion of the *apprenticeship of observation*, originally coined by Lortie (1975), which posits that teaching practices are formed based on earlier experiences that teachers have from their time as former learners (pre-service teacher trainees) watching their teachers. From another perspective, the *anti-apprenticeship of observation* (Moodie, 2016) suggests that negative experiences will function as counterexamples, leading to the avoidance of certain behaviours. These two notions suggest that pre-service teacher trainees formulate beliefs based on whether the behaviours of their former teachers serve as models or counterexamples. A third facet is alluded to as the *apprenticeship of learning* (Pendergast et al., 2011), which entails all the experiences pre-service teachers have during their years of teacher training. These experiences play an important role in formulating teachers' beliefs, which in turn have an impact on their future educational practices (Borg, 2003). Additionally, A. V. Brown (2009) highlighted that teachers (just like students) have idiosyncratic perceptions of language learning and language teaching practices. A limitation to this is that there may be a discrepancy between reported (i.e., espoused-theories) and actual (theories-in-use) pedagogical practices (Argyris et al., 1985; L. Li, 2013).

The present study aims to focus on learners' as well as teachers' beliefs; the reason for looking at both can be seen in the fact that these beliefs do not stand alone in a vacuum. Rather, as mentioned before, D. Woods (2003) argued that beliefs are socially constructed. As emphasised by Hüttner et al. (2013), "language beliefs capture how the social players involved think about and construct their language choices" (p. 269). In my interpretation, what the

researchers referred to as social players do not only concern language learners but language teachers alike as they are also important stakeholders in the foreign language learning process. Examples of studies focusing on both language learners' and teachers' beliefs are A. V. Brown (2009), Dufva (2003), and D. Woods (2003); however, investigating both at the same time received scant emphasis in previous research endeavours. As highlighted by Barcelos (2000), a match or congruence between learners' and teachers' beliefs is likely to be productive, while a mismatch or lack of congruence between their beliefs is inclined to lead to counterproductivity in the learning process.

2.5.3 Self-efficacy Beliefs

The theoretical framework for self-efficacy beliefs originates from Bandura's (1986) Social Cognitive Theory. In his theory, he posits that self-efficacy beliefs entail an individual's perception about their own ability to perform a task or an activity. Historically, language pedagogy and applied linguistics follow the theories in psychology and transfer these theories to language learning. Around the turn of the millennium (Seligman & Csíkszentmihályi, 2000), a paradigm shift happened with focus turning from negative experiences (e.g., foreign language anxiety) to positive experiences (e.g., enjoyment, self-efficacy beliefs). This also meant the change of the social-psychological period to the cognitive-situated period (Mills, 2014). Therefore, self-efficacy beliefs, being cognitively situated, gained prominence after this shift of focus (Mills, 2014). First, learners' self-efficacy beliefs are discussed, which is then followed by a brief review of teachers' self-efficacy beliefs, especially related to differentiated instruction.

Recently, in the Hungarian context, Csizér et al. (2021) have drawn attention to the fact that self-efficacy beliefs are rarely investigated alongside individual differences. Many studies have investigated the association between self-efficacy beliefs and perceived proficiency (Hoang & Wyatt, 2021); however, to my knowledge, none of these studies have examined the

relationship between self-efficacy beliefs and perceived language aptitude. Nevertheless, investigating language aptitude is of utmost importance because it has shown great predictive power in language proficiency and achievement (S. Li, 2016). Recent studies have started to investigate the interplay of language aptitude and explicit–implicit encoding processes referred to as cognitive aptitudes for explicit and implicit learning (Granena, 2020; Granena & Yilmaz, 2019). Consequently, this study is addressing a research niche concerning the interrelationship between self-efficacy beliefs, perceived language aptitude, and explicit–implicit learning. It must be highlighted that this study examines these constructs based on self-report data, so a direct link cannot be established between actual language aptitude (a score on a language aptitude test) and actual learning behaviour. I decided to focus on beliefs, perceptions, and to have self-report data because these may weigh more than, for example, a simple score on a language aptitude test.

The self-efficacy beliefs of teachers specifically denote "the beliefs teachers hold about their own perceived ability in undertaking certain teaching tasks" (Pendergast et al., 2011, p. 47). Bandura (1997) claimed that teachers with high self-efficacy perceive all students, including those who may be struggling as "teachable through extra effort and appropriate techniques [...] through effective teaching" (p. 240), while teachers with low self-efficacy perceive that they have a small impact on learners' cognitive progress—if at all. This, apparently, is in line with Lou and Noels' (2017) foreign language mindset theory originating from Dweck's (2006) domain-general mindset theory.

Many studies emphasized that teachers display a sense of low self-efficacy with regard to adapting education to the needs of the individual, that is, implementing differentiated instruction (DI) in Hungary (Öveges & Csizér, 2018; Smid & Zólyomi, 2021; Zólyomi, 2022a) as well as internationally (Suprayogi et al., 2017). With the emerging need to adapt instruction that caters for learners' individual differences with the purpose of creating inclusive classrooms,

it becomes increasingly important to employ effective DI techniques. The above-mentioned studies also highlight that teachers, besides finding the implementation of DI challenging, also perceive DI as pivotal in language learning success. Many studies have demonstrated that teachers have low self-efficacy beliefs for teaching the *gifted* (Matheis et al., 2017).

To conclude the review of beliefs, as has been demonstrated, it is particularly important to examine beliefs in understanding success and failure in foreign language learning. However, these beliefs are dynamic, situation-dependent (Dufva, 2003), and there is also a chance that beliefs within an individual are contradictory (Hüttner et al., 2013). The reason for examining learners' beliefs along with teachers' beliefs besides the socially-constructed aspect is that "learners' language beliefs may be affected by their teachers' beliefs" (Lou & Noels, 2017, pp. 231–232).

2.5.4 Perceptions of Language Aptitude

The conceptualisation of language aptitude is rather controversial; nevertheless, recent studies tend to favour the dynamic view of it. Based on this view, language aptitude can be developed, either by interventions, treatments, profiles or by enhancing another constructs, which show a strong connection with it. Recently, the constructs most frequently analysed together with language aptitude are explicit and implicit learning approaches (Granena, 2012, 2014; Granena & Yilmaz, 2019). The present study is following the recent dynamic interpretation of language aptitude and considers the potential of language aptitude profiles in terms of explicit and implicit learning (see section 2.4.4) in enhancing more effective language learning. In this research endeavour, the focus is on the perceptions of language aptitude for a number of reasons; for example, the Hungarian language aptitude tests are based on the traditional Carrollian approach. The remaining reasons why the focus is on perceptions and not the actual levels of language aptitude are detailed below.

Besides the several language aptitude definitions, the perceptions and beliefs about this construct also show great variance (Burns & García, 2017). To introduce the key approach followed in this dissertation, Bandura (1997) claimed that the perception and interpretation of emotions may weigh considerably more than the actual intensity of emotions. Thinking along the lines of Bandura (1997) and putting it into context, it is not necessarily the score on the language aptitude test that foretells the level of success an individual is capable of achieving but the self-perceived level of aptitude and the importance they attribute to this construct. These cognitive processes may weigh markedly more than a single number indicating a score on a test. This suggests that it may be beneficial to develop a growth mindset in students and in pre-service teachers during their teacher training (during apprenticeship of learning). Duckworth (2016), in undertaking the investigation of the notion of *grit*, marked the key point of recent language aptitude research by the following: "It seems that when anyone accomplishes a feat worth writing about, we rush to anoint that individual as extraordinarily 'talented.' If we overemphasize talent, we underemphasize everything else." (Duckworth, 2016, p. 38). Therefore, if students attribute excessive importance to language aptitude, they are probably less willing to consciously put effort in their language learning progress. This is exactly why students' self-perceived language aptitude is in focus in the present study.

2.5.5 Learners' and Teachers' Beliefs on Explicit–Implicit Language Aptitudes

Although many studies employed the Beliefs About Language Learning Inventory (BALLI; Horwitz, 1987) with one factor focusing on language aptitude beliefs, there are only a limited number of items measuring this construct. Based on the BALLI, several studies indicated that students acknowledge the existence of language aptitude (Rieger, 2009; Wong, 2010; Yang, 1999), which is in line with qualitative findings across contexts (Mercer & Ryan, 2010; Zólyomi, 2020a). At this stage, it must be noted that acknowledging the existence of this cognitive construct does not necessarily equal the static interpretation of language aptitude as

it is questionably argued by Mercer and Ryan (2010). As language aptitude is challenging to conceptualise even for researchers and is multicomponential in nature, investigating language learners' and language teachers' beliefs about this cognitive construct in a profound way is not at all negligible.

After reviewing the related literature, it is apparent that investigating learner beliefs and teacher cognition together in light of cognitive aptitudes for explicit and implicit learning is a neglected area of research. In addition, there is a research gap concerning the clusters of cognitive abilities (e.g., intelligences, language aptitude) based on S. Li's (2016) meta-analysis. This is why a novel focus on this specific phenomenon is deemed necessary in order to be able to analyse how English language learners and teachers perceive language aptitude. The reason for focusing on beliefs on language aptitude and not language aptitude per se (besides the aspects already mentioned in previous sections) also has to do with the established importance of beliefs and perceptions, as highlighted by, for instance, Hüttner et al. (2013).

Considering the well-established nexus between beliefs, attitudes, behaviour, actions, and practices, a well-known theoretical model from social psychology is seen as the framework for this study and for building up the instruments. This model is known as the affective-behavioural-cognitive (ABC) model of attitudes (Ostrom, 1969). More specifically, transforming this model to my study means that I intend to explore how English language learners and teachers perceive language aptitude, the role they assign to it (cognitive dimension), how they relate to it emotionally based on their preferences (affective dimension), and what they actually do; that is, what learning habits the language learners report to have, and what teaching methods, including differentiation, the teachers report to use (behavioural dimension). Consequently, I intend to explore English language learners' and teachers' beliefs regarding the cognitive aptitudes for explicit and implicit learning.

2.5.6 A Summary of Preliminary Studies Related to the Topic of the Dissertation

In this section, a brief summary is provided of the eleven studies (Zólyomi, 2020a, 2020b, 2020c, 2021a, 2021b, 2021c, 2022a, 2022b, 2022c, 2023; Smid & Zólyomi, 2021) that directly informed the present dissertation. I consider these important because the results of these studies had a considerable impact on the whole process of the dissertation. First, I piloted an artificial grammar learning task intended to measure explicit and implicit learning processes (Zólyomi, 2020b). Based on the small-scale study (N = 40), implicit learning has proven to be more effective. Second, I conducted a small-scale (N = 27) mixed methods study focusing on language aptitude and explicit–implicit learning habits (Zólyomi, 2021b). This was when I realised the importance of language aptitude beliefs and reported explicit and implicit learning habits.

Third, I explored advanced learners' beliefs and perceptions of language aptitude (Zólyomi, 2020a), and the selected participants (N = 8) claimed that language aptitude exists (which is in accordance with previous studies; Mercer & Ryan, 2010; Rieger, 2009; Wong, 2010; Yang, 1999) and that language aptitude can be developed and is malleable. The participants also mentioned that a number of constructs influence it, for example, motivation as well as mindsets (in accordance with the results of previous studies; A. D. Cohen & Henry, 2020; Lou & Noels, 2019). As the purpose of this interview study was not only to understand Hungarian English language learners' beliefs about language aptitude but to facilitate the generation of an item pool for the follow-up questionnaire study (Zólyomi, 2020c), this study formed a baseline for the follow-up research endeavour. With this interview study, I turned my attention to the perceived malleability of language aptitude and mindsets.

In the follow-up questionnaire study (Zólyomi, 2020c), the beliefs of Hungarian language learners were analysed on a larger scale (N = 163). The instrument I have developed is referred to as the Language Aptitude Beliefs Survey (LABS). The major results indicated that

there is a strong relationship between language learners' perceived success and perceived language aptitude. Additionally, based on the beliefs of the participants, language aptitude can be developed and is influenced largely by learning experiences. I also gained inspiration from a co-authored study (Smid & Zólyomi, 2021), where we explored secondary school teachers' (N = 10) beliefs about learning English. Among our main findings, we can claim that learner-internal factors and social contexts have a great influence on language learning.

The next questionnaire that I have developed is about language learners' explicit and implicit beliefs and habits (Zólyomi, 2021a, 2021c). Data were collected from a relatively small sample (N = 63) using the Explicit–Implicit Learning Habits Survey (EXIS). The results showed that based on the beliefs of the participants, implicit learning is more effective than explicit learning, they prefer this type of learning, they use implicit learning much more often, and they are better characterised by implicit language use. It must be noted here that I am using the label *Implicit language use* for the scale containing items referring to the instinctive, unmonitored use of the language. The two strongest correlations in Zólyomi (2021a) were detected between *Perceived success* and *Effort* ($r(61) = .74$, $p < .001$) and *Implicit learning habits* and *Growth mindset* ($r(61) = .67$, $p < .001$). Based on the results of the regression analysis, the *Effort invested in language learning* ($\beta = 0.55$, $p < .001$) and *Implicit language use* ($\beta = 0.40$, $p < .001$) scales explained 67% of *Perceived success*. The combined cluster analysis used in Zólyomi (2021c) showed that language learners displayed different patterns and tendencies regarding implicit and explicit language learning behavioural dispositions.

The following endeavour is an interview study (Zólyomi, 2022a; for its summary, see Zólyomi, 2022c) where I explored secondary school English teachers' beliefs about differentiated instruction (N = 28). Teachers reportedly differentiate mostly based on students' readiness levels (proficiency differences), while focusing on learner profiles was rarely mentioned. The teachers perceived differentiated instruction (DI) as an important yet

challenging task; additionally, several of them showed low self-efficacy beliefs in DI. Gamification, as a tool for implementing DI was also mentioned. A study in the same context (Kótay-Nagy, 2023) corroborated to these findings.

The next research is a questionnaire study whereby I used the EXIS as well as a scale intended to measure self-efficacy beliefs that I have developed to measure teacher trainees' (*N* = 62) reported behavioural dispositions (Zólyomi, 2022b). The results indicated that perceived language aptitude appears to account for 35% of the variance in self-efficacy beliefs; and based on the teacher trainees' profiles, those who show both explicit and implicit learning behaviours have higher self-efficacy beliefs. From the results, I could also conclude that implicit and explicit learning processes may not be completely independent of each other.

The last research endeavour I would like to mention is a follow-up interview study (Zólyomi, 2023), and its analysis and write-up are still in progress; nevertheless, there are some preliminary insights worthwhile to be noted. In this study, I selected teacher trainees from the behavioural clusters from Zólyomi (2022b) in order to understand their language learning habits and perceptions in more depth. The most imperative aspect of this interview study is that I used parts of the transcripts for further item generation in the questionnaires used in this dissertation. As previously mentioned, the final questionnaires are the results of years' modifications and refinements.

All of the above-mentioned studies informed the present dissertation to some extent, but I deliberately choose not to discuss them in the review of literature along with other studies as my intention was to collect and inform the readers how one step led to another when making decisions. I used items from both the LABS and the EXIS surveys; however, as I learned more and more, I had to revise the instruments. From these studies, my experience shows – although it must be noted that I did not compare actual language aptitude levels with language aptitude beliefs – that it is much more important to discover what is inside the heads of the stakeholders

(what they perceive of their own skills and abilities) than a score, a simple number on, say, a language aptitude test. The two main reasons for going back to step 0 and pilot the questionnaire were that I have not piloted the instruments with secondary school students before; moreover, I almost always had a low number of participants earlier, which may lead to type II errors (Columb & Atkinson, 2016). Additionally, Dörnyei and Dewaele (2022) also convinced me: "Always pilot your questionnaire (even if most or all the items have been adopted from existing instruments) and submit the items to item analysis." (p. 152). Consequently, I decided to repilot the combined questionnaire.

2.6 Rationale for the Whole Study and Preliminary Expectations

In this subsection, I would like to revise the main points of the theoretical background of the study for a more comprehensive overview and justify why all of these constructs – in concert – are imperative to be examined in this way. As has been mentioned previously, implicit–explicit measures are heavily criticised; tests which measure both at the same time on the same participants are virtually non-existent, and there is heated debate concerning the interface between these two constructs. There is no abundance of aptitude tests that are easily accessible (Yamashita, 2022); the newest Hungarian language aptitude test (i.e., MENYÉT; Ottó, 2002) is already 21 years old and is based on the early Carrollian approach. A new language aptitude test would be needed in the Hungarian context; however, developing it would take much time and resources. More importantly, what is in the minds of stakeholders (i.e., beliefs) is said to be much more important than just simple scores on a test following the lines of Bandura (1997). In addition, this study is also intended to address the call of Mercer (2011a) who posited that it is imperative to "combine a multiplicity of perspectives and approaches if we seek a truly comprehensive picture of the self-system" (p. 344); therefore, I am focusing on learners' and teachers' beliefs regarding the constructs in question. These are the exact reasons why I decided to concentrate on reported explicit–implicit learning habits and perceptions about language

aptitude. Based on the ideas of creating learner profiles (Skehan, 1986), I was inspired to create learner profiles based on students' reported explicit and implicit learning behaviour, and I also asked teachers how they can differentiate based on learners' profiles. Although this may seem far-reaching in scope at first sight, I could not leave out any of the above-mentioned constructs as they all appear to be intertwined based on my previous studies.

2.7 Research Questions

Based on the theoretical framework and the detected research niche, 15 research questions were formulated. It must be noted that – as I expected beforehand – the research questions were fine-tuned during the study (Creswell, 2013; Dörnyei, 2007). In the following, the final research questions are hereby proposed along with the main questions. The first main research question and its four sub-questions are planned to be answered by the analysis of quantitative data in the pilot study, the second main research question and its three sub-questions are intended to be answered by the analysis of quantitative data in the main study, and the third main research question with its four sub-questions are intended to be answered by the analysis of the qualitative data. The last question (IV.) represents the synthesis of the two types of data.

I. What beliefs does a selected sample of Hungarian secondary school English language learners hold about their perceived language aptitude and explicit–implicit learning?
    1) What are the underlying dimensions of the questionnaire compiled to measure constructs related to secondary school students' perceived language aptitude and explicit–implicit learning?
    2) How reliable are the scales which are intended to measure constructs related to secondary school students' perceived language aptitude and explicit–implicit learning?
    3) What characterises secondary school students' perceived language aptitude and explicit–implicit learning?

4) What is the interrelationship between the scales intended to measure constructs related to secondary school students' perceived language aptitude and explicit–implicit learning?

II. What beliefs does a large sample of Hungarian secondary school English language learners hold about their perceived language aptitude and explicit–implicit learning?

1) How well do the models specified by the a priori hypothesised factors fit the data?
2) What are the learner profile characteristics of secondary school students who differ in their explicit–implicit language learning behaviour?
3) Which constructs seem to influence secondary school students' self-perceived success?

III. What beliefs do Hungarian secondary school English language teachers hold about language aptitude and explicit–implicit learning?

1) What are the selected Hungarian secondary school English teachers' perceptions regarding differentiated instruction?
2) What perceptions do the selected Hungarian secondary school English teachers display as per language aptitude?
3) What perceptions do the selected Hungarian secondary school English teachers have concerning explicit–implicit learner dispositions?
4) How can teachers employ differentiated instruction in terms of explicit and implicit language learner profiles?

IV. How can the Hungarian secondary school English teachers' and students' beliefs regarding language aptitude and explicit–implicit learning be linked based on the two types of data?

3 Research Design and Methods

In this section, the justification of the research design is shown which is then followed by the sampling of the participants, the research instruments, data collection and analysis procedures. In the last subsection, an overall summary of the research design is provided. It must be noted that the aspects of research design and methods listed in this section are general for the overall study. The branching of the three main parts (questionnaire pilot study, questionnaire main study, and interview study) can be found after the general research design and methods section. In those sections, considerations are highlighted that are specific to those subparts of the study.

3.1 Justification of the Research Design

This study employs an exploratory sequential mixed-methods design involving quantitative and qualitative procedures, best described by Johnson and Onwuegbuzie's (2004) QUAN → qual taxonomy. Although originally researchers considered studies beginning with a quantitative phase as explanatory endeavours, the present design can be classified as exploratory given the procedures applied throughout the study and the inductive nature of these processes. Exploratory factor analysis (EFA), for example, "requires some inductive reasoning" (Howitt & Cramer, 2017a, p. 288). EFA was used to develop hypotheses in the pilot study, and in the main study, confirmatory factor analysis (CFA) is used to test these hypotheses (Chumney, 2012). These procedures are conducted on different samples as suggested by Knekta et al. (2019). Although a-priori formulated hypotheses are tested with the use of CFA, Byrne (2016) argued that once a modified model is proposed instead of accepting the initially hypothesised model, the analysis is already exploratory in nature: "these analyses would then be considered to be exploratory in the sense that they focus on the detection of misfitting parameters in the originally hypothesized model" (p. 107). So, in this sense, confirmatory becomes exploratory once the model is re-estimated. If the previous studies which have greatly contributed to this

study are also considered, then the design conforms to the inductive-deductive research cycle (Teddlie & Tashakkori, 2009).

The reason for mixing methods and thus applying methodological triangulation is manifold. Firstly, mixing methods helps in exploiting the benefits of both worlds by enriching the strengths of one and lessening the weaknesses of the other (Dörnyei, 2007). Secondly, mixing methods is best suited for the aims of the present study with the advantage of collecting both quantitative and qualitative data on the beliefs about perceived language aptitude and implicit–explicit learning. Additionally, mixed methods design is seen as an overarching bridge filling the gap between exclusively quantitative or qualitative methods: "if you visualise a continuum with qualitative research anchored at one pole and quantitative research anchored at the other, mixed methods research covers the large set of points in the middle area" (Johnson & Onwuegbuzie, 2004, p. 15). For these reasons, it is rather clear-cut that mixing methods is not only intriguing for the present project but also deemed necessary. At this point, it has to be mentioned that I fully agree with Csizér (2020), who criticised Creswell (2012) in that exploratory sequential mixed methods designs are primarily for qualitative researchers. Based on previous studies and my own experience, qualitative research designs add fruitful in-depth aspects to the phenomena in investigation (also emphasised by Dörnyei, 2007).

3.2 Justification for Selecting Secondary School Students and Teachers as Participants

After Andringa and Godfroid's (2020) review of recent (post-2014) meta-analyses, the caveat of sampling bias in applied linguistics research needs to be addressed. The researchers emphasised that besides collecting data mainly from *WEIRD* populations (Western, Educated, Industrialised, Rich, and Democratic; Henrich et al., 2010), the vast majority of participants in L2 learning-related studies are university students (also confirmed by Plonsky, 2022), so other stakeholders are more likely to be at the periphery of attention. Andringa and Godfroid (2020) thus postulated that studies conducted with university students ought to be replicated with

diverse samples to level off skewed sampling; notably, researchers may also recruit teachers as they are no less relevant participants in the process of language learning. As Medgyes (1992) put it, “the road to the learner leads through the teacher” (p. 340). The participants in my study still belong to *WEIRD* populations; however, I focused on including secondary school students and their teachers instead of university students.

Teachers were selected from secondary schools because recent studies (Gheyssens et al., 2021) have shown that teachers in secondary schools are less skilled at noticing and reflecting on differentiational practices as opposed to teachers in primary education. The intention with this study is to shed light on and gain more understanding of the factors which might explain this finding. English teachers were chosen owing to the emerging role of English as a lingua franca (ELF; Csizér & Illés, 2020) which sets English apart from other languages taught in schools. In this study, I am using the concepts of *foreign language learning* and *foreign language acquisition* as English is not a second but a foreign language in the Hungarian context. The former concept denotes an explicit (conscious) process, while the latter stands for implicit (unconscious) processes. With the help of the teachers in the follow-up interview study, I expect to be able to make sense of the complexity that I might face regarding the student questionnaire results.

3.3 Participants

The English language learner and English language teacher participants were selected through convenience and snowball sampling, which means that they were recruited based on easy accessibility and with the help of acquaintances and their acquaintances. First, I contacted English teacher friends, who shared the contact information of their English teacher friends. Since my aim was to achieve maximum variation in the data as per the representation of regions in the country, I also looked up lists of secondary schools on the Internet and contacted one English teacher from the selected schools via email. In the quest of maximising variation in the

data and selecting teachers from schools all over the country, I was hoping for gaining data from a wide range of school types, locations, and different backgrounds.

With regard to teacher participants, I was hoping to obtain data from a wide age range and get a realistic gender distribution (i.e., the over-representation of females is apparent in the language teaching profession, see Öveges & Csizér, 2018). When planning the sample size, I set the minimum number of secondary school students around 50 for the pilot study and 150 for large-scale data collection, from the age of 15 to typically 20. The minimum sample size (N = 50) for the pilot study was determined a priori as suggested by Whittaker and Schumacker (2022). They had to be students who have reached the age of 15 because they are considered to be mature enough to reflect on their English language learning processes, and the instrument was set for their level of cognitive complexity. I usually decide on the number of participants for interview studies after seeing whether data saturation is obtained, but I set the minimum to five. I could obtain data altogether from 787 students and eight teachers.

Student participants in both samples (in the pilot and the main study) can be characterised by comparable levels of English language proficiency in terms of ratio based on the Common European Framework of Reference (CEFR; Council of Europe, 2001, 2018). Most participants do not have a language exam yet in English, 58.8% in the pilot study and 66.4% in the main study; however, if they did have a language exam, the most common was the B2-level complex type of exam (i.e., oral and written parts completed), 23.5% in the pilot study and 24.1% in the main study obtained this kind of language exam in English. The most popular language studied besides English was German, 56.9% of the pilot study participants and 62.8% of the main study participants were learning German at the time of the data collection.

3.4 The Instruments

In order to be able to answer the proposed research questions, data were collected with a combined online questionnaire for students and with a semi-structured interview guide for

teachers. A questionnaire was used to collect data from a large sample of students: “Survey data are more or less the only alternative if we want to have data on attitudes, perceptions, strategies, and resources from a large number of cases.” (Davidsson & Wiklund, 2000, p. 40). Originally, the questionnaire comprised two different questionnaires which had gone through piloting and validating processes for different samples and different populations (Zólyomi, 2020c, 2021a, 2021c, 2022b). I was constantly modifying this combined questionnaire over the years. The first part of the questionnaire was preceded by an interview study for item pool generation in the autumn of 2019 (Zólyomi, 2020a), the follow-up questionnaire was piloted and validated in spring 2020 (Zólyomi, 2020c), and the second part of the questionnaire was piloted and validated in autumn 2020 (Zólyomi, 2021a, 2021c). For the translated version of the language aptitude beliefs survey (LABS; Zólyomi, 2020c), see Appendix A, and for the translated version of the explicit–implicit language learning habits survey (EXIS; Zólyomi, 2021a, 2021c), see Appendix B. It must be noted that the instruments are the author’s translations. A combined, revised, and updated questionnaire was used to be able to examine Hungarian English language learners’ perceived language aptitude along with their explicit and implicit language learning habits. Since I was focusing on English language learning throughout my study, the instruments are designed accordingly; they focus on the domain-specific learning of English (see Appendix C for the pilot version and Appendix D for the final version of the questionnaire, and see Appendix E for the pilot version and Appendix F for the final version of the interview guide).

3.5 Data Collection and Data Handling

Data collection started in April 2022 with the pilot study of the quantitative part, followed by the data collection of the main study in the autumn of 2022, and collecting qualitative data lasted until mid-December 2022. Data was collected exclusively online for three main reasons. First, since the COVID-19 pandemic was still present at the time of data collection, this was considered to be the safest way to conduct research. Second, handling the data, especially when

it comes to questionnaires, is easier when conducted online. Needless to say, arranging appointments with teacher participants was much easier online as they could stay in their homes (or in the school they were teaching in) while participating in the study. In addition, conducting research online is the most cost-effective form of data collection. The interviews were conducted as individual (i.e., one-to-one) in-depth interviews. The student questionnaire as well as the teacher interview guide were administered in the participants' first language, that is, Hungarian (the importance of collecting data in the first language of the participants is detailed in Harkness, 2008). The questionnaire was administered to Google Forms and the interviews were conducted via the platforms of Microsoft Teams and Zoom. I used Google Forms mainly because of the practical build of the tool; namely, its function of requiring input to each item before the answers can be submitted, and thus missing responses were not a concern.

Since the beginning of data collection, I stored every piece of information related to the present study in an Excel file on my laptop. This Excel file was updated continuously, and it contained two main worksheets. The first one contained information about the questionnaire studies; the think-alouds, the pilot, and the main study, and the second worksheet was dedicated to storing information about the interview study. The information stored here are the following: participant ID or pseudonym, name of the school, city, name of the teacher, email address of the contact teacher, the current state of data collection (in progress/done), number of student questionnaires, start and end date of data collection, part of which phase (think-aloud/pilot/main study/interview study), number of teacher interviews, group code.

I regularly saved a backup copy of each research-related material to a pen drive which is dedicated to storing research-related materials. Once I obtained verbal consent, the interviews were recorded with at least two devices (maximum four), using a mobile phone, tablet, dictaphone, and built-in cloud-based recording on the online platforms. The additional devices served as a backup if something unforeseen happened to the primary device (e.g., low battery,

breakdown, malfunctioning), and the audio recordings are also stored on the previously mentioned pen drive. For long-term data handling, I will upload the data to the Zenodo data repository, and I will upload my instruments to the IRIS repository. The ethical considerations and quality control measures are discussed in section 3.8.

3.6 Data Analysis

The interview data were analysed with the help of the Atlas.ti software. In the pilot study, the Statistical Package for Social Sciences (SPSS) versions 28 and 29 were used. In the main study, besides SPSS, the AMOS software was also used. In most of the studies I read, I frequently encounter mixed uses of terms that would need unification (one example is the interchangeable use of *variables* and *scales*, which is debatable as scales do not vary – or if they do, there is a problem). Therefore, I would like to show how I disambiguate these key terms in this study. Throughout the study, I use the terms *item* and variable interchangeably which denote a statement in the questionnaire (and the numerical representation attached to it, typically on a five-point Likert scale). Variables can vary in the database and are actually measured, and their empirical counterparts are *statements*, *questions*, and items. *Constructs*, in the technical sense of the word, represent the theoretical counterparts of scales before they are measured, and scales represent a collection of items/variables. I use the term *dimension* for *latent constructs* typically during the phase of factor analysis and *higher-order dimension* to denote a collection of scales that can be grouped together in a meaningful way (e.g., affective, behavioural, cognitive). Dimensions can arch over the research phases.

The statistical procedures included descriptive, inferential, as well as advanced multivariate computations, involving exploratory factor analysis with rotation to discover the underlying latent dimensions, reliability analyses, correlations, regression analyses, group-related statistics (*t* tests and ANOVAs), confirmatory factor analyses to test the hypothesised

factor structures, and combined clustering methods involving hierarchical as well as K-Means procedures.

Many researchers (J. Cohen, 1990; Kirk, 1996; Kline, 2016) highlighted the importance of effect size over the test of significance; therefore, besides reporting the statistical significance in inferential statistics, effect sizes are also reported. Kline (2016) explained that the time is ripe to focus on effect sizes as significance testing alone is problematic and/or not enough: "It can happen in large samples that a result is 'highly significant' (e.g., $p < .0001$) but trivial in effect size." (p. 17). J. Cohen (1994) also noted that the "sacred .05 criterion" (p. 997) can be precarious due to misinterpretations. Effect sizes were calculated with the built-in power analysis of SPSS versions 28 and 29. Although Cohen's *d* is a popular means of reporting effect size and is very similar to Hedges' *g* (Card, 2012), Hedges' *g* is reported because it involves a correction factor. This way, it is considered to be the unbiased version of the effect size measure (Cooper et al., 2019).

3.7 Summary of the Research Design

In the following subsection, the summary of the research design is presented along with the proposed research questions, the participants, the data collection instruments and time period, and the methods of data analysis (see Table 2).

Table 2
Summary of the Research Design: Research Questions, Participants, Data Collection Instruments and Time Period, and Methods of Data Analysis

Research Questions	Participants	Data Collection Instruments (Time Period)	Methods of Data Analysis

I. What beliefs does a selected sample of Hungarian secondary school English language learners hold about their perceived language aptitude and explicit–implicit learning? 1. What are the underlying dimensions of the questionnaire compiled to measure constructs related to secondary school students' perceived language aptitude and explicit–implicit learning? 2. How reliable are the scales which are intended to measure constructs related to secondary school students' perceived language aptitude and explicit–implicit learning? 3. What characterises secondary school students' perceived language aptitude and explicit–implicit learning? 4. What is the interrelationship between the scales intended to measure constructs related to secondary school students' perceived language aptitude and explicit–implicit learning?	Hungarian secondary school English language learners (N = 51)	Small-scale online questionnaire (Spring 2022)	Descriptive, inferential, and advanced multivariate statistical analysis
II. What beliefs does a large sample of Hungarian secondary school English language learners hold about their perceived language aptitude and explicit–implicit learning? 1. How well do the models specified by the a priori hypothesised factors fit the data? 2. What are the learner profile characteristics of secondary school students who differ in their explicit–implicit language learning behaviour? 3. Which constructs seem to influence secondary school students' self-perceived success?	Hungarian secondary school English language learners (N = 688)	Large-scale online questionnaire (Autumn 2022)	Descriptive, inferential, and advanced multivariate statistical analysis

III. What beliefs do Hungarian secondary school English language teachers hold about language aptitude and explicit–implicit learning? 1. What are the selected Hungarian secondary school English teachers' perceptions regarding differentiated instruction? 2. What perceptions do the selected Hungarian secondary school English teachers display as per language aptitude? 3. What perceptions do the selected Hungarian secondary school English teachers have concerning explicit–implicit learner dispositions? 4. How can teachers employ differentiated instruction in terms of explicit and implicit language learner profiles?	Hungarian secondary school English language teachers (N = 8)	Semi-structured in-depth interview guide (Winter 2022)	Thematic content analysis and constant-comparative method
IV. How can the Hungarian secondary school English teachers' and students' beliefs regarding language aptitude and explicit–implicit learning be linked based on the two types of data?	Hungarian secondary school English language learners and their teachers	The questionnaire and the interview guide	Comparing the results of the two types of data

3.8 Ethical Considerations and Quality Control Measures

Several steps were taken to ensure the quality of the instruments, and careful considerations were put into action regarding ethical issues (see Appendix G for the research ethics approval). Participation in this study was completely voluntary, and students as well as teachers were aware that they had the right to opt out from the study at any time. Participants' anonymity as well as the confidentiality of the data was kept; pseudonyms were assigned to the interview participants, and the data is stored on a private pen drive to which only I have access. Before distributing the student questionnaire, I sent two documents to the contact English language teachers who helped in data collection. The first document was written to the school principal

where I outlined the procedures of the study (see Appendix H). The second document – although this may not have been necessary as the student questionnaire was completely anonymous – was a consent form for the parents where they were asked to write an email to the language teacher if they do not agree that their children participate in the project (see Appendix I). Interview participants were asked for their consent to record the interviews. I did my best to provide trustworthy data, and I took the necessary steps to ensure the quality of the research instruments through cautious piloting and validating processes (Lincoln & Guba, 1985).

I intended to bear all four aspects of quality control in mind when conducting research (i.e., truth value, applicability, consistency, and neutrality) mainly by applying Abelson's (1995) MAGIC criteria involving magnitude, articulation, generality, interestingness, and credibility. As suggested by Divéki (2018), the title of the questionnaire was worded in such a way that it did not give any specific indication that it was intended to measure explicit and implicit language learning habits, and thus participants' self-selection was likely to be reduced based on subject preference. In group-related statistics, I always reported the effect size (belonging to the magnitude aspect), which is important mainly because reporting statistical significance alone is not enough, as it only indicates whether we can reject the null hypothesis; whereas effect size depicts whether the results of statistical procedures are practically significant (Card, 2012; Plonsky & Oswald, 2014). Unfortunately, reporting the effect size is often missed in the field of IDs (see recent meta-analyses, e.g., Piniel & Zólyomi, 2022). Once the instruments were finalised, two trusted English language teachers (who are also fellow PhD students) were asked to proofread the instrument instead of providing back-translation (Brislin, 1986) because for me, specifically, proofreading proved to be much more effective. With regular consultations, expert feedback on the instruments as well as on the overall research design was obtained throughout the research project. Besides reliability analyses, the content validity and face validity of the instruments was strengthened by receiving expert-, peer-, and layperson-

feedback. The items in the questionnaire were randomly presented to the participants by using the Research Randomiser software designed for researchers (Urbaniak & Plous, 2013). The interview transcriptions were not sent to the participants for member-checking because the teachers were overwhelmed during the data collection and would not have had the time to read the transcripts. A thick description regarding the participants of the interviews was provided (Ponterotto, 2006) as well as an audit trail when describing the findings of the interviews.

Triangulation is implemented in this study from three aspects. First of all, theory triangulation was present in this study as several theories form the fundamental pillars of the study. Secondly, participant triangulation is also applied as English language learners and their English language teachers alike are informants in this study. Thirdly, methodological triangulation is also applied as this study is based on a mixed-methods research design involving quantitative as well as qualitative data collection methods. The term triangulation received some criticism regarding its two-dimensional nature (Richardson, 1994); therefore, it is nowadays referred to as *crystal refraction* by researchers in order to refer to the multiple approaches and dimensions it can have (Denzin & Lincoln, 2017; Fusch et al., 2018; Sántha, 2010).

4 The Questionnaire Data: Pilot Study

Since the aim of the pilot study was to see whether the underlying dimensions of the proposed scales hold in the secondary school student population as well, the first two research questions are highly technical in this respect. The first two questions are examining the factor structure of the questionnaire and the reliability of the scales. The third one is investigating the characteristics of the secondary school students as per perceived language aptitude and explicit–implicit learning, and the fourth research question is examining the associations between the finalised scales.

4.1 Research Questions

1. What are the underlying dimensions of the questionnaire compiled to measure constructs related to secondary school students' perceived language aptitude and explicit–implicit learning?
2. How reliable are the scales which are intended to measure constructs related to secondary school students' perceived language aptitude and explicit–implicit learning?
3. What characterises secondary school students' perceived language aptitude and explicit–implicit learning?
4. What is the interrelationship between the scales intended to measure constructs related to secondary school students' perceived language aptitude and explicit–implicit learning?

4.2 Participants

Altogether 51 English language learners from a secondary school participated in the pilot study, 21 males and 27 females (three not disclosed), their ages ranged from 15 to 18 (M = 16.31, SD = .97), and they started learning English between the ages of 1 and 10 (M = 6.41, SD = 1.96), and generally, they have been learning English continuously for 6 to 14 years (M = 9.86, SD = 1.99). I recruited them from one secondary school in a city in north-eastern Hungary, but there are five classes represented, one class from the first year (n = 16), one from the second year (n = 12), three from the third year (n = 22), and one person did not wish to disclose this information. Since data for the pilot study was gathered in April, which is very close to the final school-leaving examination held in May, final-year students were left out of data collection. Table 3 shows the language learning background of the participants. From this, it is apparent that most of them do not have a language exam yet, but 12 obtained a B2 complex exam based on the Common European Framework of Reference (CEFR; Council of Europe, 2001, 2018),

and the most popular languages besides English that participants in the selected sample study are German, Spanish, and French.

Table 3

Sample Description: Language Learner Background Information of Pilot Study Participants

	n	%
Language exams		
No language exam yet	30	58.8
B1 complex (both written and oral)	1	2.0
B2 complex (both written and oral)	12	23.5
C1 complex (both written and oral)	8	15.7
Languages studied other than English		
German	29	56.9
Spanish	18	35.3
French	10	19.6
Italian	2	0.04
Hungarian	2	0.04
Slovak	1	0.02
Dutch	1	0.02
Japanese	1	0.02

4.3 The Instrument

As mentioned before, although I have used a similar version of the questionnaire in previous studies (Zólyomi, 2020c, 2021a, 2021c, 2022b), it was indispensable to pilot and validate it again. First, in the course of time, I obtained various useful feedback on the item pool and made modifications; second, the population in this study belongs to a different age group as compared to the participants in my previous studies; third and most importantly, an aspect researchers often forget is that we cannot validate an instrument for its whole lifetime: we can only validate its use in one specific context with one specific population in one specific study (Révész & Brunfaut, 2021; Yamashita, 2022). Schreiber et al. (2006) put this idea in the following way: "[…] it is not appropriate to assume that a certain group of items found to form a valid and reliable construct in another study will form an equally valid and reliable construct when measured in a different set of data." (p. 336).

I deliberately tried to avoid creating an item pool full of reverse-worded items; these are problematic since they may cause a possible rejection of a good model fit in confirmatory factor analysis (C. M. Woods, 2006). Woods added that the problematic nature of these items originates from the carelessness of the participants, or in my interpretation, participants have an issue with interpreting these items. This is also confirmed by, for example, Wang et al. (2021): "reverse-worded items are cognitively burdensome for respondents" (p. 5). Therefore, I have put much emphasis on the understandability and straightforwardness of the items.

After creating the item pool, I obtained feedback from three peers (PhD students, who are also English language teachers at secondary and tertiary levels), one layperson, and three experienced applied linguistics experts. Major modifications and refinements were made to the original item pool from several aspects. This was then followed by feeding the questionnaire to Google Forms and asking two members of the target population to complete the questionnaire using the think-aloud protocol. In their accounts, which were recorded with their verbal consent, they pinpointed ambiguous questions and old-fashioned use of language that would have supposedly hindered the understandability of the items amongst their peers. I also asked them whether they find the questionnaire too demanding in terms of length and whether they missed any important aspect that may not have been mentioned in the items. I finalised the instrument after their useful feedback. Since completing the questionnaire took 20 and 25 minutes for them with reflection and feedback, I proposed that completion for the "live participants" would take around 15-20 minutes. This length is well within the maximum 30 minutes as suggested by Dörnyei and Dewaele (2022). Thus, the pilot questionnaire ready for live data collection contained 95 statements (that is, 16 scales in addition to eight biographical questions) with five-point Likert-type scales anchoring from *not at all true* to *completely true.* Likert scales are used mainly because of their popularity and advantages in language learning beliefs research

(Barcelos, 2003), and I opted for five-point types, which have middle points to avoid forcing the participant to take a stance (Dörnyei & Dewaele, 2022).

The cognitively-based scales related to the participants' lay theories (i.e., beliefs) about their own English language learning skills come from multiple sources. The ideas for the *Perceived language aptitude* scale come from Zólyomi (2020a, 2020c), and previous versions of the scale were also used by Zólyomi (2021a, 2021c, 2022b) and Széll and Zólyomi (2021). Previous versions of the *Self-perceived success* scale were also used in Zólyomi (2021a, 2021c, 2022b).

1. Perceived language aptitude (six items; Csizér & Albert, 2021; Ehrman, 1998; Oxford, 1990; Rosenthal, 1996): the extent to which participants perceive themselves as talented, quick, and skilful in English language learning. Sample item: *I learn English quickly compared to my peers.*
2. Self-perceived success (eight items; Dörnyei & Ryan, 2015; Skehan, 2002): the extent to which participants perceive themselves as successful English language learners. Sample item: *I think I am a good English language learner.*

The ideas for the behavioural dimensions of *Implicit language use* and *Explicit language use* scales come from the Explicit–implicit Learning Habits Survey (EXIS; Zólyomi, 2021a, 2021c), and previous versions of the scales were also used in Zólyomi (2022b).

3. Implicit language use (five items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a behavioural dimension of instinctive English language usage. This scale is intended to measure the extent to which participants report using the language implicitly without conscious monitoring. Sample item: *When I speak English, I use verb tenses instinctively, so I do not consciously think them through.*

4. Explicit language use (six items; DeKeyser, 2005; Ellis, 2005; Granena, 2020; Jiménez, 2002; Sándor, 2015): a behavioural dimension of monitored English language usage. This scale is intended to measure the extent to which participants report using the language explicitly with conscious monitoring. Sample item: *When I speak English outside class, I focus on using grammatical structures very well.*

The ideas for the behavioural dimensions of implicit and explicit language learning habits scales come from the Explicit–implicit Learning Habits Survey (EXIS; Zólyomi, 2021a, 2021c), and previous versions of the scales were also used in Zólyomi (2022b).

5. Implicit language learning habits (seven items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a behavioural dimension of unconscious English language learning. This scale is intended to measure the extent to which participants report employing implicit learning habits. Sample item: *I chat in English for fun outside of class on a roughly weekly basis.*
6. Explicit language learning habits (six items; DeKeyser, 2005; Ellis, 2005; Granena, 2020; Jiménez, 2002; Sándor, 2015): a behavioural dimension of conscious English language learning. This scale is intended to measure the extent to which participants report employing explicit learning habits. Sample item: *Most of the time when I watch series and/or films in English, I write down some new words in order to learn them.*

The ideas for the affective dimensions of implicit and explicit language learning preferences come from the Explicit–implicit Learning Habits Survey (EXIS; Zólyomi, 2021a, 2021c), and previous versions of the scales were also used in Zólyomi (2022b).

7. Implicit language learning preferences (four items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): an affective dimension of unconscious

English language learning. This scale is intended to measure the extent to which participants favour learning unconsciously (i.e., focus on meaning, intuition-focused). Sample item: *The way I like to learn English grammar is that I hear a certain grammatical structure used a lot, so it sticks in my mind sooner or later.*

8. Explicit language learning preferences (five items; DeKeyser, 2005; Ellis, 2005; Granena, 2020; Jiménez, 2002; Sándor, 2015): an affective dimension of conscious English language learning. This scale is intended to measure the extent to which participants favour learning consciously (i.e., focus on form, rule-search, instruction-focused). Sample item: *I like to learn English grammar with the teacher explaining the rules thoroughly.*

The ideas for the cognitive dimensions of implicit and explicit language learning efficacy come from the Explicit–implicit Learning Habits Survey (EXIS; Zólyomi, 2021a, 2021c), and previous versions of the scales were also used in Zólyomi (2022b).

9. Perceived efficacy of implicit language learning (six items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a cognitive dimension of unconscious English language learning. This scale is designed to measure whether unconscious learning is effective towards success based on the beliefs of the participants. Sample item: *English words are best learnt by deducing them from the context.*
10. Perceived efficacy of explicit language learning (six items; DeKeyser, 2005; Ellis, 2005; Granena, 2020; Jiménez, 2002; Sándor, 2015): a cognitive dimension of conscious English language learning. This scale is designed to measure whether conscious learning is effective towards success based on the beliefs of the

participants. Sample item: *The most effective way for me to learn English words is to repeat them all over.*

The *Effort* invested in learning the English language scale is based on Csizér (2020) and Csizér et al. (2022) with moderate modifications and previous versions of the scale were used in Zólyomi (2021a, 2021c, 2022b). Originally, Csizér was investigating a motivational construct, namely, *Motivated learning behaviour*, and I made modifications and fine-tuning to tailor the scale for the purposes of the present study. The *Self-efficacy beliefs* scale is based on many sources. Similar versions of the scale include the ones used in Albert et al. (2018a, 2018b), Csizér et al. (2021, 2022), Piniel and Csizér (2013), and a similar scale was also used by Zólyomi (2022b).

11. Effort (five items; Csizér, 2020; Csizér et al., 2022): the extent to which participants report to invest effort in studying the English language. Sample item: *I am willing to make an effort to learn English.*
12. Self-efficacy beliefs (seven items; Bandura, 1986; Mills, 2014): the extent to which participants perceive that they can successfully perform tasks related to English language learning based on their skills. Sample item: *I am confident that I can do the oral tasks in the English language classroom.*

The L2 mindsets scales were adapted from Dweck's (2006) theory and Lou and Noels' (2019) framework, and it is also based on the emerging themes appearing in Zólyomi (2020a), and similar versions of the scale were used in Zólyomi (2021a, 2021c) and Zólyomi (2022b).

13. Growth L2 mindset (seven items; Dweck, 2006, 2020; Lou & Noels, 2019): the extent to which participants believe that their skills related to English language learning can be developed. Sample item: *In my English studies, I am open to constructive criticism as it helps me to develop my skills.*

14. Fixed L2 mindset (seven items; Dweck, 2006, 2020; Lou & Noels, 2019): the extent to which participants believe that their skills related to English language learning are static and unmalleable. Sample item: *If I encounter obstacles in my English learning, I may decide to give up learning English altogether.*

The ideas for the *Perceived malleability of language aptitude* and *Perceived importance of language aptitude* scales come from emerging themes in Zólyomi (2020a) and subsequently from the Language Aptitude Beliefs Survey (LABS; Zólyomi, 2021a, 2021c), and a previous version of the *Perceived importance of language aptitude* scale was also used in Zólyomi (2022b).

15. Perceived malleability of language aptitude (four items; Csizér & Albert, 2021; Ehrman, 1998; Lou & Noels, 2019; Oxford, 1990; Rosenthal, 1996): the extent to which participants believe that their own language aptitude for English can be developed. Sample item: *With practice, I can overcome the obstacles in learning English more and more easily.*
16. Perceived importance of language aptitude (six items; Csizér & Albert, 2021; Ehrman, 1998; Lou & Noels, 2019; Oxford, 1990; Rosenthal, 1996): the role participants attribute to language aptitude in order to be successful in English language learning. Sample item: *In order to be successful in learning English, it is important that I take the obstacles easily.*

4.4 The Procedures of Data Collection and Analysis

Data were collected over one week from 20 April until 29 May 2022. After collecting questionnaire data, the data were screened and cleaned to prepare the raw dataset for analysis as suggested by Dörnyei and Csizér (2012). The Statistical Package for Social Sciences (SPSS) versions 28 and 29 were used for analysing quantitative data in order to calculate descriptive

statistics including tests of normality (central tendency measures, Kolmogorov-Smirnov test, skewness, kurtosis). After normality tests, I ran exploratory factor analysis (EFA) based on Csizér's (2020) idea to thematically analyse the scales. I have chosen to run EFA mainly because principal components analysis alone may not account for covariance (Chumney, 2012; Costello & Osborne, 2005; Tabachnick & Fidell, 2018).

Although the choice of rotation method may not influence the results substantially, based on the research methods literature, I have chosen an oblique rotation method because "few constructs in the world are uncorrelated" (Hair et al., 2019, p. 151) and Field (2018) also critiqued the underlying assumption in orthogonal rotations that constructs show zero correlation. Costello and Osborne (2005) also added that "in the social sciences we generally expect some correlation among factors, since behavior is rarely partitioned into neatly packaged units that function independently of one another." (p. 3). EFA was applied with varimax orthogonal rotation based on Eigenvalues greater than 1 and was computed thematically as a data reduction technique in order to discover the underlying latent dimensions in the dataset.

For finalizing the scales, the following rules of thumb (Field, 2018; Hair et al., 2019; Székelyi & Barna, 2002) were mainly followed: 1) the Kaiser-Meyer-Olkin (*KMO*) measure of sampling adequacy had to be above .50 for factorability; 2) the result of Bartlett's test of sphericity had to be statistically significant ($p < .05$); 3) the extraction values in the communalities for each item had to be above .25 but below .90; 4) the factor loadings for each item had to be above .40; 5) the rotation sums of squared loadings had to be ≥ 1.0; 5) the χ^2 metric of the goodness of fit had to avoid reaching statistical significance ($p > .05$); 6) and finally, in the post-analysis phase, Cronbach's alpha (α) and McDonald's omega (ω) for each factor had to be above .60 (Straub et al., 2004). Once the scales were established, I calculated Cronbach's alpha internal consistency measure to check the reliability of the items in the certain scales. Although checking Cronbach's alpha is a necessary aspect of quality control and thus

needs to be reported, unfortunately, many studies solely rely on this measure instead of running factor analyses to account for uni-dimensionality (see Botes et al., 2022; Hoekstra et al., 2018; McDonald, 1981; Piniel & Zólyomi, 2022; Sijtsma, 2009). Even though researchers (Székelyi & Barna, 2002) argue that factor loadings above .25 are acceptable, I arbitrarily raised this value to be able to make a stricter factor structure due to the rather small sample size ($N = 51$). During the factor analysis, the most problematic items were deleted one by one based on cross-loadings and low or too high extraction communalities.

4.5 Pilot Study: Results and Discussion

In the following subsections, the results of the pilot study are discussed along the four research questions examining the 1) underlying dimensions of the instrument; 2) reliability of the scales; 3) characteristics of the selected secondary school students; 4) interrelationships between the scales. After this, a conclusion is provided highlighting the lessons learned from the pilot study that highly informed the main study.

4.5.1 Exploring the Underlying Dimensions and Reliability Analyses

During statistical analysis, it is important to keep theoretical considerations in mind; therefore, the items were factor-analysed based on whether they belonged to dependent or independent scales. The scales were organised into dependent and independent categories based on my decision after having a thorough literature review. The items were factor-analysed thematically; the intention was to include those scales which are close to each other in theory together; however, one dependent scale had to be factor-analysed with an independent one as there was an odd number of scales in both groups. I factor-analysed the scales by two as advised by, for example, Csizér (2020). The dependent scales were the following: *Perceived language aptitude, Effort, Implicit language use, Explicit language use, Implicit language learning habits, Explicit language learning habits, Self-perceived success,* and the independent scales were, namely, *Perceived importance of language aptitude, Perceived malleability of language aptitude,*

Implicit language learning preferences, Explicit language learning preferences, Perceived efficacy of implicit language learning, Perceived efficacy of explicit language learning, Growth L2 mindset, Fixed L2 mindset, and Self-efficacy beliefs.

It must be noted that during exploratory factor analysis, emphasis was on interpretability, common sense (after reviewing the theoretical background), and critical thinking following the suggestions of Dankó and Csizér (2022), so for the pilot study, those factor solutions which were interpretable and still reliable (α and ω ≥ .60; Straub et al., 2004) were accepted. For the main study, items were either replaced or modified even with only minimal issues.

Factor correlation matrices were also checked to preclude the possibility of discriminant validity issues: "Factor intercorrelations above .80 or .85 may imply poor discriminant validity and suggest that a more parsimonious solution could be obtained." (T. A. Brown, 2015, p. 28). Therefore, the factor correlation matrices are also displayed when there are three or more factors. It is fully acknowledged that two-item scales are not ideal; however, denying the existence of these dimensions which may be important in later analyses was not an intention; consequently, in the case of some scales, I decided to proceed with the statistics to see the tendencies in the pilot study. Although McDonald's omega (ω) could not be calculated for two-item scales, Cronbach's alpha (α) is provided in these instances.

4.5.1.1 Perceived Language Aptitude and Perceived Success.

The factor analysis in the original two scales of *Perceived language aptitude* and *Perceived success* has clearly shown the existence of three factors, which is theoretically justified as I did not realise at first that some items in the *Perceived success* scale belong to a sense of achievement rather. Therefore, the following labels were assigned to the scales: *Perceived language aptitude, Self-perceived success,* and *Self-perceived achievement*. I was hesitant between the labels of *success* and *proficiency* when naming the second scale; however, from a

theoretical point of view, the items were closer to a sense of *success*, so this name fitted better. I quickly dismissed the idea of naming this scale self-perceived L2 *competence* as the items were not can-do statements (cf. Lou & Noels, 2016). Items 7 and 76 were deleted as they did not have a significant (> .40) loading on either factor. Based on the final solution, the Kaiser-Meyer-Olkin measure of sampling adequacy (*KMO*) was acceptable (Pallant, 2020), Bartlett's test of sphericity was significant (*KMO* = .738; $\chi^2(66) = 386.602$, $p < .001$); however, the final solution did not indicate a good fit ($\chi^2(33) = 54.541$, $p = .011$). The final factor structure contains three scales with 12 items that are able to measure the proposed constructs reliably (α and ω > .85 for the three scales), see Table 4. Based on Howitt and Cramer's (2017b) guidelines, there are weak to large correlations between the three factors based on the factor correlation matrix (see Table 5), so choosing an oblique rotation method was reasonable.

Since this pilot study had a rather small sample size, I did not attribute a decisive role to the poor goodness of fit, to the fact that item 92 had a high communality value (> .95), and I did not consider that item 6, 62, and 92 have too high loadings (> 1.0). It must be noted that I kept these for the pilot study but not in the main study. For the main study, I replaced the deleted items as well as these problematic items with new items.

Table 4
Rotated Factor Matrix of Perceived Language Aptitude, Self-perceived Success, and Self-perceived Achievement

Items	Factors			
	1 – *Perceived language aptitude*	2 – *Self-perceived success*	3 – *Self-perceived achievement*	h^2
06	1.022			.866
46	.776			.542
15	.565			.458
82	.513			.289
49	.501			.539
38	.482			.459
77	.477			.591
62		1.028		.809
63		.843		.857

14		.540		.638
92			1.016	.999
35			.802	.640
Rotation sums of squared loadings	4.765	4.158	2.404	–
Average communality	–	–	–	.641
Cronbach's α	.862	.861	.911	–
McDonald's ω	.870	.863	–	–

Note. Factor loadings with absolute values less than .40 are not reported. Extraction method: maximum likelihood, rotation method: promax with Kaiser normalization. Rotation converged in four iterations. h^2 = communalities.

Table 5
Factor Correlation Matrix

Factor	1	2	3
1 – *Perceived language aptitude*			
2 – *Self-perceived success*	.633		
3 – *Self-perceived achievement*	.345	.226	

4.5.1.2 Implicit Language Use and Explicit Language Use.

The following factor analysis originally involved two scales, *Implicit language use* and *Explicit language use*. The analysis indicated three factors, and I accepted it as it was theoretically justified. The *Implicit language use* scale was subdivided into two different scales, *instinctive oral output* and *less focus on grammar*, while I specified the *Explicit language use* scale with the subtitle of *conscious focus on grammar* to show that theoretically, it is the counterpart of the formerly mentioned *Implicit language use* scale. I deleted items 50 and 95 due to their lack of significant loading on either factor. Thus, the final solution comprises three scales with nine items. The *KMO* was acceptable, Bartlett's test of sphericity was significant (*KMO* = .656; $\chi^2(36) = 195.316$, $p < .001$), and the final solution indicated a poor fit ($\chi^2(12) = 21.114$, $p = .049$). For the final factor solutions, see Table 6. Based on Howitt and Cramer's (2017b) guidelines, there are weak to nearly large correlations between the three factors based on the

factor correlation matrix (see Table 7), so choosing an oblique rotation method for this factor analysis was well justified.

Table 6

Rotated Factor Matrix of Implicit Language Use: Instinctive Oral Output, Implicit Language Use: Less Focus on Grammar, and Explicit Language Use: Conscious Focus on Grammar

Items	Factors			
	1 – *Implicit language use: instinctive oral output*	2 – *Implicit language use: less focus on grammar*	3 – *Explicit language use: conscious focus on grammar*	h^2
36	.974			.877
81	.838			.814
25	–.572			.276
79	–.421			.309
85		1.073		.999
05		.561		.470
24			.749	.601
39			.653	.398
30			.552	.577
Rotation sums of squared loadings	2.705	2.479	1.596	–
Average communality	–	–	–	.591
Cronbach's α	.791	.766	.697	–
McDonald's ω	.793	–	.706	–

Note. Factor loadings with absolute values less than .40 are not reported. Extraction method: maximum likelihood, rotation method: promax with Kaiser normalization. Rotation converged in five iterations. h^2 = communalities.

Table 7

Factor Correlation Matrix

Factor	1	2	3
1 – *Implicit language use: instinctive oral output*			
2 – *Implicit language use: less focus on grammar*	.496		
3 – *Explicit language use: conscious focus on grammar*	.119	–.352	

4.5.1.3 Implicit Language Learning Habits and Explicit Language Learning Habits.

In the next factor analysis, the original scales intended to measure *Implicit language learning habits* and *Explicit language learning habits*, but the factor analysis showed the existence of three distinct subscales for implicit language learning habits. The scales are thus the following: *Implicit language learning habits: extramural activities, Implicit language learning habits: playing video games, Implicit language learning habits: vocabulary acquisition,* and *Explicit language learning habits: vocabulary learning*. Altogether four items had to be deleted, item 43 for interpretability issues, items 57 and 48 for low communalities and no significant loading, and item 80 due to a lack of significant loading. The solution before the removal of item 80 indicated a good fit ($\chi^2(11) = 8.858$, $p = .635$), but the goodness of fit statistics was not calculated by SPSS for the final solution. Variable numbers 74 and 4 show high factor loading (> .90); however, I had to keep these for the time being in order to have an interpretable factor structure. Based on the final solution, the *KMO* was acceptable, Bartlett's test of sphericity was significant (*KMO* = .659; $\chi^2(36) = 174.716$, $p < .001$). Since there was one variable (item 23) loading highly but negatively on one scale, I reverse-coded it for the internal consistency measure computation and for subsequent analysis. The factor analysis indicated the existence of four factors, so I accepted this solution. Three of them are able to measure the proposed constructs reliably ($\alpha > .75$), see Table 8. Based on Howitt and Cramer's (2017b) guidelines, there are weak correlations between the three factors based on the factor correlation matrix (see Table 9); even if correlations are not strong, there is a presence of association between the factors, so choosing an oblique rotation method was again reasonable.

Table 8

Rotated Factor Matrix of Implicit Language Learning Habits: Extramural Activities, Implicit Language Learning Habits: Playing Video Games, Implicit Language Learning Habits: Vocabulary Acquisition, Explicit Language Learning Habits: Vocabulary Learning

Items	Factors

	1 – *Implicit language learning: extramural activities*	2 – *Implicit language learning: playing video games*	3 – *Implicit language learning: vocabulary acquisition*	4 – *Explicit language learning: vocabulary learning*	h^2
01	.877				.798
56	.819				.882
47	.787				.574
74		.912			.780
08		.684			.599
04			.933		.856
23			–.672		.622
19				.711	.525
69				.490	.318
Rotation sums of squared loadings	2.428	2.098	1.723	.986	–
Average communality	–	–	–	–	.662
Cronbach's α	.856	.768	.779	.457	–
McDonald's ω	.862	–	–	–	–

Note. Factor loadings with absolute values less than .40 are not reported. Extraction method: maximum likelihood, rotation method: promax with Kaiser normalization. Rotation converged in five iterations. h^2 = communalities.

Table 9

Factor Correlation Matrix

Factor	1	2	3	4
1 – *Implicit language learning: extramural activities*				
2 – *Implicit language learning: playing video games*	.397			
3 – *Implicit language learning: vocabulary acquisition*	.228	.348		
4 – *Explicit language learning: vocabulary learning*	–.139	–.150	–.127	

4.5.1.4 Implicit Language Learning Preferences and Explicit Language Learning Preferences.

The EFA for the *Implicit language learning preferences* and *Explicit language learning preferences* indicated the existence of these two scales, but one item (item 16) had to be removed due to a lack of significant loading. Based on the final solution, the *KMO* was acceptable, Bartlett's test of sphericity was significant (*KMO* = .584; $\chi^2(28) = 83.348$, $p < .001$),

and the final solution indicated a good fit ($\chi^2(13) = 15.331$, $p = .287$). The final factor structure contains two scales and only one of them is able to measure the proposed construct reliably (α and ω > .68 for explicit language learning preferences), see Table 10. Based on Howitt and Cramer's (2017b) guidelines, there is a weak correlation between the two factors based on the factor correlation matrix ($r = –.151$), so choosing an oblique rotation method was justified.

Table 10
Rotated Factor Matrix of Explicit Language Learning Preferences and Implicit Language Learning Preferences

Items	Factors		
	1 – *Explicit language learning preferences*	2 – *Implicit language learning preferences*	h^2
02	.795		.634
32	.737		.571
29	.538		.326
51	–.431		.296
33		.676	.454
54		.502	.254
37		–.463	.301
11		.422	.229
Rotation sums of squared loadings	1.825	1.312	–
Average communality	–	–	.383
Cronbach's α	.688	.554	–
McDonald's ω	.711	.556	–

Note. Factor loadings with absolute values less than .40 are not reported. Extraction method: maximum likelihood, rotation method: promax with Kaiser normalization. Rotation converged in three iterations. h^2 = communalities.

4.5.1.5 Perceived efficacy of implicit language learning and perceived efficacy of explicit language learning.

The factor analysis for the original two scales (*Perceived efficacy of implicit language learning* and *Perceived efficacy of explicit language learning*) has shown an additional subscale for implicit learning. Thus, the two scales about implicit learning received two different subtitles to differentiate between the two separate factors. The first one received the label *focus on*

meaning as the items in it were centred around getting the message across, the opposite of focusing on the form (i.e., explicit learning). The second factor comprised items related to the idea of acquiring linguistic features without realising that learning actually happened. I deliberately named the scale *acquisition without realising* instead of the term noticing as implicit learning can be apparent even with noticing (Noticing Hypothesis; Schmidt, 2010), that is, having students' attention focused on the input enhances learning, regardless of the consciousness involved (or lack thereof). Altogether three items had to be deleted, items 10 and 31 for low communalities and no significant loading, and item 89 for lack of significant loading. Based on the final solution, the *KMO* was acceptable, Bartlett's test of sphericity was significant (*KMO* = .631; $\chi^2(36) = 88.730$, $p < .001$), and the final solution indicated a good fit ($\chi^2(12) = 11.790$, $p = .463$). The final factor structure contains three scales and only one is able to measure the proposed constructs reliably (α and ω > .67), see Table 11. Based on Howitt and Cramer's (2017b) guidelines, there are weak to nearly strong correlations between the three factors based on the factor correlation matrix (see Table 12), so choosing an oblique rotation method was justified.

Table 11
Rotation Matrix of Perceived Efficacy of Implicit Language Learning: Focus on Meaning, Perceived Efficacy of Implicit Language Learning: Acquisition Without Realising, and Perceived Efficacy of Explicit Language Learning: Vocabulary Learning

Items	Factors			h^2
	1 – *Perceived efficacy of implicit language learning: focus on meaning*	2 – *Perceived efficacy of implicit language learning: acquisition without realising*	3 – *Perceived efficacy of explicit language learning: vocabulary learning*	
58	.831			.559
52	.550			.398
68	–.539			.610
94		.653		.445
71		.549		.443
18		.458		.253
73		.431		.278

83			.645	.388
60			–.613	.444
Rotation sums of squared loadings	1.806	1.488	1.301	–
Average communality	–	–	–	.424
Cronbach's α	.671	.544	.446	–
McDonald's ω	.699	.505	–	–

Note. Factor loadings with absolute values less than .40 are not reported. Extraction method: maximum likelihood, rotation method: promax with Kaiser normalization. Rotation converged in five iterations. h^2 = communalities.

Table 12

Factor Correlation Matrix

Factor	1	2	3
1 – *Perceived efficacy of implicit language learning: focus on meaning*			
2 – *Perceived efficacy of implicit language learning: acquisition without realising*	.281		
3 – *Perceived efficacy of explicit language learning: vocabulary learning*	–.446	–.192	

4.5.1.6 Self-Efficacy Beliefs and Effort.

A two-factor structure was indicated by factor analysis on the *Self-efficacy beliefs* and intended *Effort* scales. Five items had to be deleted, item 17 due to significant cross-loading, items 12 and 7 for low communalities and no significant loading, item 90 due to interpretability issues, and item 75 because it independently created an additional factor. Based on the final solution, the *KMO* is acceptable, Bartlett's test of sphericity was significant (*KMO* = .713; $\chi^2(28) = 130.482$, $p < .001$), and the final solution indicated a good fit ($\chi^2(13) = 7.680$, $p = .864$). The final factor structure contains two scales that are able to measure the proposed constructs reliably ($\alpha > .74$ for both scales), see Table 13. Based on Howitt and Cramer's (2017b) guidelines, there is a weak correlation between the factors based on the factor correlation matrix ($r = –.10$), so choosing an oblique rotation method was reasonable.

Table 13

Rotated Factor Matrix of Self-efficacy Beliefs and Effort

Items	Factors		
	1 – *Self-efficacy Beliefs*	2 – *Effort*	h^2
26	.859		.730
86	.773		.610
55	.670		.447
28	.614		.376
09	.542		.314
84		.965	.945
87		.716	.507
70		.474	.226
Rotation sums of squared loadings	2.480	1.719	–
Average communality	–	–	.561
Cronbach's α	.809	.747	–
McDonald's ω	.833	.803	–

Note. Factor loadings with absolute values less than .40 are not reported. Extraction method: maximum likelihood, rotation method: promax with Kaiser normalization. Rotation converged in three iterations. h^2 = communalities.

4.5.1.7 Fixed L2 Mindset and Growth L2 Mindset.

A two-factor structure was indicated by factor analysis on the *Fixed L2 mindset* and *Growth L2 mindset* scales. Five items had to be deleted, items 27 and 44 for low communalities and no significant loading, item 61 for no significant loading, and items 72 and 42 because they had too high communalities, additionally, created additional factors independently. Based on the final solution, the *KMO* was acceptable, Bartlett's test of sphericity was significant (*KMO* = .752; $\chi^2(36) = 100.043$, $p < .001$), and the final solution indicated a good fit ($\chi^2(19) = 10.481$, $p = .940$). The final factor structure contains two scales that are able to measure the proposed constructs reliably (α and ω > .69 for both scales), see Table 14. Based on Howitt and Cramer's

(2017b) guidelines, there is a medium correlation between the factors based on the factor correlation matrix (r = –.423), so choosing an oblique rotation method was reasonable.

Table 14
Rotated Factor Matrix of Fixed L2 Mindset and Growth L2 Mindset

Items	Factors		
	1 – *Fixed L2 mindset*	2 – *Growth L2 mindset*	h^2
22	.807		.592
93	–.586		.296
20	.565		.295
91	.514		.342
45	.471		.479
59		.739	.458
40		–.693	.549
21		.553	.347
64		.489	.214
Rotation sums of squared loadings	2.144	2.041	–
Average communality	–	–	.397
Cronbach's α	.732	.691	–
McDonald's ω	.734	.702	–

Note. Factor loadings with absolute values less than .40 are not reported. Extraction method: maximum likelihood, rotation method: promax with Kaiser normalization. Rotation converged in three iterations. h^2 = communalities.

4.5.1.8 Perceived Importance of Language Aptitude and Perceived Malleability of Language Aptitude.

The factor analysis of the original two scales, *Perceived importance of language aptitude* and *Perceived malleability of language aptitude* has shown the existence of three factors. The former scale had two subscales, *Perceived importance of handling obstacles* and *Perceived importance of rate of progress as compared to peers*. Three items had to be deleted, items 3 and 34 due to low communality values and no significant factor loading, while item 88 was deleted because of its high communality value, high loading, and it also created an independent factor on its own. Based on the final solution, the *KMO* was acceptable, Bartlett's test of sphericity was significant (*KMO* = .583; $\chi^2(21) = 84.734$, $p < .001$), and the final solution indicated a good fit ($\chi^2(3) = .884$, $p = .829$). The final factor structure contains three scales, two

of which are able to measure the proposed constructs reliably (α and ω > .76 for both scales), see Table 15. Based on Howitt and Cramer's (2017b) guidelines, there are weak correlations between the factors based on the factor correlation matrix (see Table 16), so choosing an oblique rotation method was justified.

Table 15

Rotated Factor Matrix of Perceived Malleability of Language Aptitude, Perceived Importance of Handling Obstacles, and Perceived Importance of Rate of Progress as Compared to Peers

Items	Factors			
	1 – *Perceived malleability of language aptitude*	2 – *Perceived importance of handling obstacles*	3 – *Perceived importance of rate of progress as compared to peers*	h^2
13	.813			.645
41	.776			.675
78	.451			.308
65		.878		.799
66		.745		.663
67			.698	.505
53			.590	.359
Rotation sums of squared loadings	1.635	1.553	.955	–
Average communality	–	–	–	.565
Cronbach's α	.687	.764	.579	–
McDonald's ω	.690	–	–	–

Note. Factor loadings with absolute values less than .40 are not reported. Extraction method: maximum likelihood, rotation method: promax with Kaiser normalization. Rotation converged in five iterations. h^2 = communalities.

Table 16

Factor Correlation Matrix

Factor	1	2	3
1 – *Perceived malleability of language aptitude*			

2 – *Perceived importance of handling obstacles*	.210	
3 – *Perceived importance of rate of progress as compared to peers*	–.063	.082

To summarise the answer to the first research question regarding the factor structure of the questionnaire, from the original item pool of 95 items (16 scales), with the help of EFA, I arrived at 71 items (22 scales). The study with teacher trainees in the same context (Zólyomi, 2022b) showed only three factors for the behavioural scales of the EXIS, while in the present study with secondary school students, more underlying dimensions could be detected. In contrast to some previous studies investigating mindsets dimensions on different samples using EFA (Coubergs et al., 2017; Zólyomi, 2022b), both the *Growth L2 mindset* and *Fixed L2 mindset* scales could be kept. In both previous studies, the *Fixed mindset* scale seemed to prevail, while the *Growth mindset* factor did not show adequate factorability or acceptable factor loadings. However, the results of this study are in line with, for example, Papi et al. (2019), Khajavy et al. (2021), Ozdemir and Papi (2021), and Zólyomi (2021a), where the mindsets scales showed the existence of these two dimensions. This disparity in the results (Collett & Berg, 2020) might be attributed to the fact that there are salient differences in the interpretation of mindsets, thus causing controversies. It follows from this that studies employ fairly different mindset measures, not surprisingly leading to great variation in results and construct validity issues. For example, Lou and Noels (2017) developed the Language Mindsets Inventory by including beliefs of language aptitude as a subscale in the instrument. As Lou and Noels (2019) put it when they discussed the importance of arriving at uniformly accepted scales in the language learning domain, "Unpacking these nuances can contribute to the understanding of the domain-specificity of language mindsets" (p. 550).

The second research question is intended to examine the reliability (internal consistency) of the scales. Of the 22 scales, 17 seemed to be measuring the proposed constructs reliably (α and $\omega \geq .60$; Straub et al., 2004); therefore, the analyses in the pilot study will be

continued with these 17 scales. Based on the factor correlation matrices, there are no discriminant validity issues between the measures. From the reliability indices, it is apparent that the five following scales, mainly related to explicit and implicit learning, will have to be revised which did not seem to be reliable even if just marginally: *Explicit language learning habits: vocabulary learning, Implicit language learning preferences, Perceived efficacy of implicit language learning: acquisition without realising, Perceived efficacy of explicit learning: vocabulary learning,* and *Perceived importance of rate of progress as compared to peers*. In previous studies (Zólyomi, 2021a, 2022b), a couple of these scales were also only marginally acceptable in terms of internal consistency, which is an indication that these scales would need major modifications in order to measure the proposed constructs reliably. In a recent study, Spissich (2022) also developed two scales intended to measure students' implicit and explicit learning habits, which are close to the formulation of the scales used in the present study. Although Spissich reported acceptable internal consistency indices ($\alpha > .85$), the scales were not checked for uni-dimensionality, which would otherwise be important (Botes et al., 2022; Hoekstra et al., 2018; McDonald, 1981; Piniel & Zólyomi, 2022; Sijtsma, 2009). In what follows, students' characteristics are analysed.

4.5.2 The Characteristics of the Secondary School Students

In an attempt to answer the third research question, descriptive statistics were computed first, which was then followed by several rounds of paired-samples *t* tests to see whether there are significant differences between the means of the scales (only those scales are included which seemed to be reliable based on the reliability analyses). The results of the descriptive statistics are displayed in Table 17.

Table 17
Descriptive Statistics of the Reliable Scales

Scales	***k***	***M***	***SD***
Self-perceived success	3	4.59	0.64

Self-perceived achievement	2	4.57	0.66
Self-efficacy beliefs	5	4.56	0.49
Perceived importance of handling obstacles	2	4.38	0.70
Perceived malleability of language aptitude	3	4.36	0.62
Perceived language aptitude	7	4.30	0.58
Implicit language use: less focus on grammar	2	4.28	0.84
Effort	3	4.21	0.71
Implicit language learning: vocabulary acquisition	2	4.15	1.06
Growth L2 mindset	4	4.06	0.63
Perceived efficacy of implicit language learning: focus on meaning	3	3.87	0.81
Implicit language use: instinctive oral output	4	3.86	0.85
Implicit language learning: extramural activities	3	3.71	1.24
Explicit language use: conscious focus on grammar	3	3.41	0.95
Implicit language learning: playing video games	2	3.29	1.33
Explicit language learning preferences	4	2.91	0.93
Fixed L2 mindset	5	1.82	0.75

Note. k = number of items within the scale.

As can be seen in Table 17, the participants' mean scores are above 3.00 on the five-point Likert scale on 15 scales. *Fixed L2 mindset* exhibited the lowest average (M = 1.82, SD = 0.75), meaning that the participants do not tend to believe that their language learning skills are static, which is fortunate, given that not having a fixed mindset towards one's own skills may contribute to success (Dweck, 2006; Lou & Noels, 2019; Mercer & Ryan, 2010). The tendency that students showed an overall high average and relatively low standard deviation on *Growth L2 mindset* (M = 4.06, SD = 0.63) is in line with the results in different contexts (Lou et al., 2021). The second lowest average is on *Explicit language learning preferences* (M = 2.91, SD = 0.93), which means that the selected sample does not prefer conscious learning over implicit learning. These tendencies are in line with a previous study conducted with adult English language learner participants (Zólyomi, 2022b). In Zólyomi's study, the participants likewise scored the lowest on the *Fixed mindset* scale (M = 2.29, SD = 0.86), and they similarly did not prefer explicit learning (M = 3.32, SD = 0.95) to implicit learning (M = 3.90, SD = 1.02, $t(62) = 3.30$, $p < .01$).

In a recent study with the same population within the same context, Spissich (2022) analysed Hungarian secondary school students' implicit and explicit learning habits particularly with regard to the use of Netflix (an online streaming service for watching films and series), Instagram (a social media platform with pictures and videos), and TikTok (an application with short videos). Spissich found that implicit learning habits overall showed averages above 3.00, while explicit learning habits were all below 3.00. This trend is also visible to a certain extent in the present pilot study; however, a larger sample size would be needed to investigate differences in implicit and explicit language learning habits.

What is also interesting to be noted regarding the averages is that secondary school students in this sample had high scores on self-related lay theories, meaning that they regarded themselves as successful in language learning ($M = 4.59$, $SD = 0.64$) as well as high-achievers ($M = 4.57$, $SD = 0.66$) despite the fact that most of them (58.8%) did not have a language exam of English at the time of the data collection. The assumption that can be drawn from this is that in the minds of the selected students, being successful and being a high-achiever does not necessarily equal having a formal language exam. Perhaps this is an indication that Hungarian education starts abandoning its exam-centred (Öveges et al., 2019; Tartsayné Németh et al., 2018) nature, at least in the minds of this sample of language learners.

The four scales for language learning habits show the largest standard deviations, so it is apparent that there are larger individual differences in this respect. This is in accordance with previous studies where the scales related to explicit and implicit language learning habits showed large standard deviations (Zólyomi, 2021a, 2022b). Besides regarding themselves to be high-achievers and successful in English language learning, members of this sample have high self-efficacy beliefs ($M = 4.56$, $SD = 0.49$). The result of high self-efficacy beliefs is along with previous studies in the same context with the same population (Albert, 2022; Csizér et al., 2022). The *Self-efficacy beliefs* scale shows the lowest standard deviation in this pilot study,

which means that this sample of students more or less uniformly believe that they can successfully and efficiently manage English language learning-related tasks based on their skills. The standard deviation for *Self-efficacy beliefs* was somewhat higher (above 0.80) in other studies with the same population in the same context (Albert, 2022; Csizér et al., 2022); however, this can be attributed to sample size differences.

The average scores also suggest that there is still room for improvement regarding invested effort in language learning (M = 4.21, SD = 0.71). Interestingly, *Perceived language aptitude* (M = 4.30, SD = 0.58) – although the mean score is above 4.00 – fell behind as compared to the scales regarding self-related lay theories (*Self-perceived success, Self-perceived achievement,* and *Self-efficacy beliefs*). The reason for this is beyond the scope of this pilot study; however, it can be assumed that the selected students believe that success involves much more than simply being talented. Since *Perceived language aptitude* shows a low standard deviation, it can be concluded that students uniformly believe that they have a relatively high language aptitude. In order to check whether these average differences are statistically significant, a series of paired samples *t* tests was run (see Table 18). It must be noted that the paired samples *t* tests were computed based on theoretical considerations; thus, those scales were compared which are very close or connected to each other theoretically, and paired samples *t* tests were also computed based on the results of the descriptive statistics. The scales are numbered based on the order of how they were factor-analysed.

Table 18
Paired Samples t tests

Pairs	Paired scales	$t(50)$	p^*	Hedges' g [95% CI]
1	Perceived language aptitude + Self-perceived success	–4.320	<.001	–.600 [–.894, –.301]
2	Self-perceived success + Self-perceived achievement	.237	.813	.033 [–.241, .308]
3	Perceived language aptitude + Self-perceived achievement	–2.756	.008	–.383 [–.664, –.099]

4	Implicit language use: instinctive oral output + Implicit language use: less focus on grammar	–3.406	.001	–.473 [–.759, –.184]
5	Implicit language use: less focus on grammar + Explicit language use: conscious focus on grammar	4.233	<.001	.588 [.290, .881]
6	Implicit language use: instinctive oral output + Explicit language use: conscious focus on grammar	2.542	.014	.353 [.071, .633]
7	Implicit language learning: extramural activities + Implicit language learning: playing video games	2.050	.046	.285 [.006, .562]
8	Implicit language learning: playing video games + Implicit language learning: vocabulary acquisition	–4.404	<.001	–.612 [–.907, –.312]
9	Implicit language learning: extramural activities + Implicit language learning: vocabulary acquisition	–2.161	.036	–.300 [–.578, –.020]
10	Explicit language learning preferences + Perceived efficacy of implicit language learning: focus on meaning	–4.449	<.001	–.618 [–.914, –.318]
11	Self-efficacy beliefs + Effort	2.776	.008	.386 [.101; .667]
12	Fixed L2 mindset + Growth L2 mindset	–14.283	<.001	–1.985 [–2.455; –1.507]
13	Perceived malleability of language aptitude + Perceived importance of handling obstacles	–.204	.839	–.028 [–.301; .244]

Note. CI = Confidence interval. *two-tailed significance

Notably, the averages are statistically significant in most pairs of scales with weak to large effect sizes. Pair 2, which denotes *Self-perceived success* and *Self-perceived achievement* did not show statistically significant differences, and the result is the same when comparing *Self-efficacy beliefs* to *Self-perceived success* and to *Self-perceived achievement.* Moreover, Pair 13 subsuming *Perceived malleability of language aptitude* and *Perceived importance of handling obstacles* did not show statistically significant differences either. This means that students' sense of their language learning success, achievements, and self-efficacy are similar, while the role they attribute to handling obstacles in language learning (part of language aptitude) is similar to what they think about the malleability of language aptitude. This sample of students attributes high importance to language aptitude, but fortunately, they also think that

this ability can be developed, which is also apparent in their high *Growth L2 mindset* as compared to *Fixed L2 mindset*. The fortunate tendency that this sample of students has positive self-related beliefs along with a growth mindset to L2 learning shows that they have incremental beliefs which is corroborating to their language learning success in the long run (Lou & Noels, 2019). However, as this is a pilot study with a limited number of participants, I cannot draw generalisations based these results.

4.5.3 The Interrelationships of the Constructs

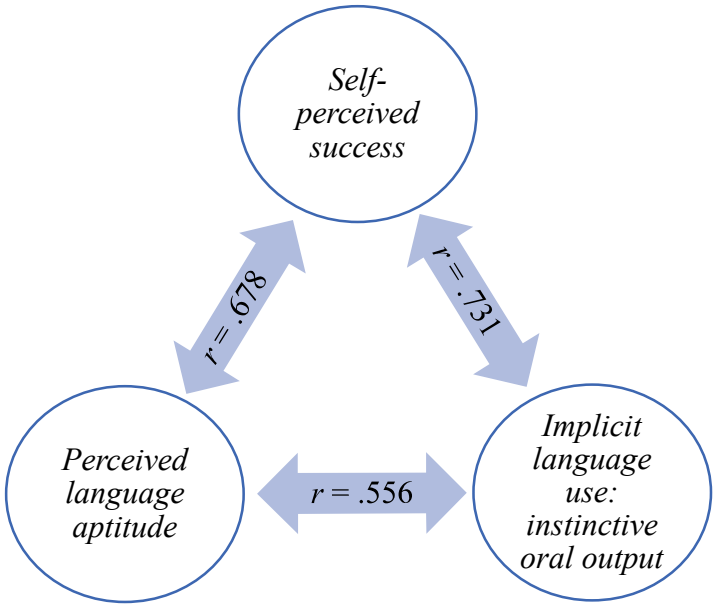
As the sample size of the pilot study is not ideal to perform stepwise regression analyses, the causal relationships between the latent constructs based on this data is not analysed; nevertheless, correlational analyses could be performed to be able to see the associations between the latent constructs in the attempt to answer the fourth research question. Since the correlation matrix of 17 scales is very dense to be displayed in an embedded form, the focus is on the significant and large correlations ($r \geq .50$, $p < .001$, based on Howitt & Cramer, 2017b). The complete table of the correlation matrix of the scales with significant correlations displayed can be found in Appendix J.

The largest correlation among the scales is between *Self-perceived success* and between one of the scales intended to measure *Implicit language use* (*instinctive oral output*), $r = .731$, $p < .001$. This points to the importance of *Implicit language use* in light of *Self-perceived success*, and the result is in line with previous studies (Zólyomi, 2021a, 2021c). In the international context, amongst others, Reber (1993), Kaufman et al. (2010), and Granena (2020) emphasised the role of implicit processes, and in the Hungarian context, Lajtai (2020) and Spissich (2022) pointed to the importance of implicit processes in the success of language learning. This importance of implicit processes lies in the theory that this is regarded as the original approach to learning (Doughty, 2003; Long, 2014) and thus, it is considered to be more robust (Reber et al., 1991). In another study, Sándor (2015) claimed that implicit knowledge

use shows a positive relationship with students' proficiency. This result not only points to the importance of implicit processes but to the importance of directing our attention to investigating language use besides simply focusing on language learning. The same was highlighted by Csizér and Illés (2020), Ellis (2019), and Granena (2020); the time is ripe to put due emphasis on language use, especially owing to the role of English as a lingua franca. Based on stepwise regression analyses conducted by Zólyomi (2021a), the intended *Effort* invested in language learning and *Implicit language use* accounted for 67% of the variance in *Self-perceived success* ($\beta = .55$, $\beta = .40$, $p < .001$, respectively). Therefore, it can be claimed that there is a clear strong connection between *Implicit language use* and *Self-perceived success*.

The second largest correlation is between *Perceived language aptitude* and *Self-perceived success* ($r = .678$, $p < .001$). *Perceived language aptitude* has also shown a strong association with *Implicit language use: instinctive oral output*, ($r = .556$, $p < .001$), and this is the third largest correlation between the scales. This means that there is a relationship (see Figure 1) between *Self-perceived success*, *Implicit language use: instinctive oral output*, and *Perceived language aptitude* as these three constructs all show strong and statistically significant correlations with each other. It must be noted that double arrows are used to pinpoint that strength of associations is measured without any implication to the direction of effect or causality (this is the job of regression analysis).

Figure 1
The Representation of the Relationship Between Self-perceived Success, Perceived Language Aptitude, and Implicit Language Use: Instinctive Oral Output



Although self-report data cannot be directly compared to non-self-report measures (self-perceived vs. actual scores), the results have important theoretical considerations. First, the relationship between language aptitude and success was also established in previous studies (Wen et al., 2019). Second, the effectiveness of implicit processes in the success of language learning was highlighted internationally (Granena, 2020; Kaufman et al., 2010; Reber, 1993) and in the Hungarian context as well (Lajtai, 2020; Spissich, 2022; Sándor, 2015; Zólyomi, 2021a, 2021c). Thirdly, the relationship between language aptitude and implicit processes is not negligible (Granena, 2020). The results of the correlation analyses showed that students' perceived language aptitude and their instinctive use of the language have a role in their perceived language learning success.

Perhaps not too surprisingly, there is a strong negative correlation between *Explicit learning preferences* and *Perceived efficacy of implicit learning* ($r = –.564$, $p < .001$), and a

strong positive correlation between *Perceived efficacy of implicit learning* and one of the implicit language learning scales (extramural activities), $r = .504$, $p < .001$. Based on these correlations, it can be claimed that there is some kind of association between the affective-cognitive-behavioural dimensions; namely, what language learning habit the students consider efficient (cognitive), what they like (affective), and what they actually report to employ (behavioural); however, these patterns may be ambivalent, disharmonious, or even contradictory which makes the whole investigation very intriguing. The harmonious tendency that appeared in the present pilot study is in accordance with Skehan's (2019) idea that preferences are inclined to match students' patterns as they simply use the kind of learning approaches they feel comfortable with and are strong in. Additionally, this result lends support to Victori and Lockhart's (1995) claim that learners' beliefs have an impact on their choice of language learning approaches and habits.

The *Fixed L2 mindset* scale showing negative correlations with *Growth L2 mindset* ($r = –.318$, $p < .05$), *Perceived malleability of language aptitude* ($r = –.463$, $p < .001$), and *Effort* ($r = –.453$, $p < .001$) is theoretically justified and in accordance with previous studies (Lou & Noels, 2016, 2019). These results are not refuted by the positive correlations detected between *Growth L2 mindset* and *Perceived malleability of language aptitude* ($r = .461$, $p < .001$), and *Growth L2 mindset* and *Effort* ($r = .349$, $p < .05$). Thus, the results endorsed the notion that students displaying a growth mindset also have positive effort beliefs and tend to perceive their language aptitude through the lens of incremental theory, meaning that the construct can be developed (Dweck, 2020; Lou & Noels, 2021).

When I analysed the relationship between the behavioural scales of implicit and explicit processes, the patterns seemed to be somewhat puzzling; weak or no associations were detected.

This is why cluster analysis was employed in the main study, to be able to have a fuller understanding of the tendencies with regard to explicit and implicit approaches to learning.

4.6 Conclusions from the Pilot Study

First of all, regarding the exploratory factor analyses, it can be claimed that five scales need to be developed to a great extent, while several items need minor modifications and refinement. It must be noted that two-item scales are far from ideal: "Just as three indicators are better than two, so are four better than three […] I suggest the following rule of thumb: Two might be fine, three is better, four is best, and anything more is gravy." (Kenny, 1979, p. 179). Other researchers also commented on this, for example, Hair et al. (2019) and Collier (2020) stated that at least three items are needed, but four is even better. For this reason, in the main study, before running confirmatory factor analysis, the smallest number of items for a scale is set to four. No discriminant validity issues were spotted during the pilot analysis, so I hoped that this would be similar in the main study.

Fortunately, the participants in the pilot phase tended to have relatively high averages on scales related to their self-perceptions (*Self-perceived success, Self-perceived achievement, Self-efficacy beliefs, Perceived language aptitude*), despite the fact that most of them did not have an English language exam at the time of the data collection. In line with previous studies (Zólyomi, 2021a, 2022b), language learning habits have shown the largest standard deviations, which means that this group of students shows high variability in their individual differences related to their reported explicit and implicit learning behaviour. This also pinpoints that it would be worthwhile to compute cluster analysis based on these scales in order to see the students' dispositions regarding the reported behavioural scales. It is also noteworthy that some constructs appear to be more complex than I thought. For example, the two scales of mindsets have shown that there are some items that create a new factor on their own, which means that there may be some latent dimensions emerging from the data that may be imperative for later

instrument developments. Alternatively, this lends additional support to the criticism on mindset theory (Foliano et al., 2019; King & Trinidad, 2021; MacNamara & Rupani, 2017; Moreau et al., 2018; Sisk et al., 2018). As the number of items for the new emerging factors in the mindset scales was low, this is beyond the scope of the pilot study. In Table 19, a summary of the scales is presented along with their categorisation based on the ABC model (Ostrom, 1969).

Table 19
A Summary of the Latent Dimensions in the Pilot Study Based on the Affective-Behavioural-Cognitive (ABC) Model

Higher-order dimensions (Ostrom, 1969)	Scales
Affective	Implicit language learning preferences Explicit language learning preferences
Behavioural (reported)	Implicit language use: instinctive oral output Implicit language use: less focus on grammar Explicit language use: conscious focus on grammar Implicit language learning habits: extramural activities Implicit language learning habits: playing video games Implicit language learning habits: vocabulary acquisition Explicit language learning habits: vocabulary learning Effort
Cognitive	Perceived language aptitude Self-perceived proficiency Self-perceived achievement Perceived efficacy of implicit language learning: focus on meaning Perceived efficacy of implicit language learning: acquisition without realising Perceived efficacy of explicit language learning: vocabulary learning Self-efficacy beliefs Growth L2 mindset Fixed L2 mindset Perceived importance of language aptitude: handling obstacles Perceived importance of language aptitude: rate of progress as compared to peers Perceived malleability of own language aptitude

5 The Questionnaire Data: Main Study

The aims of the main study were manifold. The first aim was to check how well the measured variables represent the number of constructs in the dataset and thus confirm or reject the measurement theories that were formulated in the pilot study. The second aim was to discover student profiles with respect to explicit and implicit language learning habits in order to see the reported behavioural dispositional differences (and *individual similarities*; Skehan, 1986). The third aim of the main study was to investigate what leads to secondary school students' high self-perceived success in language learning. In light of these aims, the following research questions were formulated:

5.1 Research Questions

1. How well do the models specified by the a priori hypothesised factors fit the data?

2. What are the characteristics of secondary school students who differ in their explicit–implicit language learning behaviour?

3. Which constructs seem to influence secondary school students' self-perceived success?

5.2 Participants

Altogether 736 participants filled out the main study questionnaire, and the data of 48 were disregarded during data cleaning (see section 5.4 for the details). Therefore, I continue describing a sample of 688 participants. They were all English language learners studying in secondary schools, 273 males and 371 females (44 abstained from sharing this information). Their age ranged from 14 to 20 (M = 16.37, SD = 1.19), they started learning English between the ages of 0 and 18 (M = 8.61, SD = 3.25) with the most frequently mentioned age of onset being 6, and generally they have been learning English continuously for 0 to 17 years (M = 7.45, SD = 3.36). They were recruited from 17 secondary schools in eight cities all over the country. Forty-four percent of the participants (n = 303) are studying at secondary schools in

Budapest, and 56% are from the countryside (165 in Győr, 85 in Miskolc, 58 in Zalaegerszeg, 33 in Debrecen, 22 in Vác, 14 in Érd, and eight in Szentendre). There are 83 classes represented from five grades. There are 153 9th graders, 251 10th graders, 198 11th graders, 81 12th graders, and five students from the 13th grade (students who have completed the final school-leaving exam but have one more year when they have professional training and English classes in a vocational school). Table 20 displays the language learning background of the participants.

Table 20
Sample Description: Language Learner Background Information of Main Study Participants

	n	%
Language exams		
No language exam yet	457	66.4
A2 written part	3	0.4
A2 complex (both written and oral)	5	0.7
B1 written part	4	0.6
B1 complex (both written and oral)	5	0.7
B2 written part	6	0.9
B2 oral part	4	0.6
B2 complex (both written and oral)	166	24.1
C1 written part	1	0.1
C1 complex (both written and oral)	37	5.4
Most popular languages studied other than English		
German	432	62.8
French	126	18.3
Italian	96	14.0
Russian	45	6.5
Spanish	42	6.1

The majority of students have not obtained an English language exam yet, but 24% has B2 complex exams, which is among the usual outcome requirements in Hungarian secondary schools. Besides the most popular ones indicated in Table 20, the students indicated that they are studying a vast array of languages, starting from other European languages, minority languages, Eastern languages and even sign languages; however, 14 participants (2%) indicated that they are not studying any other foreign language besides English.

5.3 The Instrument

Besides the lessons learned from the pilot study, I used the emerging associations (keywords) related to explicit and implicit learning from an interview study conducted with 12 teacher trainees (Zólyomi, 2023) to generate items, see Table 21. In the table, the original Hungarian quotes are displayed, and their translation can be found in the next column. I used quotes as a source of inspiration to generate more items when needed: "The best items are often the ones that sound as if they had been said by someone." (Dörnyei & Dewaele, 2022, p. 151). Besides this, two laypeople helped me in formatting clear and understandable items that most likely fit what I intend to measure.

Table 21
Explicit and Implicit Learning-Related Associations that Emerged in the Interview Study (Zólyomi, 2023)

Explicit		**Implicit**	
Original quote	**English translation**	**Original quote**	**English translation**
"Táblázatozás"	Using tables	"Betölti a fejembe a szókincset"	It fills the vocabulary into my head
"Logikusan"	Using logic	"Belecsöppen az idegen nyelvi környezetbe"	Being exposed to the language in the target language environment
"Szisztematikusan"	Systematically	"Élményközpontú"	Experience-oriented
"Betanul, bemagol"	Memorising, cramming	"Jobban át tudom venni a kifejezéseket"	I can acquire phrases better
"Addig ülök felette és mondogatom, amíg nem megy"	I sit by it and rote learn it until I know it	"Szabadidőmben"	In my free time
"Mint a verstanulás"	Like memorising poems	"Passzív formában"	In passive form
"Tankönyvből való tanulás"	Learning from a textbook	"Sokkal jobban szeretem, amikor üres fejjel ülök a TV/tablet előtt és angolul hallgatok valamit."	I like it much more when I sit in front of the TV/tablet with an empty head, and I am just listening to something in English.
"Biztos pont a tematika szerint haladni"	Proceeding based on the schedule is a safe way to do it		
"Rendszerezés"	Systematisation		

“Hagyományos módszerek”	Traditional methods
“Nyelvtan-fókuszú”	Grammar-focused
“Szabálykövető”	Rule-following
“Kijegyzetelős”	Note-taking

With respect to the required modifications, I added 49 new items, I modified three items slightly, and moved 10 items to other scales (which fitted better with the other items from two aspects; theoretical as well as statistical considerations). The instrument administered in the main study thus contained 22 scales with 105 items (and eight biographical questions). I translated the questionnaire and asked two English teachers to proofread it, see Appendix D for the final translated version of the instrument. The scales are presented below along with sample items and their theoretical and empirical sources. The main sources for the scales are indicated here because all the other sources are already mentioned under section 5.3 (the pilot study instrument); consequently, this information is not repeated here.

1. Perceived language aptitude (nine items; Csizér & Albert, 2021; Ehrman, 1998; Oxford, 1990; Rosenthal, 1996): the extent to which participants perceive themselves as talented, quick, and skilful in English language learning. Sample item: *I learn English quickly compared to my peers.*
2. Self-perceived success (five items; Dörnyei & Ryan, 2015; Skehan, 2002): the extent to which participants perceive themselves as successful English language learners. Sample item: *I can speak English well.*
3. Self-perceived achievement (four items; Dörnyei & Ryan, 2015; Skehan, 2002): the extent to which participants perceive themselves as students who achieved a lot in English language learning. Sample item: *Based on my performance, I am at the top of the class in English.*

4. Implicit language use: instinctive oral output (four items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a behavioural dimension of unmonitored English language usage. This scale is intended to measure the extent to which participants report using the language implicitly without conscious monitoring of their output. Sample item: *When I speak in English, most of the time the words come naturally.*
5. Implicit language use: less focus on grammar (four items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a behavioural dimension of unmonitored English language usage. This scale is intended to measure the extent to which participants report using the language implicitly without conscious focus specifically on grammar in the output. Sample item: *When I use English outside the classroom, I strive for lifelikeness rather than precise or accurate grammar.*
6. Explicit language use: conscious focus on grammar (four items; DeKeyser, 2005; Ellis, 2005; Granena, 2020; Jiménez, 2002; Sándor, 2015): a behavioural dimension of monitored English language usage. This scale is intended to measure the extent to which participants report using the language explicitly with conscious focus on grammar in the output. Sample item: *When I speak English outside class, I focus on using grammatical structures very well.*
7. Implicit language learning habits: extramural activities (four items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a behavioural dimension of unconscious English language learning. This scale is intended to measure the extent to which participants report employing implicit learning habits through activities that they do in their free time in general. Sample item: *I chat in English for fun outside of class on a roughly weekly basis.*

8. Implicit language learning habits: playing video games (four items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a behavioural dimension of unconscious English language learning. This scale is intended to measure the extent to which participants report employing implicit learning habits by playing video games specifically. Sample item: *I play English language video games for fun on a roughly weekly basis.*
9. Implicit language learning habits: vocabulary acquisition (four items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a behavioural dimension of unconscious English language learning. This scale is intended to measure the extent to which participants report employing implicit learning habits as per acquiring new vocabulary items. Sample item: *Most of the time, when I listen to something in English, new English phrases simply stick in my mind.*
10. Explicit language learning habits: vocabulary learning (four items; DeKeyser, 2005; Ellis, 2005; Granena, 2020; Jiménez, 2002; Sándor, 2015): a behavioural dimension of conscious English language learning. This scale is intended to measure the extent to which participants report employing explicit learning habits as per learning new vocabulary items. Sample item: *Most of the time when I consume media content in English, I consciously pay attention to learn some new English words.*
11. Implicit language learning preferences (five items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): an affective dimension of unconscious English language learning. This scale is intended to measure the extent to which participants favour learning unconsciously (i.e., focus on meaning, intuition-focused). Sample item: *The way I like to learn English grammar is that I hear a certain grammatical structure used a lot, so it sticks in my mind sooner or later.*

12. Explicit language learning preferences (five items; DeKeyser, 2005; Ellis, 2005; Granena, 2020; Jiménez, 2002; Sándor, 2015): an affective dimension of conscious English language learning. This scale is intended to measure the extent to which participants favour learning consciously (i.e., focus on form, rule-search, instruction-focused). Sample item: *I like to learn English systematically, following the rules.*
13. Perceived efficacy of implicit language learning: focus on meaning (five items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a cognitive dimension of unconscious English language learning. This scale is designed to measure whether unconscious learning based on focus on meaning is effective towards success based on the beliefs of the participants. Sample item: *English words are best learnt by deducing them from the context.*
14. Perceived efficacy of implicit language learning: acquisition without realising (five items; Elllis, 2005; Granena, 2020; Jiménez, 2002; Reber, 1993; Sándor, 2015): a cognitive dimension of unconscious English language learning. This scale is designed to measure whether unconscious learning based on acquisition without realising is effective towards success based on the beliefs of the participants. Sample item: *It is effective for me to watch films and/or series in English because the expressions stick in my mind effortlessly and without realisation.*
15. Perceived efficacy of explicit language learning: vocabulary learning (five items; DeKeyser, 2005; Ellis, 2005; Granena, 2020; Jiménez, 2002; Sándor, 2015): a cognitive dimension of conscious English language learning. This scale is designed to measure whether conscious learning based on vocabulary learning is effective towards success based on the beliefs of the participants. Sample item: *When learning English phrases, rote learning works best for me.*

16. Effort (five items; Csizér, 2020; Csizér et al., 2022): the extent to which participants report to invest effort in studying the English language. Sample item: *I am willing to make an effort to learn English.*
17. Self-efficacy beliefs (seven items; Albert et al., 2018a, 2018b; Bandura, 1986; Csizér et al., 2021, 2022; Mills, 2014; Piniel & Csizér, 2013): the extent to which participants perceive that they can successfully perform tasks related to English language learning based on their skills. Sample item: *I am confident that I can do the listening comprehension tasks in the English language classroom.*
18. Growth L2 mindset (four items; Dweck, 2006, 2020; Lou & Noels, 2019): the extent to which participants believe that their skills related to English language learning can be developed. Sample item: *I believe that I am able to develop my skills in English.*
19. Fixed L2 mindset (five items; Dweck, 2006, 2020; Lou & Noels, 2019): the extent to which participants believe that their skills related to English language learning are static and unmalleable. Sample item: *If I encounter obstacles in my English learning, I may decide to give up learning English altogether.*
20. Perceived malleability of language aptitude (four items; Csizér & Albert, 2021; Ehrman, 1998; Lou & Noels, 2019; Oxford, 1990; Rosenthal, 1996): the extent to which participants believe that their own language aptitude for English can be developed. Sample item: *The pace at which I can progress in English can be improved with practice.*
21. Perceived importance of language aptitude: handling obstacles (four items; Csizér & Albert, 2021; Ehrman, 1998; Lou & Noels, 2019; Oxford, 1990; Rosenthal, 1996): the role participants attribute to the ability to overcome difficulties in order

to be successful in English language learning. Sample item: *The ability to deal with emerging issues efficiently is important for the success of learning English.*

22. Perceived importance of language aptitude: rate of progress as compared to peers (five items; Csizér & Albert, 2021; Ehrman, 1998; Lou & Noels, 2019; Oxford, 1990; Rosenthal, 1996): the role participants attribute to the ability to proceed faster than their peers in order to be successful in English language learning. Sample item: *To be successful in learning English, it is important for me to be able to make good progress compared to my peers.*

5.4 Data Collection and Data Cleaning

Data was collected over five weeks from 23rd September until 31st October. Considering the fact that due to the sample size, the chance of having outliers increased as compared to the pilot study, I made several steps to ensure that outliers are identified and taken care of aptly. Using the eyeball method, some outliers were immediately spotted which had to be eliminated before proceeding onto data analysis. The data of 20 participants were removed who indicated that they are from grade 7 (only 12–13 years old). Next, the data of eight cases were deleted where the answers to biographical questions seemed to be impossible (e.g., 10-year-old studying languages for 30 years), and my decision was confirmed when I realised that in most instances, there was no range in their responses to the questionnaire items anyway.

After the eyeball method, statistical methods were applied to detect outliers. Concerning the 105 variables at hand, 20 cases were filtered out due to position by response bias ($SD <$ 1.50). In three additional cases, weird numbers were found (overly specific age specified by decimal places), but no other anomalies were spotted in these three cases, so the age-related numbers were simply rounded. Supposedly by mere accident, the data of 35 14-year-old students were also included in the sample, who were originally not targeted by this study. To consider the effort these students have put into filling out my questionnaire, I did not delete

their data instantly but checked whether their data shows any statistically significant differences from that of older students. Of the 105 variables, there were only seven variables where the differences were statistically significant; therefore, their data was kept for analysis. The final step I did to get rid of outliers is that I checked box plots controlled for the biographical questions as suggested by Watkins (2018). One case was spotted where a student reported that they are 17 years old and started learning languages at the age of 22. Since no other irregularities were found in the data of this case, I replaced this age and age of onset information with the data of a similar case that was considered to be physically possible. Eventually, I continued analysing the data of 688 participants as I saw no other outliers based on the box plots.

5.5 Data Analysis

As per the rules of thumb in terms of confirmatory factor analysis (CFA), there is some controversy amongst experts. Hu and Bentler (1999) – who established the traditional cut-off values for CFA – were criticised by many researchers. For example, McNeish and Wolf (2022) proposed the so-called dynamic fit index cutoffs which are more fine-tuned to the nature of the researcher's specific model. The researchers claimed that it is beneficial to use the Monte Carlo simulation to avoid arriving at type I (false positive; rejecting the null hypothesis when the null is true) and type II errors (false negative; failing to reject the null hypothesis when it is false). Although the dynamic fit index suggested by McNeish and Wolf (2022) seems to be a promising method, I did not wish to experiment with such novel inventions in the present study. Byrne (2016) advised researchers to focus on the comparative fit index (CFI) and root mean square error of approximation (RMSEA) values, and if these values were above the threshold, the model is acceptable.

Therefore, instead of Hu and Bentler's (1999) cut-off criteria, I decided to follow the more up-to-date cut-off criteria proposed by Hair et al. (2019, p. 642) whereby I checked absolute, parsimony, and incremental fit indices to draw conclusions about model fit. In general,

the researchers argued that one can rely on one absolute fit index (e.g., RMSEA) and one incremental fit index besides chi-square (χ^2). Hair et al. suggested that different rules of thumb are to be followed for different sample sizes and for different numbers of observed variables. For sample sizes bigger than 250 with observed variables less than 12 (per factor), the researchers claimed that the chi-square fit statistics/degree of freedom (CMIN/*df* or χ^2) shows insignificant *p* values even with a good fit, the CFI or Tucker Lewis index (TLI; also known as Bentler-Bonett non-normed fit index or NNFI) or relative non-centrality index (RNI) should be greater than or equal to .96, the standardised root mean square residual (SRMR) is biased upward, so other indices should be used, the RMSEA should be less than .07 with CFI of .96 or higher. For the final model estimations, the result of the chi-square goodness-of-fit shows failing to accept the null hypothesis (H_0) of an exact-fitting model if $p < .05$. However, this *p* value is extremely sensitive to large samples (Collier, 2020; Hair et al., 2019; Knekta et al., 2019).

Besides modification indices with regard to error terms, I checked the standardised residuals, and based on Jöreskog and Sörbom's (1993) rule of thumb, only > 2.58 values are considered large, so those items were considered to be removed or covaried. In the CFA path models, the small circles stand for error terms, the ellipses represent exogenous (unmeasured/unobserved) latent scales or factors, and the rectangles (or boxes) represent endogenous variables (measured/observed items). It must be noted that I covaried error terms only when it was theoretically justified and reasonable.

To further assess the quality of the measurement models, I calculated the average variance extracted (AVE) and composite reliability (CR) coefficients to establish construct validity and construct reliability, respectively. The following rules of thumb (Fornell & Larcker, 1981; Shrestha, 2021) were used when assessing the quality of the measures: the AVE should be 0.50 or higher, and the CR should be 0.60 or higher. If, however, the AVE does not reach

the required 0.50 value, but the CR coefficient is still higher than 0.60, then the measure is still acceptable in terms of convergent validity (Fornell & Larcker, 1981; Shrestha, 2021).

With the help of the combined cluster analysis, I could create learner profiles based on students' reported explicit and implicit learning habits. Although latent profile analysis is a more flexible way of analysis used for profiling, I have chosen cluster analysis because of its bottom-up approach (Lou et al., 2021); so, I am focusing on homogeneity within the groups using an inductive procedure. The reason for homogeneity to be examined is due to Skehan's (1986) idea of *individual similarities*. That is, although students have individual differences within a group, it is also imperative to see tendencies within the group, what the students have in common (intragroup characteristics) and how the groups differ from each other (intergroup differences). For the cluster analytical technique (or rather, series of techniques), Csizér and Dörnyei's (2005) and Csizér and Jamieson's (2013) well-detailed guidelines were followed.

First of all, after deciding on the clustering scales (based on the highest standard deviations as well as theoretical considerations), hierarchical cluster analysis was performed on a random approximately 25% (n = 177) of the sample with Ward's linkage and squared Euclidian distance to explore cluster centres. I scrutinised the dendrogram, which is a diagram showing the distances between the cluster centres. Based on the dendrogram, I decided to continue with a 4-cluster solution. Since this is a relatively subjective decision (Csizér & Dörnyei, 2002), the cluster solution was double-checked with the two-step clustering method in which the Silhouette measure of cohesion and separation indicated a fair quality of the solution, although this method showed that a 3-cluster solution would be better. To test whether to continue with a four or a three-cluster solution, I fed the four-cluster solution first into the K-Means algorithm. I checked the validity of this solution by Duncan post-hoc tests. Since for the four-cluster solution, there was only one clustering scale where the post-hoc test showed significant differences for all of the groups, I fed the three-cluster solution into the K-Means

algorithm, the validity of which was further ensured by post-hoc tests; therefore, I continued with the three-cluster solution (for the enlarged and condensed dendrograms, see Appendix K). When displaying the results of the ANOVA-s and the post-hoc tests, I am using random-effects omega-squared (ω^2) instead of eta-squared (η^2) because it is an unbiased effect size measure (Albers & Lakens, 2018; Field, 2018). Following Field's (2018) rule of thumb, small, medium, and large effects for omega-squared are represented by the values of 0.01, 0.06, and 0.14, respectively.

To analyse the causality between the scales, linear multiple regression analyses were conducted by using the stepwise method. The stepwise method enables the researcher to see which scales are the best predictors for the dependent construct at each step of the analysis (Howitt & Cramer, 2017a). The rules of thumb for the adjusted R^2 were followed based on Muijs (2004), < 0.1 indicating poor fit, 0.11–0.3 modest fit, 0.31–0.5 moderate fit, and > 0.5 strong fit. The models were also checked for multicollinearity following the guidelines of Howitt and Cramer (2017): the variance inflation factor (VIF) should be less than 10 for no multicollinearity, that is, to show that the predictors are not too highly correlated with each other.

5.6 Main Study: Results and Discussion

The results of the main study will be discussed in the upcoming subsections following the three research questions investigating 1) how well the measured variables represent the number of constructs in the dataset and thus confirm or reject the measurement theories that were formulated in the pilot study during exploratory factor analysis, 2) learner profiles concerning reported explicit and implicit language learning habits, 3) what leads to high self-perceived success in language learning. Before trying to answer the research questions, tests of normality are computed for the data of 688 students.

Although the data showed larger kurtosis and skewness on relatively few items (most of the items were in the acceptable ± 2.0 range; Collier, 2020), the Kolmogorov-Smirnov (K-S) and the Shapiro-Wilk tests have shown that the data are not normally distributed ($p < .05$). Despite this, I decided to go for parametric tests as those are considered to be more powerful and still robust against non-normality (Sheskin, 2011); additionally, based on statistics literature (e.g., Field, 2018) and my own experiences, usually no major differences exist in the results of parametric and non-parametric tests. Most statistics sources (e.g., Field, 2018) highlight that we can accept skewness and kurtosis between the range of ± 2.0, but sometimes even higher kurtosis is acceptable due to sampling idiosyncrasies. Besides this, normal distribution in large samples is not really possible (Field, 2018), and "larger sample sizes reduce the detrimental effects of non-normality […] as the sample sizes become large, the researcher can be less concerned about non-normal variables" (Hair et al., 2019, p. 95). Therefore, I decided to continue the analyses with the use of parametric tests.

5.6.1 Confirming the Constructs

To test the factor structure as hypothesised based on the exploratory factor analysis in the pilot study, I fed the factor solutions into AMOS and ran confirmatory factor analysis (CFA) based on Hair et al.'s (2019) rules of thumb. After checking the absolute, parsimony, and incremental model fit indices, I concluded that the three-factor model shows a good fit for the scales about the beliefs of language aptitude (*Perceived malleability of own language aptitude, Perceived importance of language aptitude: handling obstacles*, and *Perceived importance of language aptitude: rate of progress as compared to peers*). Since the initial model fitted well and the standardised factor loadings were all above .50, I did not modify it substantially to avoid arriving at an overfitted model (Byrne, 2016). When checking the modification indices and the standardised residual covariances, I noticed that the model could be fine-tuned by either removing items or covarying error terms. In this analysis, I covaried two error terms based on

modification indices (e9 and e12 for variables 25 and 67, respectively); this way, the PCLOSE index arrived at an acceptable value ($p > .05$). Therefore, in this model, no items had to be removed.

For the final model, the result of the chi-square goodness-of-fit shows that I fail to accept the null hypothesis (H_0) of an exact-fitting model, $\chi^2/df = 3.31$ (< 5.0), $p < .001$. However, this p value is extremely sensitive to large samples (Collier, 2020; Hair et al., 2019; Knekta et al., 2019). The RMSEA = .058 (< .07) indicates a model with a good fit in the 90% CI [.0493, .0670], similarly to GFI = .96 (> .90), and SRMR = .051 (≤ .08). The PCLOSE = .066 (> .05) index shows that I fail to reject the H_0 of the good model fit. The parsimony fit index of AIC is 262.01, and the incremental fit indices also show an acceptable model fit: NFI = .94, TLI = .95 (> .94), CFI = .96 (≥ .94). For the initial and modified model comparisons, see Table 22, and for the path diagram of the final model, see Figure 2. The factor loadings displayed are all standardised values. The average variance extracted (AVE) for the *Perceived malleability of own language aptitude* scale and the *Perceived importance of language aptitude: handling obstacles* scale is below the threshold of 0.50 (AVE = .450 and .489, respectively); however, the composite reliability is above the cutoff value of 0.60 for these scales (CR = .761 and .788, respectively), so these measures are acceptable with respect to convergent validity (Fornell & Larcker, 1981; Shrestha, 2021). The *Perceived importance of language aptitude: rate of progress as compared to peers* scale showed acceptable values (AVE = .554, CR = .860).

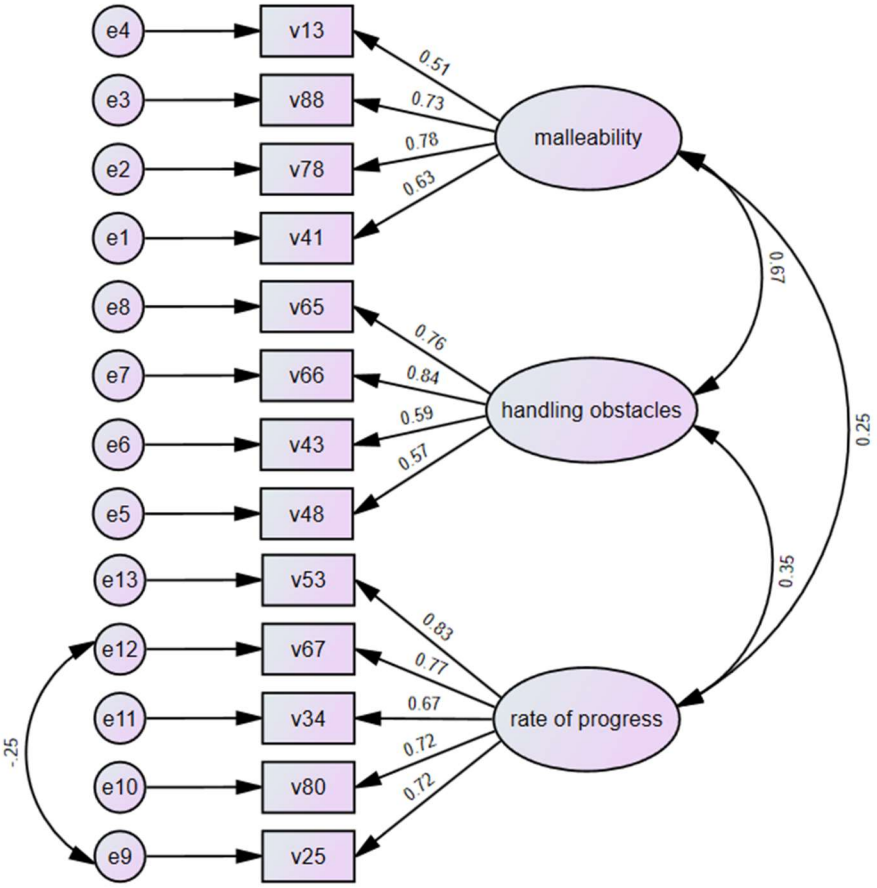
Table 22
Model Fit Indices for the Beliefs about Language Aptitude Scales

Model	*df*	χ^2	χ^2/df	CFI	SRMR	RMSEA	PCLOSE
3-factor (13 items)	62	223.07	3.60^{***}	.95	.051	.062	.015
3-factor modified (13 items)	61	202.01	3.31^{***}	.96	.051	.058	.066

*** $p < .001$

Figure 2

The Path Diagram of the Final Model of the Beliefs about Language Aptitude Scales



Note. Standardised data are reported. Malleability = *Perceived malleability of own language aptitude*; *handling obstacles = Perceived importance of language aptitude: handling obstacles*; rate of progress = *Perceived importance of language aptitude: rate of progress as compared to peers*; e = error terms.

All of the standardised factor loadings for the *Perceived language aptitude, Self-perceived success, and Self-perceived achievement* scales were greater than or equal to 7.00. However, the fit indices showed that the initial model could be improved. I covaried more error terms based on modification indices and standardised residual covariances. Based on the standardised residual covariance matrix, two problematic items had to be deleted (item 14 and item 76). Since I had to covary many items based on high values in the modification indices (and/or in the standardised residual covariances matrix), which show great overlap content-

wise, I conclude that there is some extent of redundancy between the items: “Frequently, indicators within a construct are very similar to one another and there is redundancy between the indicators.” (Collier, 2020, p. 70). This showed me that conducting CFA is beneficial in developing instruments as it empirically pinpoints those aspects that I have not realised theoretically when creating the scale (namely, that items are too similar to each other and there is some extent of content overlap). Byrne (2016) also emphasised that error covariance is a way to spot content overlap between certain items.

As per the final model, the chi-square goodness-of-fit value is less than 5.00 (χ^2/df = 4.271, $p < .001$). The RMSEA = .069 (<.07) indicates a model with a good fit in the 90% CI [.062, .076], similarly to GFI = .93 (>.90), and SRMR = .031 (≤ .08). As other fit indices proved to be acceptable, I did not consider PCLOSE here. The parsimony fit index of AIC is 478.70, and the incremental fit indices also show an acceptable model fit: NFI = .96, TLI = .96 (> .94), CFI = .97 (≥ .94). For the initial and modified model comparisons, see Table 23, and for the path diagram of the final model, see Figure 3. The Path Diagram of the Final Model of the Perceived Language Aptitude, Self-Perceived Success, and Self-Perceived Achievement Scales. The construct reliability and validity indices showed that the measures are acceptable for the *Perceived language aptitude* (AVE = .581, CR = .925), *Self-perceived success* (AVE = .797, CR = .940), and *Self-perceived achievement* (AVE = .652, CR = .849) scales (Fornell & Larcker, 1981; Shrestha, 2021).

Table 23
Model Fit Indices for the Perceived Language Aptitude, Self-Perceived Success, and Self-Perceived Achievement Scales

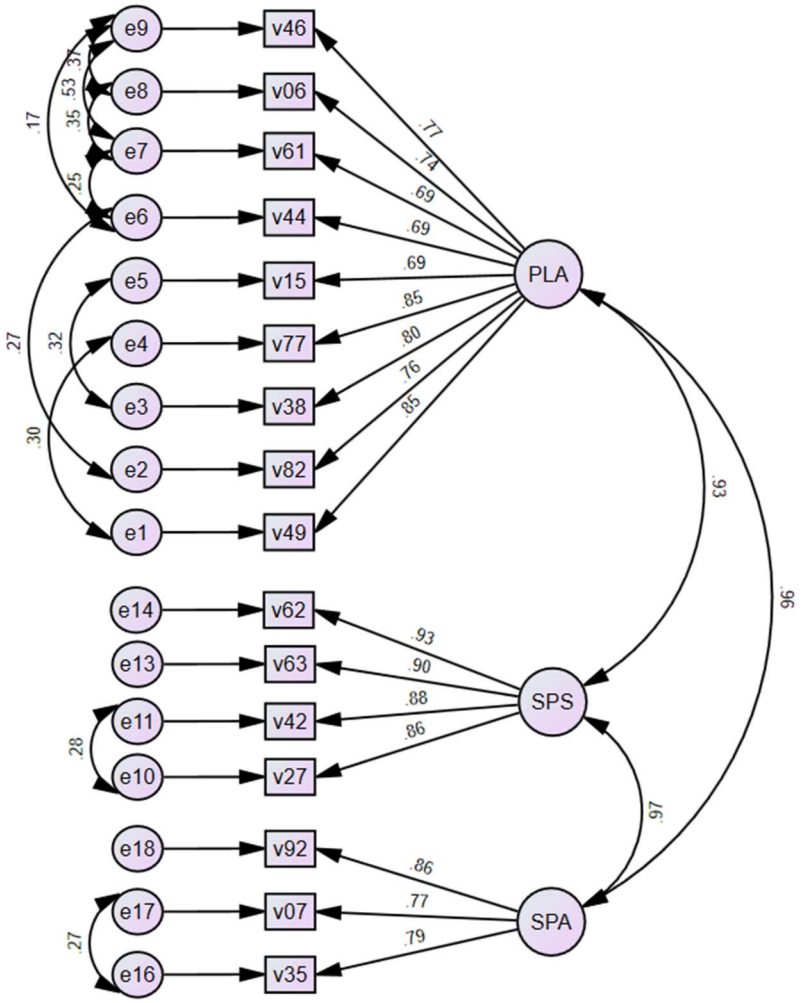
Model	*df*	χ^2	χ^2/df	CFI	SRMR	RMSEA	PCLOSE
3-factor (18 items)	132	1266.67	9.60^{***}	.91	.050	.112	<.001

3-factor (16 items)	modified	91	388.70	4.27***	.97	.031	.069	<.001

*** $p < .001$

Figure 3

The Path Diagram of the Final Model of the Perceived Language Aptitude, Self-Perceived Success, and Self-Perceived Achievement Scales



Note. Standardised data are reported. PLA = *Perceived language aptitude*, SPS = *Self-perceived success*, SPA = *Self-perceived achievement*.

As the initial model of the implicit and explicit language use scales did not establish acceptable levels of model fit, I modified the model in order to arrive at a better fit. I had to remove five items (item 79 – reverse-coded –, items 85, 57, 95, and 30) based on low standardised factor loadings (< .50) and issues indicated in the standardised residual covariances. All of the values improved considerably after removing these items one by one. I accepted the alternative model with slight trade-offs; although there were indices that did not achieve the acceptable level, there were other indices that showed that the model is suitable. Thus, the final model shows that the chi-square goodness-of-fit value is better ($\chi^2/df = 5.69$, $p < .001$). The RMSEA = .083 is above .07 in the 90% CI [.063, .103]. However, the GFI = .98 (>.90), and SRMR = .037 (≤ .08). The PCLOSE ($p = .003$) also improved as compared to the initial model. The parsimony fit index of AIC is 96.57, and the incremental fit indices also show an acceptable model fit: NFI = .97, TLI = .96 (> .94), CFI = .98 (≥ .94). Therefore, I accepted this model solution. For the initial and modified model comparisons, see Table 24, and for the path diagram of the final model, see Figure 4. Based on Fornell and Larcker's (1981) and Shrestha's (2021) guidelines, the scales of *Implicit language use: instinctive oral output* (AVE = .723, CR = .887), *Implicit language use: less focus on grammar* (AVE = .541, CR = .702), and *Explicit language use: conscious focus on grammar* (AVE = .550, CR = .709) showed acceptable coefficients in terms of construct validity and reliability.

Table 24

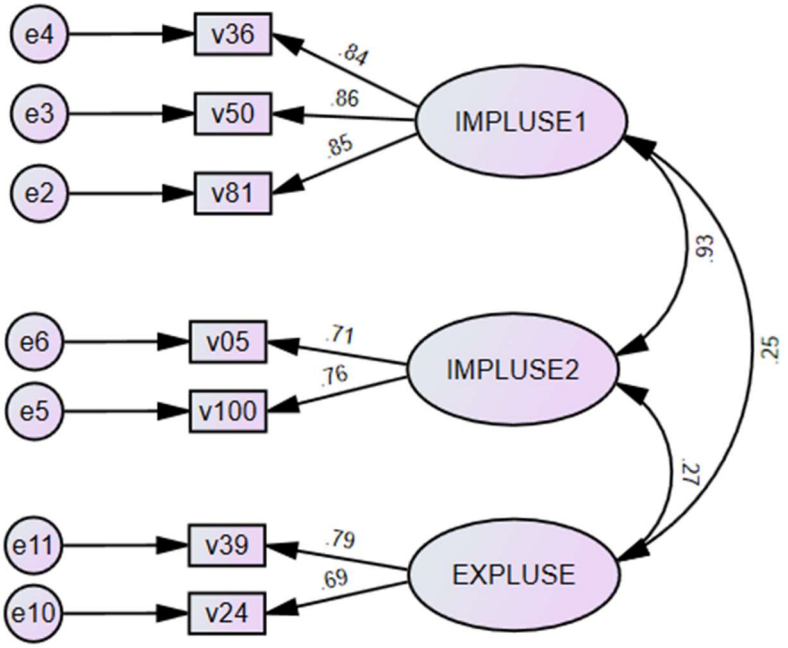
Model Fit Indices for the Implicit Language Use: Instinctive Oral Output, Implicit Language use: Less Focus on Grammar, and Explicit Language Use: Conscious Focus on Grammar Scales

Model	*df*	χ^2	χ^2/df	CFI	SRMR	RMSEA	PCLOSE
3-factor (12 items)	51	607.29	11.91^{***}	.83	.129	.126	<.001
3-factor modified (7 items)	11	62.57	5.69^{***}	.98	.037	.083	.003

*** $p < .001$

Figure 4

The Path Diagram of the Final Model of the Implicit Language Use: Instinctive Oral Output, Implicit Language use: Less Focus on Grammar, and Explicit Language Use: Conscious Focus on Grammar Scales



Note. Standardised data are reported. IMPLUSE1 = *Implicit language use: instinctive oral output*, IMPLUSE2 = *Implicit language use: less focus on grammar*, EXPLUSE = *Explicit language use: conscious focus on grammar*.

When testing the initial model for the implicit and explicit language learning habits scales, two items showed that the standardised factor loadings are below the accepted level (< .50); therefore, I deleted these two items (item 23 – reverse-coded – and item 99). After covarying the error terms of four theoretically related items, I arrived at an acceptable model fit. The chi-square goodness-of-fit value is below 5.00 ($\chi^2/df = 4.00$, $p < .001$). The RMSEA = .066 shows a good model fit in the 90% CI [.058, .074]. The GFI = .95 (>.90), and SRMR = .052 (≤ .08) also showed acceptable model fit. The PCLOSE ($p = .001$) also improved a little as compared to the initial model. The parsimony fit index of AIC is 348.04, and the incremental

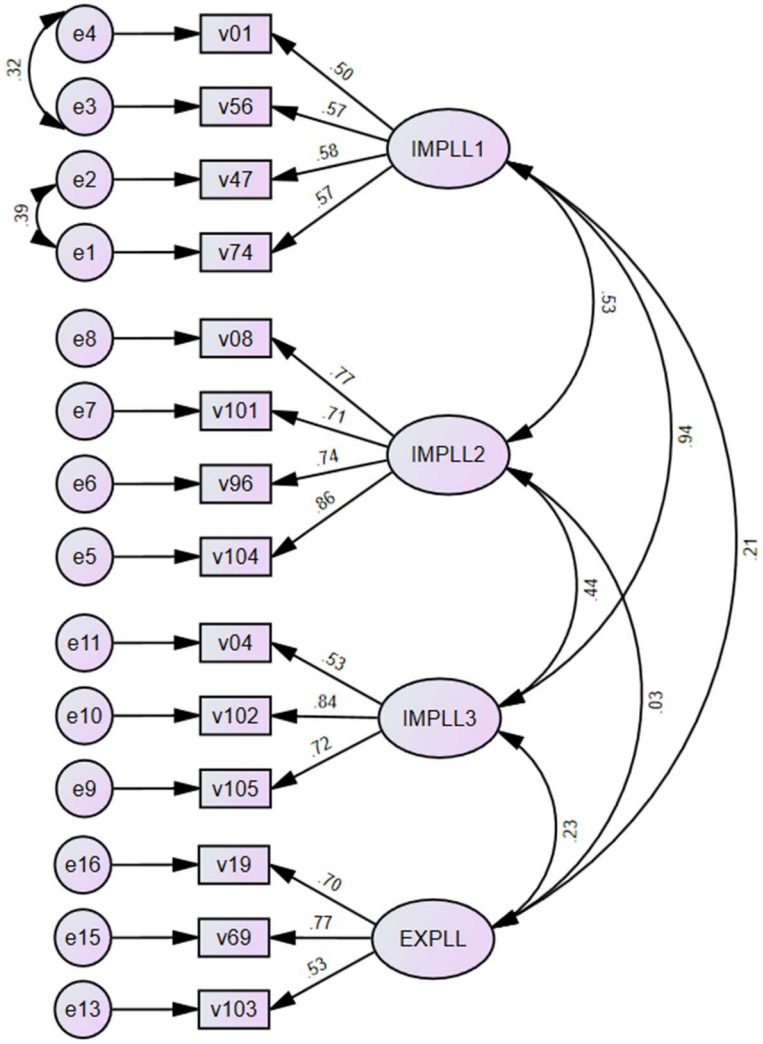
fit indices also show an acceptable model fit: NFI = .92, TLI = .92 (> .94), CFI = .94 (≥ .94). For the initial and modified model comparisons, see Table 25, and for the path diagram of the final model, see Figure 5. The construct validity and reliability indices showed acceptable values based on Fornell and Larcker's (1981) and Shrestha's (2021) rules of thumb, namely, the implicit language learning habits scales displayed the following for the subscales of *extramural activities, playing video games,* and *vocabulary acquisition* (AVE = .309, .596, .502, respectively) and (CR = .641, .854, .745, respectively), and AVE = .455 and CR = .710 for the *Explicit language learning habits: vocabulary learning* scale.

Table 25
Model Fit Indices for the Implicit Language Learning Habits: Extramural Activities, Implicit Language Learning Habits: Playing Video Games, Implicit Language Learning Habits: Vocabulary Acquisition, Explicit Language Learning Habits: Vocabulary Learning Scales

Model	*df*	χ^2	χ^2/df	CFI	SRMR	RMSEA	PCLOSE
4-factor (16 items)	98	717.77	7.32^{***}	.83	.093	.096	<.001
4-factor modified (14 items)	69	276.04	4.00^{***}	.94	.052	.066	.001

*** $p < .001$

Figure 5
The Path Diagram of the Implicit Language Learning Habits: Extramural Activities, Implicit Language Learning Habits: Playing Video Games, Implicit Language Learning Habits: Vocabulary Acquisition, Explicit Language Learning Habits: Vocabulary Learning Scales



Note. Standardised data are reported. IMPLL1= *Implicit language learning habits: extramural activities*, IMPLL2 = *Implicit language learning habits: playing video games*, IMPLL3 = *Implicit language learning habits: vocabulary acquisition*, EXPLL = *explicit language learning habits: vocabulary learning*.

The hypothesised model for the *Implicit language learning preferences* and the *Explicit learning preferences* scales also had to go through some fine-tuning. First, I removed two items as these were below the acceptable standardised factor loading (< .50), namely, items 51 and 37 (both reverse-coded). After that, I covaried the error terms of e4 and e5 (belonging to items 33 and 54). The trade-off I had to deal with in this model is the acceptance of item 33 despite

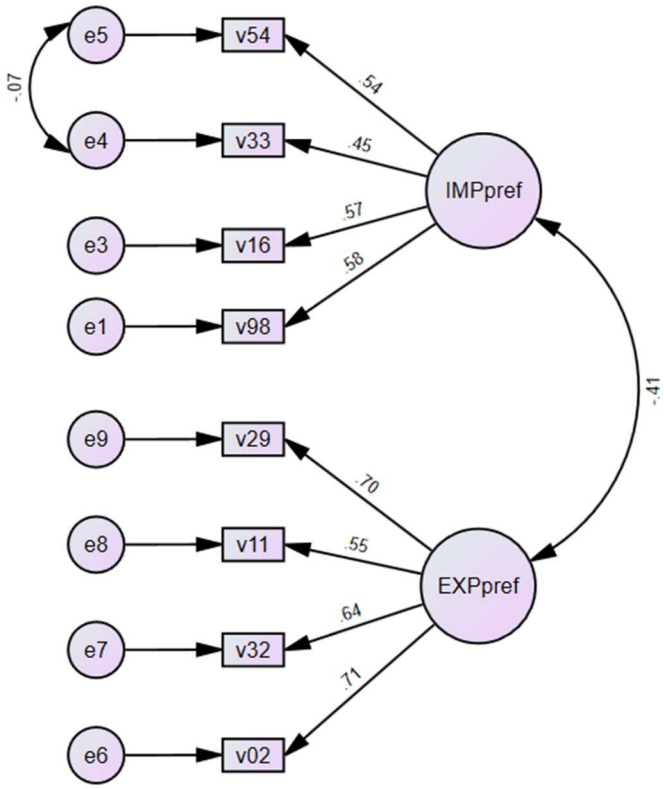
the fact that it still had lower standardised factor loading (.45). However, the model fit indices showed that the modified model is acceptable. The chi-square goodness-of-fit value is below 5.00 ($\chi^2/df = 2.88$, $p < .001$). The RMSEA = .052 shows a good model fit in the 90% CI [.036, .069]. The GFI = .98 (>.90), and SRMR = .044 (≤ .08) also showed acceptable model fit. The PCLOSE ($p = .382$) index shows that I fail to reject the H_0 of the good model fit. The parsimony fit index of AIC is 87.85, and the incremental fit indices also show an acceptable model fit: NFI = .95, TLI = .94 (> .94), CFI = .96 (≥ .94). For the initial and modified model comparisons, see Table 26, and for the path diagram of the final model, see Figure 6. The average variance extracted for both scales is below the 0.50 threshold for the scales of *Implicit language learning preferences* and *Explicit language learning preferences* (AVE = .289, .427, respectively); however, the composite reliability is still above 0.60 (CR = .617, .747, respectively), which means that the measures are acceptable in terms of convergent validity (Fornell & Larcker, 1981; Shrestha, 2021).

Table 26
Model Fit Indices for the Implicit Language Learning Preferences and Explicit Language Learning Preferences Scales

Model	*df*	χ^2	χ^2/df	CFI	SRMR	RMSEA	PCLOSE
2-factor (10 items)	34	328.90	9.65^{***}	.79	.092	.112	<.001
2-factor modified (8 items)	18	51.85	2.88^{***}	.96	.044	.052	.382

*** $p < .001$

Figure 6
The Path Diagram of the Implicit Language Learning Preferences and Explicit Language Learning Preferences Scales



Note. Standardised data are reported. IMPpref = *Implicit language learning preferences*, EXPpref = *Explicit language learning preferences*.

Although the initial model for the perceived efficacy of explicit and implicit learning was close to acceptable in terms of model fit indices, there were many standardised factor loadings below the acceptable value (< .50), so I deleted seven items based on low factor loadings (items 68 and 60 – both reverse-coded – and items 10, 18, 58, 72, 52). Two error terms had to be covaried (e9 and e10 belonging to items 71 and 94, respectively). The chi-square goodness-of-fit value for the final model showed a good fit ($\chi^2/df = 2.94, p < .001$). The RMSEA = .053 shows a good model fit in the 90% CI [.036, .071]. The GFI = .98 (>.90), and SRMR = .033 (≤ .08) also showed acceptable model fit. The PCLOSE (p = .354) index shows that I fail to reject the H^0 of the good model fit. The parsimony fit index of AIC is 87.10, and the incremental fit indices also show an acceptable model fit: NFI = .96, TLI = .95 (> .94), CFI = .97 (≥ .94). For the initial and modified model comparisons, see Table 27, and for the path

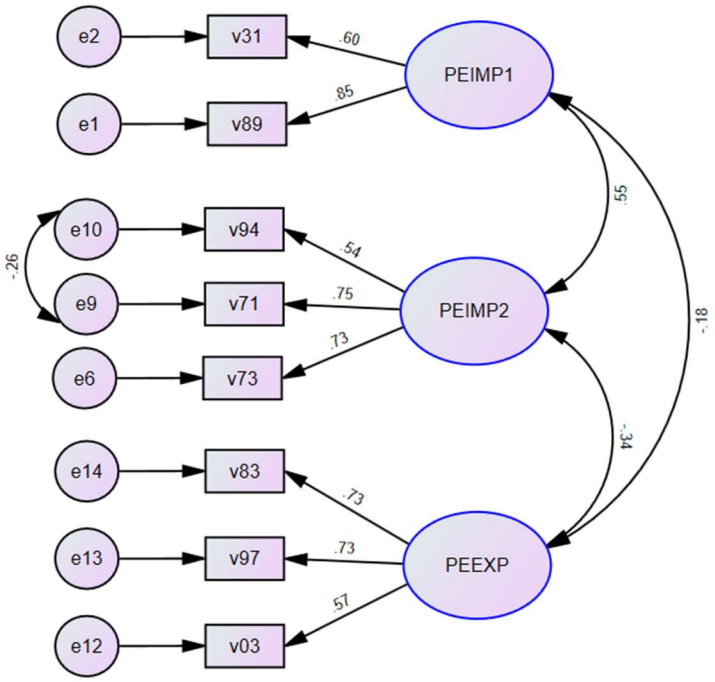
diagram of the final model, see Figure 7. The measures are acceptable as per convergent validity based on the guidelines of Fornell and Larcker (1981) and Shrestha (2021). The average variances extracted for the *Perceived efficacy of implicit learning: focus on meaning* and *Perceived efficacy of implicit learning: acquisition without realising*, and *Perceived efficacy of explicit language learning: vocabulary learning* scales are .541, .462, and .464, respectively. The composite reliability index is above 0.60 for the three scales (CR = .696, .717., and .719, respectively).

Table 27
Model Fit Indices for the Perceived Efficacy of Implicit Language Learning: Focus on Meaning, Perceived Efficacy of Implicit Language Learning: Acquisition Without Realising, And Perceived Efficacy of Explicit Language Learning: Vocabulary Learning Scales

Model	*df*	χ^2	χ^2/df	CFI	SRMR	RMSEA	PCLOSE
3-factor (15 items)	87	475.53	5.47^{***}	.82	.079	.081	<.001
3-factor modified (8 items)	16	47.10	2.94^{***}	.97	.033	.053	.354

*** $p < .001$

Figure 7
The Path Diagram of the Perceived Efficacy of Implicit Language Learning: Focus on Meaning, Perceived Efficacy of Implicit Language Learning: Acquisition Without Realising, And Perceived Efficacy of Explicit Language Learning: Vocabulary Learning Scales



Note. Standardised data are reported. PEIMP1 = *Perceived efficacy of implicit language learning: focus on meaning*, PEIMP2 = *Perceived efficacy of implicit language learning: acquisition without realising*, PEEXP = *Perceived efficacy of explicit language learning: vocabulary learning scales*.

The fit indices in the hypothesised model of *Effort* and *Self-efficacy beliefs* also indicated that the model could be improved. Two items had to be deleted based on low standardised factor loadings (< .50), namely items 75 and 90. By removing these two items, the analysis arrived at an acceptable model fit. The chi-square goodness-of-fit value for the final model showed a good fit ($\chi^2/df = 3.94$, $p < .001$). The RMSEA = .065 shows a good model fit in the 90% CI [.054, .077]. The GFI = .96 (>.90), and SRMR = .042 (≤ .08) also showed acceptable model fit. The PCLOSE ($p = .014$) is also better as compared to the original model. The parsimony fit index of AIC is 176.10, and the incremental fit indices also show an acceptable model fit: NFI = .96, TLI = .96 (> .94), CFI = .97 (≥ .94). For the initial and modified model comparisons, see Table 28, and for the path diagram of the final model, see Figure 8.

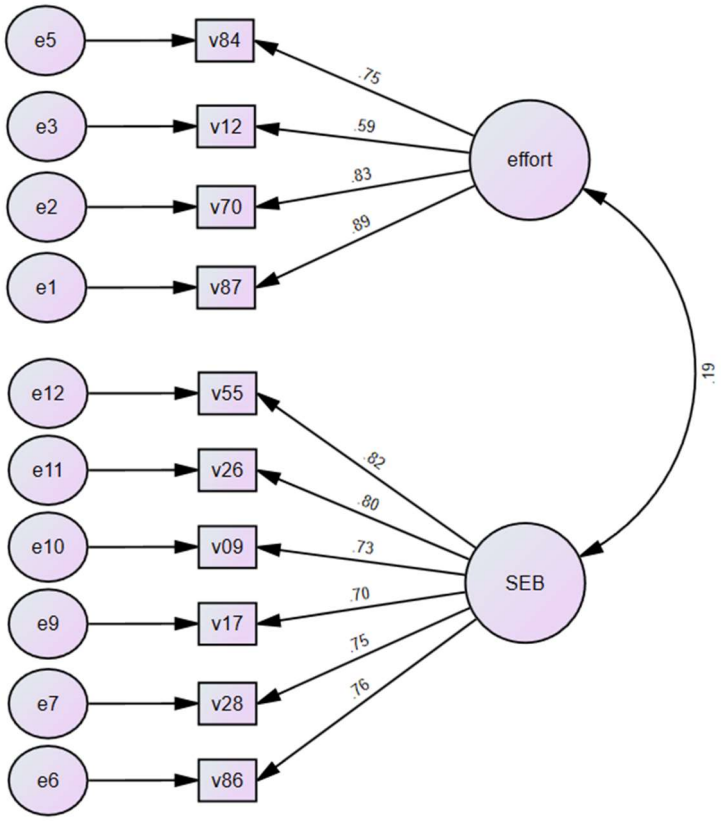
Both the average variance extracted and the composite reliability indices show acceptable quality of the measures of *Effort* and *Self-efficacy beliefs* (AVE = .598, CR = .853, and AVE = .579, CR = .892, respectively; Fornell & Larcker, 1981; Shrestha, 2021).

Table 28
Model Fit Indices for the Effort and Self-Efficacy Beliefs Scales

Model	*df*	χ^2	χ^2/df	CFI	SRMR	RMSEA	PCLOSE
2-factor (12 items)	53	473.60	8.94***	.89	.129	.108	<.001
2-factor modified (10 items)	34	134.10	3.94***	.97	.042	.065	.014

*** $p < .001$

Figure 8
The Path Diagram of the Effort and Self-Efficacy Beliefs Scales



Note. Standardised data are reported. SEB = *Self-efficacy beliefs*.

With the *Growth L2 mindset* and *Fixed L2 mindset* scales, no matter how hard I tried and how many attempts I had, the final result was always very similar. When everything else failed, I tried comparing a one-factor model to the initially hypothesised two-factor models, but it consistently showed an unacceptable result. Therefore, the mindset scales are not included in further analyses as these may be much more complex than I previously thought (see Table 29 for the comparisons of the different models).

Table 29
Model Fit Indices for the Growth L2 Mindset and Fixed L2 Mindset Scales

Model	*df*	χ^2	χ^2/df	CFI	SRMR	RMSEA	PCLOSE
2-factor (9 items)	26	321.12	12.35***	.72	.080	.129	<.001
2-factor modified (5 items)	2	43.24	21.62***	.91	.042	.173	<.001
2-factor modified (7 items)	13	178.21	13.71***	.79	.072	.136	<.001
2-factor modified (6 items)	8	171.04	21.38***	.75	.081	.172	<.001

*** $p < .001$

The reason for the complexity attributed to mindsets may be manifold. Firstly, based on mindset theories (Dweck, 2006), mindsets are not mutually exclusive and may have more underlying dimensions – even intraindividual context-specific mindsets which may change over time. Mindsets, as claimed in Lou et al.'s (2021) recent study, can also be mixed, and mindsets is not a dichotomous construct (Lou & Noels, 2017, 2019; Mercer & Ryan, 2010). Perhaps, I should have listened to the statistical implications when conducting exploratory factor analysis in the pilot study, where it was apparent that a new dimension emerged independently from the *Growth L2 mindset* and *Fixed L2 mindset* scales. However, I did not add any new items to that

dimension, which may be an undeniable shortcoming. Secondly, it must be noted that it may also be a hindrance that I have not used skills-based domain-specific items, probably general L2 mindset is not a universal construct, and these two short scales failed to measure a more specific cognitive construct. Although the scales went through modifications and refinement (Zólyomi, 2021a), the indication is that they would need to be further specified. Thirdly and most importantly, mindset theory seems to be rightly criticised by many studies as it showed controversial results (Foliano et al., 2019; King & Trinidad, 2021; MacNamara & Rupani, 2017; Moreau et al., 2018; Sisk et al., 2018). What I can conclude after reviewing the literature and seeing my own results is that mindset theory is questionable as it does not generate consistent results.

To answer the first research question and to sum up the results of the CFA, 20 scales out of the 22 scales showed that they align with the a-priori hypothesised factor structure. After slight modifications, such as removing items and/or covarying error terms based on modification indices and/or standardised residual covariances, all of the models are accepted. In Table 30, Cronbach's alpha and McDonald's omega values are displayed before and after conducting CFA. It is important to note that with the help of CFA, the reliability indices either increased or remained at an acceptable level (Min_{α} = .602, Max_{α} = .942, Min_{ω} = .606, Max_{ω} = .943). Without conducting CFA and simply adding new items, Cronbach's alpha is highly likely to increase; however, this alone does not imply uni-dimensionality (Botes et al., 2022; Hoekstra et al., 2018; McDonald, 1981; Piniel & Zólyomi, 2022; Sijtsma, 2009). In addition to the alpha and omega values, CFA-specific construct reliability and construct validity (convergent validity) measures were computed, and the average variance extracted (AVE) and composite reliability (CR) coefficients showed that all of the measures are acceptable (Fornell & Larcker, 1981; Shrestha, 2021). Consequently, the measures were considered to be reliable for their use in this study except for the *Growth L2 mindset* and *Fixed L2 mindset* scales, which – as

mentioned previously – may lend additional support to the criticism around mindset theory (Foliano et al., 2019; King & Trinidad, 2021; MacNamara & Rupani, 2017; Moreau et al., 2018; Sisk et al., 2018).

Table 30
Reliability Indices Before and After Confirmatory Factor Analysis

Scales	α before CFA	ω before CFA	Final α	Final ω
Perceived language aptitude	.935	.936	.935	.936
Self-perceived success	.943	.944	.942	.943
Self-perceived achievement	.882	.884	.867	.867
Implicit language use: instinctive oral output	.802	.818	.884	.886
Implicit language use: less focus on grammar	.695	.683	.706	–
Explicit language use: conscious focus on grammar	.680	.651	.707	–
Implicit language learning: extramural activities	.711	.685	.711	.685
Implicit language learning: playing video games	.851	.852	.851	.852
Implicit language learning: vocabulary acquisition	.571	.635	.727	.744
Explicit language learning habits: vocabulary learning	.651	.657	.701	.712
Implicit language learning preferences	.594	.594	.602	.606
Explicit language learning preferences	.703	.724	.746	.747
Perceived efficacy of implicit language learning: focus on meaning	.565	.560	.675	–
Perceived efficacy of implicit language learning: acquisition without realising	.656	.657	.638	.649
Perceived efficacy of explicit language learning: vocabulary learning	.649	.659	.718	.726
Effort	.793	.810	.842	.843
Self-efficacy beliefs	.880	.883	.890	.891
Perceived malleability of language aptitude	.757	.758	.757	.758
Perceived importance of language aptitude: handling obstacles	.772	.774	.772	.774
Perceived importance of language aptitude: rate of progress as compared to peers	.852	.853	.852	.853

Note. The omega values could not be computed for scales containing two items.

5.6.2 Student Groups with Different Language Learning Profiles

In an attempt to answer the second research question and identify groups of students who employ different English language learning habits, a combined cluster analysis was performed.

Just like in the pilot study and in two other endeavours (Zólyomi, 2021a, 2022b), the implicit and explicit language learning habits scales showed the largest standard deviations (for the descriptive statistics, see Appendix L); therefore, these will be appropriate clustering scales. Table 31 shows the final cluster centres by displaying the mean values of the clustering scales in the different cluster groups.

Table 31
The Final Cluster Centroids with the Four Language Learner Behavioural Clustering Scales

Clustering Scales (↓)	**Cluster centres in the three clusters**		
	1	2	3
n (%)	187 (27%)	342 (50%)	159 (23%)
Group labels (→)	Mixed (non-gamer) learners	Implicit (gamer) learners	Incognisant learners
Implicit language learning: extramural activities	3.87	4.27	2.60
Implicit language learning: playing video games	1.91	4.29	2.47
Implicit language learning: vocabulary acquisition	4.03	4.24	2.73
Explicit language learning: vocabulary learning	3.17	2.69	2.04

Based on the results, three groups of students could be identified: the biggest group takes up about half of the participants (Group 2, *n* = 342, 50%), and they received the label of *Implicit (gamer) learners* as they show high means (above 4.00 on the five-point scale) for all of the scales related to implicit language learning, and they have the highest mean for the scale

related to playing video games. For the explicit language learning scale, they display a relatively low mean (below 3.00).

The next group in size (Group 1, n = 187) constitutes 27% of the whole sample and seems to be mixed in their reported language learning habits. Participants belonging to this group show high (above 4.00) implicit learning habits when it comes to vocabulary acquisition, a bit lower (but still well above 3.00) mean for implicit learning as per extramural activities in general, and explicit learning habits are still above 3.00; however, they have a very low mean (below 2.00) on implicit language learning habits regarding playing video games. Based on the mean values, it can be claimed that these students tend to employ both explicit and implicit learning habits but playing video games is not included in their extramural activities. Hence, this group received the label of *Mixed (non-gamer) learners*.

Members of the third group (Group 3, n = 159) represent 23% of the whole sample, and they not only seem to lack a dominant language learning habit, but they also seem to be rather unaware of their language learning processes, which is quite puzzling to interpret at first. Although among the scales they have the highest mean value on the vocabulary acquisition-related implicit language learning habit scale, this value is still below 3.00. This group cannot really be placed on the explicit–implicit continuum (Littlewood, 1984; Nguyen et al., 2012). Nevertheless, it cannot be claimed that they do not have any language learning habit at all as their mean values are still above 2.00 in all scales. Due to their supposed lack of metacognitive awareness related to their language learning habits, they received the label of *Incognisant learners*.

The fact that there seem to be tendencies and not clear-cut mutually exclusive categories points to the dynamic, single-system approach of explicit–implicit learning as suggested by Granena and Yilmaz (2019). Even though explicit and implicit learning appear to be distinct constructs based on the exploratory factor analysis in the pilot study and the confirmatory factor

analysis in the main study, concluding from the cluster analysis, there is some extent of overlap in these processes. As concluded by Reber (1993) and Granena (2020), implicit and explicit learning processes are functioning in a complementary way, meaning that these are not completely independent from each other. Failing to treat implicit and explicit learning as cooperative processes might lead to, what is referred to by Reber (1993), the *polarity fallacy*.

The one-way analysis of variance (ANOVA) in the three clusters discernible in Table 32 shows that significant intergroup differences can be detected in the 20 scales. The Duncan post-hoc test of the ANOVA on the clustering scales also lends validity to the three-cluster solution as there are significant differences between the three groups. It is noteworthy that there is no scale where all of the three groups have very similar means. There are, however, consistent patterns, which are grouped based on the disposition they display; Pattern 1 denotes the tendencies where Group 2 shows the highest mean and Group 3 the lowest, Pattern 2 where Group 1 has the highest mean and Group 3 the lowest, Pattern 3 where Group 3 shows the highest mean and Group 2 the lowest, and finally, Pattern 4 where Group 2 has the highest mean and Group 1 the lowest.

Table 32
The One–Way ANOVA of Each Cluster on the Scales

Pattern	Scales	Groups			*F*	*df*	ω^2	Post–hoc comparison
		1	2	3				
1	Perceived language aptitude	3.51	3.87	2.75	95.78		.12	3 < 1 < 2
	Self-perceived success	4.16	4.39	3.37	73.81		.10	3 < 1 < 2
	Self-perceived achievement	4.20	4.40	3.49	68.72		.09	3 < 1 < 2
	Implicit language use: instinctive oral output	4.14	4.48	3.30	107.38	687	.13	3 < 1 < 2
	Implicit language use: less focus on grammar	3.80	4.31	3.18	82.63		.11	3 < 1 < 2
	Explicit language use: conscious	3.35	3.57	3.10	9.52		.01	3 < 1 , 2

	focus on grammar						
	Implicit language learning: extramural activities*	3.87	4.27	2.60	320.86	.32	3 < 1 < 2
	Self-efficacy beliefs	4.26	4.43	3.58	81.104	.10	3 < 1 < 2
	Implicit language learning: vocabulary acquisition*	4.03	4.24	2.73	278.54	.29	3 < 1 < 2
	Implicit language learning preferences	4.18	4.23	3.40	85.62	.11	3 < 1 , 2
	Perceived efficacy of implicit language learning: acquisition without realising	4.33	4.39	3.44	96.41	.12	3 < 1 , 2
	Perceived importance of language aptitude: rate of progress as compared to peers	3.17	3.35	2.82	17.11	.02	3 < 1 , 2
2	Explicit language learning habits: vocabulary learning*	3.17	2.69	2.04	51.10	.07	3 < 2 < 1
	Perceived efficacy of implicit language learning: focus on meaning	4.72	4.52	4.17	26.02	.04	3 < 2 < 1
	Effort	4.18	3.83	3.53	24.39	.03	3 < 2 < 1
	Perceived malleability of language aptitude	4.28	4.08	3.85	16.59	.02	3 < 2 < 1
	Perceived importance of language aptitude: handling obstacles	4.27	4.16	3.86	16.79	.02	3 < 2 , 1
3	Explicit language learning preferences	3.22	2.92	3.29	10.98	.01	2 < 1 , 3
	Perceived efficacy of explicit language learning: vocabulary learning	2.75	2.47	2.97	15.23	.02	2 < 1 < 3
4	Implicit language learning: playing video games*	1.91	4.29	2.47	704.57	.51	1 < 3 < 2

Note. *Clustering scales. Post–hoc test used: Duncan. < = significant difference; , = lack of significant difference. Random-effect used for the omega-squared (ω^2) value. All F values are statistically significant at the $p < .001$ level.

The first consistent pattern in Table 32 for 12 scales whereby Group 2, the group of *Implicit (gamer) learners* displays the highest mean values for the scales, followed by Group 1, *Mixed (non-gamer) learners*, and Group 3, the group of *Incognisant learners* has the lowest mean values on these scales. The differences in this pattern are not statistically significantly different between Group 1 and Group 2 only in four scales. This means that those students who employ implicit language learning habits and are gamers have very positive lay theories about their own skills: they consider themselves successful, they think they have achieved a lot in English language learning, they have high self-efficacy beliefs, and they have high perceived language aptitude; though, it must be noted that the highest mean value for the *Perceived language aptitude* is still below 4.00.

However, for the other self-concept scales, Group 2 and Group 1 have higher mean values than 4.00, while Group 3 displays a mean below 4.00 and below 3.00 for *Perceived language aptitude*. The possible reasons for *Perceived language aptitude* behaving differently from the other scales directed at self-perceived skills is explored in the follow-up interviews (see section 6.5.5). Concluding from the tendency that all three groups of students have positive lay theories about their own skills except for language aptitude is consistent with the results of the pilot study. This tendency is quite interesting in both samples as most students did not obtain a language exam by the time of the data collection. It can be concluded from the patterns that can be seen in the cluster analysis of the main study and the correlations in the pilot study that in the minds of the secondary school student population, focus is directed from exam-centredness (Öveges et al., 2019; Tartsayné Németh et al., 2018) towards the importance of implicit processes and language use (Ellis, 2019).

The tendency that *Implicit (gamer) learners* showed higher means on their self-related lay theories is noteworthy. In a previous study within the same context, Lajtai (2020) analysed teachers' perceptions regarding the language learning proficiency of secondary school students

in relation to playing video games. Based on his results, teachers have positive beliefs regarding gamer learners; they perceive them to be more proficient, confident, motivated, and engaged in language learning than their non-gamer counterparts. These results also correspond to the results of the present study as to how gamer learners perceive themselves as language learners and this is also explored in the interview study.

Logically, the implicit language use and explicit language use scales follow the same pattern as could be expected a priori (Skehan, 2019): *Implicit (gamer) learners* scored the highest on the *Implicit language use* scales, while *Incognisant learners* have the lowest score on the *Explicit language use* and *Implicit language use* scales. What is interesting here is that all three groups scored above 3.00 on the *Explicit language use* scale. This points to the overlap between implicit and explicit learning processes, so these approaches are not mutually exclusive (cf. *polarity fallacy;* Reber, 1993).

The same pattern of order is apparent in *Implicit language learning preferences*, one of the *Perceived efficacy of implicit learning* scales (*acquisition without realising*), and one of the *Perceived importance of language aptitude* scales (*rate of progress as compared to peers*). Group 3 seems to have averages lower than 4.00 for both formerly mentioned scales, which can be due to multiple reasons, for example, lack of strong inclinations, lack of dominant beliefs, simply indecisiveness, or lack of metacognitive knowledge (meaning that perhaps they were not thinking about ways to go about learning as they do not know how they could study languages; Finkbeiner, 1998). The cause of the existence of this group may well be attributed to the fact that not all cognitive processes might be revealed with the use of self-reports due to the fact that self-reflection and introspection might be challenging for individuals, especially for secondary school students (Granena, 2016).

For the *Perceived importance of language aptitude in terms of rate of progress as compared to peers* scale, Group 1 and 2 displayed means lower than 4.00 and Group 3 a mean

of lower than 3.00, which means that none of the groups attributes a decisive role for the faster rate of progress as compared to peers in terms of language aptitude. This means that based on the beliefs of secondary school students, the sense of having a quickness in grasping new linguistic features (Cohen & Henry, 2020) is negligible in the success of language learning. Members of Group 1 and Group 2 undoubtedly believe that implicit learning is efficient for *acquisition without realising*; additionally, they also show strong preferences for implicit learning. This is in line with Skehan's (2019) notion that "different patterns of cognitive abilities could be associated with preferences for different styles of learning, as learners play to their strengths (and avoid weaknesses)" (p. 59). Students' perceptions in this respect also correspond to results pointing to the importance of implicit learning processes (Doughty, 2003; Granena, 2020; Kaufman et al., 2010; Lajtai, 2020; Long, 2014; Reber, 1993, Reber et al., 1991, Spissich, 2022; Zólyomi, 2021a, 2021c).

What is notable in the two scales measuring the *Perceived efficacy of implicit learning* is that while Group 1, Mixed (non-gamer) learners and Group 2, Implicit (gamer) learners do not differ significantly when it comes to *acquisition without realising*, they do differ significantly regarding the *focus on meaning* scale with Group 1 having a higher mean value (a different tendency, Pattern 2). The mean of Group 3, *Incognisant learners* on this scale is also above 4.00. Group 1 has the highest mean value in four additional scales (Pattern 2). They show the highest mean value for the *Explicit language learning* scale (still not very high but above 3.00). Group 1 and Group 2 do not differ significantly in the role they attribute to language aptitude (either to *handling obstacles* or *rate of progress as compared to peers*), so they more or less uniformly believe that having a natural talent is not of key importance in language learning success.

However, the groups show statistically significant mean differences concerning the *Perceived malleability of language aptitude*. Group 1 shows the highest mean value which is

then followed by Group 2 (the mean value is still above 4.00) and finally, Group 3. This means that those students who are aware of their language learning processes (be them implicit or mixed) tend to believe that their skills can be developed to a certain extent. Although I could not measure L2 mindsets due to the reliability issues in the measures, perceiving language aptitude and related skills malleable belong to the positive (growth) language-mindset meaning system framework (Lou & Noels, 2019).

Interestingly, only Group 1 displays a mean above 4.00 for *Effort*, so this means that despite the fact that Group 2 has a very positive picture of themselves, they do not put much effort into learning the language as compared to members of Group 1. The fact that Group 1 shows the highest mean values on both *Effort* and *Perceived malleability of language aptitude* may be linked to effort beliefs (Blackwell et al., 2007), namely, that members of Group 1 have positive, growth-oriented implicit theories about effort: "effort is the key to improvement and a means to become talented" (Lou & Noels, 2019, p. 544).

In the third pattern category, overall, members of all three groups do not seem to perceive explicit learning to be effective (all of the mean values are below 3.00); however, Group 3 seems to have the highest mean value on this scale. This is puzzling as Group 3 had the lowest mean values on the explicit language learning habits and language use scales. This disharmonious tendency is yet another indication that this group of students may not be fully aware of how they should study languages or at least they have not found their optimum learning approach yet (Finkbeiner, 1998). Though students in Group 3 do not differ significantly from Group 1 when it comes to *Explicit language learning preferences*, they do tend to have the highest mean value on this scale as well. From this, it can be concluded repeatedly that members of Group 3 seem to be somewhat confused as they display patterns of lack of metacognitive knowledge regarding their language learning habits. These are of course speculations without digging deeper into the profiles of these students; however, I see two

possible interpretations of this. Version A – which I believe to be more likely – is that based on the beliefs of these students, there is only "one way to do it right" and that is explicit learning (what they largely encounter in formal instruction, cf. Finkbeiner, 1998, rote-learning, rule-based approaches), but they have difficulties with this type of learning, which is why it did not develop to become a regular habit. These students do not have very positive self-images because they have not found the learning habit that would be suitable and optimal for them. Version B is that these students employ a third type of learning habit that the scales have not measured, and although they believe explicit learning to be efficient and they like explicit learning, they have a different learning habit, and this is why they present patterns of lack of metacognitive knowledge.

One striking result is that there is only one scale which is showing a completely different pattern of order as compared to the other scales (Pattern 4). It is apparent that *Implicit language learning through playing video games* has an important role concerning the cluster groups, which is why this information is assigned into the group labels. In addition, this scale has shown the largest effect size among the scales ($\omega^2 = .506$), which points to the practical significance of this result. Based on previous studies (Sundqvist, 2009; Sundqvist & Wikström, 2015; Sundqvist & Sylvén, 2012; Sylvén & Sundqvist, 2012), there seems to be a positive association with English language learning and gaming, especially when it comes to boys, who tend to be more inclined to play video games. These aspects will be examined in more depth during the interview study (see section 6.5.6).

To summarise the answer to the second research question, there seem to be three distinct groups concerning students' reported explicit and implicit language learning habits. The first group of students seem to be those who are investing effort in learning the language inside and outside the classroom as well. They highly rely on explicit instruction in the lessons, but they also realised the usefulness of implicit learning outside the classroom. However, they have not

realised yet the usefulness of playing video games in the target language as a form of implicit learning. After seeing the gender distribution of this group (see Appendix M), these students can mainly be characterised as the so-called "studious girls" who are not gamers but who tend to work hard (Sundqvist & Wikström, 2015, p. 74).

Members of the second group display a dominance for implicit learning. They are not really focused on putting effort into studying explicitly in school, but they experienced the usefulness of being exposed to the target language through extramural activities, mainly by playing video games. Based on Sundqvist and Wikström (2015) and after checking the gender distribution in this group (see Appendix M), these students can mainly be characterised as the so-called "nerdy boys" who enjoy playing video games but tend to be less diligent as compared to "studious girls" (p. 74).

The third group is composed of students who probably complete what is required from them, but they did not realise yet that this may not be enough, they do not put much effort into language learning, and they exclude the potential of implicit learning completely. These *Incognisant learners* do not seem to be involved in either type of learning that much, probably because they lack the metacognitive knowledge of monitoring their own language learning processes. As it is highlighted by, for example, Finkbeiner (1998), when investigating explicit and implicit English language learning strategies, many students (at universities and secondary schools alike) lack metacognitive knowledge of their own language learning processes, which might be attributed to stiff coursebooks, strict guidelines, and exam-centredness in the hidden curricula. In what follows, the predictors of high self-perceived success are scrutinised.

5.6.3 Constructs Influencing the Self-perceived Success of Secondary School Students

To answer the third research question and discover what explains students' self-perceived success, stepwise linear regression analysis was computed with the scale of *Self-perceived success* as the dependent factor. Table 33 presents the final model for predicting the *Self-*

perceived success of the secondary school students. Five scales seem to be contributing to success, four of which influence it positively, namely, *Self-perceived achievement* (β = 0.43, $p < .001$), *Perceived language aptitude* (β = 0.27, $p < .001$), *Self-efficacy beliefs* (β = 0.19, $p < .001$), and *Implicit language use: instinctive oral output* (β = 0.13, $p < .001$). The *Perceived importance of language aptitude: rate of progress as compared to peers* scale contributed negatively (β = –0.04, $p < .05$) to *Self-perceived success*. According to the rule of thumb presented by Muijs (2004) for adjusted R^2, the model in Table 33, in which *Self-perceived success* is the criterion measure, shows a strong fit (adjusted $R^2 > 0.50$), indicating that this model has a high probability of fitting the population. The measures were also checked for multicollinearity following the guidelines of Howitt and Cramer (2017) and as shown by the variance inflation factor (*VIF*), the predictors are not too highly correlated with each other (*VIF* < 10), so the model is considered to be effective.

Table 33
Stepwise Linear Regression Model (Dependent Scale: Self-perceived Success)

	Final model			
Scales	***B***	**SE *B***	**β**	***VIF***
Criterion: Self-perceived success				
Self-perceived achievement	0.46	0.03	0.43^{***}	3.38
Perceived language aptitude	0.27	0.03	0.27^{***}	3.84
Self-efficacy beliefs	0.24	0.03	0.19^{***}	2.85
Implicit language use: instinctive oral output	0.13	0.02	0.13^{***}	2.13
Perceived importance of language aptitude: rate of progress as compared to peers	–0.04	0.02	$–0.04^{*}$	1.21
R^2		0.82		
Adjusted R^2		0.82		
F (1, 682) for change in R^2		5.91^{*}		

$^{*}p < .05$, $^{***}p < .001$

The five scales explained 82% of *Self-perceived success*, which can be considered a quite high explanatory power of the model. First of all and quite logically, positive lay theories (being a high-achiever, having high language aptitude, and having high self-efficacy beliefs)

contribute to an overall positive self-image of being successful in learning the language. This lends support to Mercer's (2011a, 2011b) claim that self-related beliefs should be scrutinised in more depth and from more perspectives.

What is more interesting to note is that those students who can be characterised by implicit language use (using the language instinctively, naturally, and intuitively) regard themselves as more successful in learning the language; additionally, it also contributes to a sense of high success if the students do not attribute a great role to a part of language aptitude, that is, to progressing at a faster pace as compared to their peers. A previous study (Zólyomi, 2021a) has also shown that implicit language use contributes to a high sense of success, and the explanatory power of the model including intended effort and implicit language use contributing to high success was 67%. Interestingly, in the present study, intended effort did not emerge as an influential construct in terms of the high sense of success. As this seems to be quite puzzling at first sight, to dig deeper in the quest of understanding this, the reason for this will be explored with the follow-up interviews (see section 6.5.6).

Out of the five predictors of self-perceived success, two, namely, *Perceived language aptitude* and *Implicit language use: instinctive oral output* showed strong and significant correlations with *Self-perceived success* in the pilot study of the dissertation, which means that based on the two studies, these constructs, language aptitude and instinctive use of the language seem to be consistently important based on the beliefs of the population of Hungarian secondary school students. These results indicate the potential of implicit language aptitude being conducive to language learning success, as also noted by Granena (2012, 2013, 2016, 2020) and Granena and Yilmaz (2019). Based on this, it would be important to rethink the highly explicit-based formal instruction as implicit learning in instructed environments would be indispensable (Doughty, 2003; Long, 2014) and required especially for advanced level language acquisition (Ellis, 2005).

In conclusion, the fact that implicit language use and perceived language aptitude seem to contribute to students' self-perceived success not only highlights the potential of using the language instinctively and thinking positively of own language-related skills but the overall importance of foreign language use (Ellis, 2019). Perhaps there is a shift away from exam-centredness in the Hungarian context (Öveges et al., 2019; Tartsayné Németh et al., 2018) to focus on language-use in this generation of students. As shown by, for example, Csizér and Illés (2020), due to the lingua franca status of English, language learners should be prepared to "act as effective and confident language users who are capable of coping with the challenges ELF communication presents" (p. 24). Consequently, Csizér and Illés (2020) pointed out the role of the teacher in preparing students for English language use outside the classroom. This focus of language use (Granena, 2020) alongside language learning is in accordance with the results of the regression analysis. However, to what extent this possible shift from exam-centredness to focus on language use in students may be true for languages other than English may be an area for further research.

6 The Interview Data: Pilot and Main Study

The pilot and the main studies of the interviews are combined and were analysed together as only minor modifications happened to the instrument; additionally, as Richards (2009) highlighted, the slight differences that may appear between the two can be "food for analysis" (p. 84). However, to give an overview of the pilot of the interview study, a summary is provided before discussing the findings. The interview study had five main aims; to explore 1) the selected English teachers' perceptions about differentiated instruction (DI), 2) their perceptions about language aptitude, 3) their perceptions about explicit–implicit learner profiles, 4) what they report on how they can employ DI based on learners' explicit–implicit learner profiles (if at all), and 5) how the results of the two types of data (student questionnaire and teacher interview) are related.

6.1 Research Questions

1) What are the selected Hungarian secondary school English teachers' perceptions regarding differentiated instruction?
2) What perceptions do the selected Hungarian secondary school English teachers display as per language aptitude?
3) What perceptions do the selected Hungarian secondary school English teachers have concerning explicit–implicit learner dispositions?
4) How can teachers employ differentiated instruction in terms of explicit and implicit language learner profiles?

Main research question for the synthesis of the two types of data:

> How can the Hungarian secondary school English teachers' and students' beliefs regarding language aptitude and explicit–implicit learning be linked based on the two types of data?

6.2 Participants

Altogether eight Hungarian secondary school English teachers were selected based on purposive and convenience sampling (Dörnyei, 2007; Lewitt, 2020). This means that I recruited the contact teachers (i.e., those who helped in quantitative data collection and are the English teachers of the student participants of this study) of the participating schools, and eight of them agreed to participate in the follow-up interview study. Naturally, I did not select those teachers who collected very little data in their schools. Thus, participants are from five cities all over the country, of which two are from the capital, Budapest; four are from the north-western part, one from the northern part, and one from the western part of the country. One male and seven females participated in the interview study, which adequately represents the gender distribution in the foreign language teaching profession in the country (Öveges & Csizér, 2018). A relatively

wide age range was reached: the youngest participant was 38 years old at the time of the data collection, and the oldest was 62 (M = 47.75, SD = 7.11).

When the data was collected, the participants were teaching in eight different secondary schools. Most of the participants have university degrees; none of them holds a PhD degree. Besides English language teaching, at the time of data collection, one participant was teaching German, one Hungarian language and literature, one History, and another interviewee was teaching Physical education. On average, they have taught English for 19.13 years (SD = 7.99) with a minimum of eight years and a maximum of 27. Table 34 displays the participants' teaching experience; a case summary of the participants' background is presented, showing their years of English teaching experience along with their pseudonyms.

Table 34
Case Summary on Participants' Teaching Experience and Background Information

Pseudonyms	**City**	**Age**	**Years of teaching English**	**Other classes taught**
Otília	Debrecen	38	8	Hungarian language and literature
Hedvig	Miskolc	47	8	German
Loránd	Budapest	42	14	–
Szabina*	Budapest	46	22	–
Adrienn*	Miskolc	48	22	–
Klára*	Miskolc	52	26	History
Bettina	Zalaegerszeg	47	26	–
Evelin	Vác	62	27	Physical education

*Pilot study participants.

Besides teaching in secondary schools, only Hedvig mentioned that she is currently teaching in language schools as well. They all have language teacher qualifications, and Bettina also mentioned that she has a master teacher qualification. Adrienn, Klára, and Bettina, besides teaching in regular four-grade secondary schools were also teaching in six-grade secondary schools at the time of the data collection, and they were also teaching in lower grades, while

Otília and Loránd were also teaching in grades in the Year of Intensive Language Learning (YILL).

6.3 The Instrument

To understand how teachers perceive differentiated instruction (DI), students' language aptitude, and student profiles based on explicit–implicit learning approaches, and to gain an insight into how they can differentiate based on learner profiles, a semi-structured interview format was used as this offers an opportunity for having control over the process with preliminary questions as well as allows the participant to raise any issues or topics that they consider relevant (Wallace, 1998). The interview guide was designed after the administration of the student questionnaire. It encompasses various topics that were present in the questionnaire and additional topics regarding DI. It went through expert judgement, peer feedbacking, it was piloted with three participants (whose data were also analysed), and after each interview session, I modified the interview guide and added some more questions. The final interview guide contained 20 questions plus six biographical questions. I translated it and asked two English teachers to proofread it (see Appendix F for the final version of the translated instrument). The sources of the questions – besides the theories detailed in the theoretical background – are the following: Csizér et al. (2022), Zólyomi (2020a, 2020b, 2020c, 2021a, 2021b, 2021c, 2022a, 2022b, 2023). The topics included:

- Differentiated instruction (conceptualisation, reported practices, perceived importance, grouping methods, perceptions of grading, perceived efficacy of language teaching in Hungary)
- Language aptitude (conceptualisation, existence of individual differences and signs of it, differences between language aptitude and proficiency, perceived malleability of language aptitude, perceptions of students' lay theories including students' perceived malleability of

language aptitude and the importance of students' perceived malleability of language aptitude)

- Implicit and explicit learning habits (existence of individual differences and signs of it, affective-behavioural-cognitive individual differences, combining the two habits)
- Implicit and explicit language aptitudes (the connection between language aptitude and explicit–implicit learning, the connection between high language aptitude and learning habits, differentiated instruction based on explicit and implicit learning habits)

It must be noted that when the aim was to explore teachers' beliefs regarding explicit and implicit learning profiles, they were not asked specifically whether they think that those groups which were examined with the help of cluster analysis are existent or not, mainly for two reasons. First, directing them towards a certain answer was not an intention; second, it would have been really complicated to formulate questions that describe these complex clusters of students accurately. Rather, the aim was to avoid guiding, directing, or influencing them towards a certain idea and to have a general idea of how teachers see student profiles based on explicit and implicit learning in their groups. This is why a broad description of the two types of learning was provided, the conscious and unconscious processes, in order to trigger more precise and less biased answers. With respect to explicit–implicit learner profiles, the teachers were asked whether there are any differences between their students regarding their explicit and implicit learning habits and where these differences emerge.

6.4 The Procedures of Data Collection and Analysis

Data was collected exclusively online from the end of November until the middle of December 2022 until data saturation was fulfilled (Boeije, 2002). The interviews were conducted in Hungarian, the first language of the participants (Harkness, 2008), and the interviewees gave their verbal consent to record the dialogues. After collecting interview data, the interviews were transcribed verbatim with the help of the Alrite software to prepare the texts for analysis, and

the transcripts were, naturally, double-checked. This yielded a fruitful amount of data, precisely 33,990 words (introduction excluded). The interviews lasted 39 minutes on average, with 25 minutes being the shortest and 62 minutes being the longest (M = 38.75, SD = 12.42). Although the speech recognition engine is quite accurate, the transcriptions were checked while listening to the recordings to make sure that no data was missing or altered in any way compared to the original.

After double-checking and making corrections in the transcripts, I familiarised myself with the dataset by reading the texts repeatedly. First, the interview data were analysed with thematic content analysis in order to be able to look for recurring patterns and emerging themes (Dörnyei, 2007; Elo et al., 2014), which was then followed by an analysis using the constant comparative method (Maykut & Morehouse, 1994; Patton, 2014) with the help of the Atlas.ti 7.5.7 software. This computer-assisted qualitative data analysis software was used for coding the interviews because coding the texts manually would have led to a deterioration in the manageability of the data. Saldaña's (2013) guidelines were used for the structural coding, which served as a "basic but focused filter for reviewing the corpus" (p. 267). Although this was not the primary aim of the present analysis, this type of coding can also be utilised for quantitative aspects (e.g., frequency of occurrences of emerging themes in each case). There were multiple instances when a unit (even sentence-level units) received more codes.

Before discussing the findings along with those found in previous studies, hereby I would like to summarise the pilot of the interview study, which was conducted at the end of November with three Hungarian secondary school teachers of English (pseudonyms: Klára, Szabina, Adrienn). After administering these interviews, I made modifications to the instrument, mainly by adding probe questions and clarifying certain items. Several important aspects emerged in the pilot study which I did not expect beforehand, for example, the difficulty secondary school teachers have to face when instructing incoming students after primary

school. The teachers said that unrealistic self-related beliefs formulated in primary school (be them false negative or false positive beliefs) may lead to negative consequences in language learning in the secondary school. The teachers mentioned that the different qualities of education in primary school leads to highly mixed ability classrooms in the secondary schools, and the students already label themselves (along with their parents) to a certain category they do not necessarily belong to (low ability vs. high ability). In the following, the findings of the pilot and main studies are discussed together as very similar themes emerged during the interviews.

6.5 Interview Study: Findings and Discussion

In this section, the emerging themes are discussed accompanied by quotes from the participants to let their voices come through, the importance of which is emphasised with the following: "A few well-chosen quotations from our respondents can convey the flavor of responses far better than any other rhetorical device." (Aldridge & Levine, 2001, p. 102). It must be noted that for longer block quotes, I am using the labels of *Excerpt* and their assigned number because I am referring these quotes, and this formulates a point of reference.

The findings are presented along the research questions exploring the participating English teachers' perceptions about differentiated instruction (DI), language aptitude, explicit and implicit student profiles, and possible DI strategies to tailor teaching methods based on learners' explicit–implicit learning dispositions. Finally, the results of the questionnaire and the interview study are synthesised. Concerning space limitations, only those emerging themes are discussed in detail which are intended to answer the research questions specifically. For coherence considerations, it must be noted that the synthesis of the questionnaire and the interview study are discussed alongside the particular emerging themes within the qualitative part and not separately as it seemed to be more logical than analysing these phenomena

individually. However, the findings of the synthesis are recapitulated after the discussions (see section 6.6). For the final coding scheme, see Table 35.

Table 35
The Final Coding Scheme for Analysing the Data

Subcategory	Description	Example quote
Perceptions about DI		
The conceptualisation of DI	Any instance of reporting a definition or interpretation of DI formulated by the teacher.	"When we assess our possibilities, the interests of our students, the language level of our students, and choose the material, the lesson, the methodology accordingly." (Evelin)
The importance of DI	Any instance of reporting that DI has a pivotal role in the success of English language learning.	"Well, I think it's important to differentiate in every class, precisely because they come with different abilities and interests and backgrounds. So, if we don't want to differentiate, it's all dead. So, we have to differentiate in some way, because I can't expect the same thing from A and B, as they have different abilities." (Szabina)
DI as a challenge	Any instance of reporting that DI is not an easy job for the teacher.	"Well, I try to differentiate, but the truth is that for me it's a bit of a buzzword because it's very difficult to differentiate really well, terribly difficult." (Adrienn)
General DI practices*	Any instance of reporting to implement DI, that is, consciously paying attention to the individual differences of students and tailoring teaching methods accordingly.	"The group is roughly homogeneous, but if there are some students who are a little bit ahead and would be bored in class, I usually prepare differentiated tasks for them, extra tasks." (Otília)

Gamification vs. traditional approaches	Any instance of reporting that traditional grading is outdated and new approaches (e.g., gamification) would be needed.	"Unfortunately, we still have this system, these five digits, it's incredibly insufficient and you can't evaluate a child with these. It's insufficient and a necessary bad for us, and unnecessary stress for the younger age group. Nothing better has been developed yet." (Evelin)
Perceptions about LA		
The conceptualisation of LA*	Any instance of reporting a definition of LA formulated by the teacher.	I think everyone pulls different skills and abilities out of the hat at conception or birth, I always tell them that. […] and there are those on whom the language sticks […] (Szabina)
The importance of LA*	Any instance of reporting that LA has a pivotal or negligible role in the success of English language learning.	"I think it's only important to what level you can master the language because up to a certain level, everybody can... I think… I'm talking about the higher levels here, where language aptitude is indispensable." (Otília)
Limiting beliefs	Any instance of reporting that the students pigeon-hole or label themselves negatively as per their language learning skills or language aptitude.	"there are many, many children who tell themselves every day that 'I don't know this.' and 'I'm not capable to do it'. And because they say it so many times, they believe it, and unfortunately, they don't succeed. So here, the minds should be cleared that everyone is capable of everything." (Hedvig)
Perceptions about explicit–implicit learner dispositions		
Description of profiles	Any instance of reporting the characteristics of explicit and implicit learner profiles.	[…] for some, as we say, language comes from the guts […] they don't invest energy into it, but they achieve the same thing,

		maybe that's where talent comes out. But the other one, the one who does it consciously […] needs to highlight things with the little marker, […] rote learn it and recite it, while the other one doesn't need that […] it's just a matter of disposition and personality. I tend to feel girls are the more conscious ones, and boys have the more visceral feelings […]" (Bettina)
DI based on learning profiles	Any instance of reporting possible DI practices targeted at explicit and implicit learner profiles to tailor teaching methods.	"[…] one approach has to be favoured and the other approach has to be favoured as well. And then maybe there'll be a transition between the two. So that maybe I can motivate someone to like the other one" (Hedvig)

Note. *Not discussed in detail due to space limitations. Larger categories are indicated with italics. The example quotes are sometimes repeated in the main text when discussing the emerging themes these quotes are assigned to.

6.5.1 Perceptions about Differentiated Instruction: Teachers' Interpretations of the Concept

Before asking the teachers about their beliefs and reported practices concerning differentiated instruction (DI), first and foremost, they were asked about their conceptualisations of DI. This was seen as an important first step mainly for two reasons. First, in a previous interview study in the Hungarian context (Zólyomi, 2022a), many teachers expressed uncertainty around the concept of DI, even though they were prepared for DI during their teacher training. Since the participants were all Hungarian English language teachers ($N = 28$), it can be assumed that their

training did not show great differences in the instruction of implementing DI, and thus they had identical or similar conceptualisations of DI. Additionally, in this study, given that the focus is particularly on teachers' beliefs, what the participants themselves considered to belong to DI was examined, instead of expecting interviewees to arrive at a textbook definition of DI. Considering the importance of discussing how the participants recognised and understood DI, this was the first aspect to be examined before going into details.

The teachers of the present study reported very similar conceptualisations of DI. Three teachers emphasised DI based on what Tomlinson (1999) calls *readiness levels*: "For me, differentiation is about teaching students with different abilities in different ways. It would be. But it's not that simple..." (Adrienn), "The most important thing is to match the skills of the learner... maybe that would be... to match the basics, the skills, and organise the work accordingly." (Klára), "giving children separate worksheets or tasks based on their abilities." (Otília). More precisely, Hedvig mentioned paying attention to students who have special educational needs: "we also have pupils who have some kind of learning difficulty, so we have to explain things a little differently to them, assess them differently, they can develop with different tasks", and she also added that "[…] those who need special treatment have their needs taken into account in the classroom as well". Szabina gave an overarching definition that also involved the explicitly mentioning the role of individual differences (IDs): "When we try to adapt the material to the individual needs of the students".

The closest descriptions to Tomlinson's (1999) idea of DI are that of Loránd's and Evelin's. Loránd indicated that each individual has their own rate and route of progress when it comes to language learning: "when we deal with pupils separately based on their own individual pathway to development, we use different tools to help them progress in a different way, at a different pace". Loránd added that focusing on learners severally and independently is also part of DI: "[…] when a pupil has to be dealt with individually, separately from the

group, for other reasons". Evelin, the most experienced teacher, shared a specific aspect that the other teachers did not explicitly mention: "When we assess our possibilities, the interests of our students, the language level of our students, and choose the material, the lesson, the methodology accordingly". Besides readiness levels (i.e., proficiency level of the students), Evelin highlighted focusing on the students' interests, and she also claimed that teachers can implement DI by tailoring the content and the process.

Based on Tomlinson's (2017) framework, teachers can also differentiate based on what learners are interested in. Paying attention to learners' interests may help students become more engaged and increase their focus on the material (Tomlinson & Imbeau, 2010). Theoretically speaking, as Tomlinson et al. (2003) highlighted, being attentive to students' interests contributes to their flow experiences (Csíkszentmihályi et al., 2005) and thus makes them more motivated.

Fortunately, in this sample, none of the teachers expressed that they are uncertain about the conceptualisation of DI unlike in a previous study (Zólyomi, 2022a). However, right at the outset, one teacher, Adrienn, started to explain how difficult it is to implement DI – an aspect which will be discussed in detail as per the challenges attributed to tailoring teaching methods based on learner variance (see section 6.5.3).

6.5.2 Perceptions about Differentiated Instruction: The Importance of DI

The second subcategory identified in connection with the perceptions of DI is the belief related to the importance of applying DI to achieve success in language learning. Every single interviewee was aware of the usefulness of implementing DI and acknowledged that it is important in order to maximise the capacities of each learner, and these findings are in accordance with previous studies (Kótay-Nagy, 2023; Zólyomi, 2022a; Zólyomi, 2023). In this cohort of participants, Bettina, for example, pointed out that DI is imperative as students have to have a sense of achievement: "I think it's important because the child needs to experience

success... if they experience language as a failure... Language is not a subject of general knowledge. It's not like I either learn it or not". Bettina also noted the rate of progress as an important ID factor: "If I don't differentiate, I lose the children who can't progress at a faster pace". Others, like Adrienn, express this similarly: "it's important obviously because some people take longer to understand and practice something, while there are others who have things that come naturally to them". Klára emphasised that the students differ in their knowledge and motivation: "It's very important because children do not come to the groups with the same knowledge and motivation". She also added that "It's a must to differentiate because I teach students with quite mixed skills, backgrounds and basic knowledge". Loránd commented on aspects of DI in qualitative terms in an ideal scenario when the teacher can implement DI "by the book":

Excerpt 1

> It would be important because if real DI could be achieved completely, then we could teach everyone based on their extent of individual development, and then we could help those who need more explanation to be given more explanation, and those who can progress at a faster pace would not be hindered or delayed, and that is why it would be very much needed. (Loránd)

Szabina, from a quantitative perspective, stated that it would be essential to implement DI in every single lesson:

Excerpt 2

> I think it's important to differentiate in every class, precisely because they [students] come with different abilities and interests, and backgrounds. If we don't want to differentiate, it's all dead. So, we have to differentiate in some way because I can't expect the same thing from A and B as they have different abilities. (Szabina)

The same idea was expressed by Tomlinson and Imbeau (2010) when they emphasised the importance of tailoring instruction to achieve growth with full potential for learners: “We cannot require students to make an impossible leap over a chasm in knowledge; nor should we ask them to move backwards in order to stay with the class” (Tomlinson & Imbeau, 2010, p. 36). However, Tomlinson (1999) also noted that – although applying DI is indeed of utmost importance – it is not a requirement for teachers to differentiate in every single classroom. Based on previous studies, DI as opposed to traditional instruction has shown importance in the success of language learning as well as in responding to students’ needs (Lindner et al., 2019; Tomlinson, 1999), and the findings of this study (along with the findings in Kótay-Nagy, 2023; Zólyomi, 2022a) show that teachers are aware of the usefulness of DI.

The teachers also elaborated on the importance of DI regarding an issue that is apparent in today’s generation, namely, their short attention span: “Today's generation, according to my husband, are three-minuteers, which means they can pay attention for three minutes. We really have to change in class very, very, very frequently, use everything, engage all their senses” (Evelin). Otília expressed that this makes teachers’ tasks more difficult: “And maybe that's more the problem nowadays, that they can't concentrate for a long time, and that's what makes it difficult”. Szabina, continuing this line of thought, claimed that implementing DI is inevitable as teachers have to engage students:

Excerpt 3

> So, it is not necessarily always possible to differentiate for their level of knowledge, but it is definitely necessary to develop different skills in a classroom. Especially because they are unable to concentrate on a given task for more than a few minutes, so when I started teaching, tasks could last 10-12 minutes. Nowadays, 3-4 minutes is the very maximum, because they can't focus on more than that at the same time. And then, of

course, these should be changed in such a way that students don't fall into a blackout. (Szabina)

To sum up the contents of this subsection, teachers seem to acknowledge the importance of tailoring instruction to learners' needs and taking their IDs into account. Based on their reports, implementing DI is not negligible; however, it must also be noted that their actual in-class practices may (but of course, not necessarily) differ from this. One major issue concerns the potential social desirability bias (Nederhof, 1985; Dörnyei, 2007) owing to teachers' proclivity to think that it is expected from them to differentiate in the classroom, and thus they might have portrayed themselves in a more positive light. As Beatrix put it well, "many people say that they differentiate one way or another, but let's face it, in reality, very few do". This is also in line with the findings of Santangelo and Tomlinson (2012). Even if teachers perceive DI to be important, they may not be able to implement these practices due to several difficulties – an aspect that is discussed in the upcoming subsection.

6.5.3 Perceptions about Differentiated Instruction: Cha(lle)nges

DI, besides being perceived as important, is also considered to be challenging by the participants. There were two teachers who sincerely expressed that DI means a great frustration for them: "the essence of differentiation, off the record, is the biggest annoyance of teachers" (Loránd). Adrienn shared a similar feeling: "[…] for me it's a bit of a buzzword because it's very difficult to differentiate really well, terribly difficult". The reasons for perceiving DI as a great challenge are manifold. The teachers mainly mentioned the hindrances of having to prepare with loads of additional work, having to deal with large groups, and not having the time to implement DI (neither in terms of the number of lessons per week nor in terms of the duration of one single lesson, which is 45 minutes in Hungarian public education).

A couple of teachers, for example, compared the challenge to apply DI in bigger groups to that of in smaller groups: "obviously it's easier to differentiate in a smaller group, but I also

have a group of twenty people, and it's harder there" (Szabina), "given that a group can be as big as 19-23 people, or if we're lucky, we can have a group of 13-16 people [...] that's the smaller group, so it would be easier to differentiate" (Loránd), "it's difficult, we work with very large groups, so like this, it's quite difficult to differentiate […] my smallest group has 16 and the largest has 20 pupils" (Otília). Hedvig added that this drawback can be attributed to a shortage of workforce: "Now we are also struggling with the problem that, because there are only a few teachers, we work with quite large groups, and it is essential to differentiate in class" (Hedvig). Loránd further elaborated that having to deal with large groups is an issue originating from the lack of flexibility of the school district:

Excerpt 4

> […] unfortunately, this is not supported by the school district in terms of the number of lessons and positions, in terms of people, so there are not enough teachers to implement this, and no matter how many times we ask, practically every year, that we want to continue to divide the groups here, it is not possible. (Loránd)

When I asked one interviewee, Otília, how many students she thinks would be an effective small group to work with, she said 7-8 students would be ideal. The group size issue mentioned by the teachers is in accordance with the results of a relatively recent nationwide survey in the same context (Öveges & Csizér, 2018), which showed that not preferable group sizes in Hungarian public education are still problematic (Illés & Csizér, 2018; Kálmán & Tiboldi, 2018; Tartsayné Németh et al., 2018). According to Tartsayné Németh et al. (2018), 18.5% of the participating heads of institutions said that education in regular secondary schools would be more effective with smaller language groups, while this percentage was 17 for vocational schools. However, the participating teachers said that creating smaller groups would be essential (Illés & Csizér, 2018), which is in accordance with the findings of the present study, namely, that teachers attribute a great role to the size of groups in language teaching efficacy.

Based on a previous study (Zólyomi, 2023), teacher trainees also believe that one of the biggest hindrances to effective DI is having to manage large groups.

Lack of time was another issue besides having to deal with large groups: “To really get all the children to speak, 45 minutes and a group this size seems almost impossible” (Otília), “[…] We are not fully exploiting the potential that we have. You can't do everything in 40 minutes, digital and video, you can't give things in their hands [tactile tasks] as well as move them around neither in primary nor in secondary school” (Evelin). Bettina expressed that there is always a trade-off when having to differentiate in such a short time: “[…] So that's how I try to differentiate. I could do better, but it's not always possible to do it in 45 minutes. Most of the time I have to choose which group to focus on”. She continued describing the problem of having few classes per week: “Time is simply short. We have four lessons a week with them, which is very little. So, in a bilingual classroom, where there are, say, ten or so lessons, it's easier for the colleague to manage. For me, this is causing some problems with four lessons a week”. Loránd shared the same idea: “With very, very few lessons a week, we can’t progress that much, so in two or three lessons per week, when there are school programmes, compulsory events, we can’t progress that much”.

According to the Governmental Decree *[Decree no. 5/2020. (I.31.), 2020]*, the number of language lessons per week in standard instruction in secondary schools can range from three to four, whereas in intensive instruction, this number must be a minimum of five *[Decree no. 20/2012. (VIII.31.), n.d.].* Interestingly, in a recent nationwide study (Tartsayné Németh et al., 2018), the contact hours were not mentioned very frequently by the heads of institutions (only by 4%) that they would add to the efficacy of language instruction in regular secondary schools, and in vocational schools, this was even less, 3.5%. In contrast to this, the participating teachers in the same countrywide study claimed that more contact hours would be pivotal (Illés & Csizér,

2018), which is in line with the findings of the present study, that is, teachers attribute a great role to the number of lessons per week in the effectiveness of language teaching.

Otília further elaborated on how difficult it is to apply DI, particularly for students with high abilities at her school: “There are some children – currently in my group as well – who are at a much higher level now, so I prepare extra tasks for them, they are usually the ones who mean the challenge” (Otília). This is also underpinned by Matheis et al. (2017), who found that (pre-service) teachers display an overall low self-efficacy for teaching gifted learners, and other teachers also mentioned this aspect of challenges within DI in an earlier study (Zólyomi, 2022a).

It is clear from the teachers’ accounts that they would feel even more strained if they had to differentiate all the time. The importance of applying DI in every lesson emerged earlier in Excerpt 2; nevertheless, as highlighted by, for example, Tomlinson (1999), teachers cannot – and should not – focus on learner variance all the time. Adrienn and Loránd gave voice to their beliefs that putting an emphasis on student variance all the time and in every class would mean a lot of extra work for them:

Excerpt 5

A lesson that is really differentiated requires a huge amount of preparation and constant control, and that means that if I have like 24 English lessons a week if I want to prepare for all of them in a way that is perfect in terms of differentiation, I think it's physically impossible. (Adrienn)

Excerpt 6

With the high number of lessons per week, differentiation requires much more preparation time, and I don't think teachers have that time available nowadays. So, differentiated instruction is a very nice goal, but I think that if one teacher is teaching one group at the

> same time in the lessons, then the teacher can only achieve it by a lot of work, which they often do not have the energy for. (Loránd)

As mentioned earlier, teachers may not be fully aware that they are not expected to implement DI in each and every lesson. Although it is debatable whether teachers are required to address all students' needs at the same time (Tomlinson et al., 2003), it is clear that "The teacher does not try to differentiate everything for everyone every day. That's impossible, and it would destroy a sense of wholeness in the class" (Tomlinson, 1999, p. 14). Teachers in Zólyomi's (2022a) and Kótay-Nagy's (2023) studies also expressed that applying DI in every single class would mean an immense amount of additional work for the teachers on top of their already heavy workload.

Regarding the possible challenges of DI, Alshareef et al. (2022) have found that besides lack of support and lack of regular accessibility, lack of time is a major obstacle in implementing DI through the use of technology in the Saudi Arabian context. In an interview study with 28 teachers in the Hungarian context (Zólyomi, 2022a) and an interview study with eight teachers in the same context (Kótay-Nagy, 2023), the findings also pointed to the fact that teachers regard the lack of time as a substantial difficulty. The lack of time for DI issue is intricately connected to the *ethical compass* factor arrived at by Coubergs et al. (2017), meaning whether teachers strictly follow the curriculum without paying due attention to student variation, originally referred to as *quality curriculum* by Tomlinson (2017).

In a relatively recent nationwide study, Öveges and Csizér (2018) collected representative data using teacher questionnaires; based on the beliefs of 1,118 teachers (810 of which are secondary school teachers), the difficulty in implementing DI in the foreign language learning classroom and lack of time are the most important hindrances of effective classroom work. Additionally, based on the teachers' beliefs in Öveges and Csizér's study, the two most important aspects to enhance effectiveness in language teaching are increasing the contact hours

and reducing the number of students within a group, which is in accordance with the beliefs of the teachers of the present study. Although there seem to be numerous obstacles regarding DI, these challenges make teachers (and those involved, other stakeholders) think and brainstorm about possible ways to find effective opportunities that may be long-term solutions to overcome difficulties in DI. One such proposal will be discussed right in the next subsection.

6.5.4 Perceptions about Differentiated Instruction: Gamification Contra Traditional Approaches

Gamification in terms of assessment was an emerging theme from the interviews. More importantly, an aspect receiving scant emphasis in previous studies, namely, using gamification as a wider framework for DI is gaining prominence (Kótay-Nagy, 2023; Zólyomi, 2022a). First, gamification in assessment is discussed, and then the possible applications of gamification in DI are presented. Most of the teachers expressed that they do not favour the traditional five-point grading scale as it is not suitable for effective DI purposes. For example, Szabina told the story of an extraordinarily talented girl who shines in her skills in English, but she is always receiving mediocre grades:

Excerpt 7

> But there's a girl who's terribly talented and communicative and intelligent and creative, and I can talk about her only in superlatives, and she's always receiving grades 3. And now she wants to take the CAE exam, which is brutal in the use of English part. And so far, she's spent three years without learning any English. But she's the most skilled, by the way. So, she's the best in the group, she's going to make it anywhere life drops her from the sky. (Szabina)

In the case of this pupil, it is clear that the grades she receives do not reflect her talent, so traditional five-point scale grading does not seem to be effective based on the teacher's beliefs. The teachers shared some ideas for alternative assessment methods; one idea that was

mentioned by several teachers is gamification. Loránd, for example, said the following about assessment: “There is a need for it, but grading as a form of evaluation, or assessment rather I would say, should be modernised. We have seen many, many examples of this in recent times when gamification was used in assessment”. He continued that he saw many teachers who are trying to use gamification in assessment as well. Based on his account, he is a true believer of the gamification system as he attributes a great role to it when establishing motivation and engagement in students. He contrasts his modern approach of the need to create these internal drives for students to the traditional approaches solely focusing on entering the grades:

Excerpt 8

> We use gamification more for motivation and engagement, but I have noticed that motivation and engagement are not so much included in other subjects, and not so much included in many other English teachers’ lessons. So yes, the right number of grades have to be given, yes, exam grades have to be recorded, but it is less important to develop a good relationship with the language, simply because it means extra work […] it means so much extra work that I might not only praise you for doing well but then come up with all sorts of playful exercises or reward systems that we use, so that the student will like English more, because if I say, okay, I'm going to enter the grade, that’s going to take me X amount of time, but if I write down that you have, say, three stars and two lambs and four trees, then this is what it means, even more time for administration, which is very difficult to do. (Loránd)

Szabina expressed that controversies abound when it comes to traditional grading and alternative methods of assessment. She mainly differentiated three groups of teachers: those who use the very traditional five-point grading without any modern add-ons; those who follow the traditional rules of grading but with a modern element, for example, using percentages instead of grades during the progress of learning; and those who are at the other end of the

continuum and apply gamification. Her stance on the issue is somewhere in the middle; she is convinced that traditional grading is not efficient for DI, but she also admits that she does not have the energy to implement gamification: “I always have a problem with grading because, on this five-point grading scale, one can't differentiate so much”, “[…] a lot of times a 4 is worth more than a 5 because there's more work behind it than [what is done by] a very talented with zero work. So, one can't really differentiate so much like this, and it's very difficult”. In spite of the fact that she considers the traditional five-point grading scale poor practice for implementing DI in assessment and even unfair, she accepted this trade-off:

Excerpt 9

> […] I’m using the traditional five-point grading partly because I just don't have the energy to put more work into it, so I see that it takes a lot of extra resources to gamify, and I just don't have the energy and resources to put that much extra work into it. (Szabina)

Despite the fact that some teachers think that gamification takes a lot of extra effort, the possibility of exploiting its potential keeps repeatedly emerging in studies (Barbarics, 2015; Kótay-Nagy, 2023; Lajtai, 2020; Zólyomi, 2022a). As highlighted in Kótay-Nagy (2023) and Zólyomi (2022a), implementing DI through gamification offers much potential (for an overview, see Kapp, 2012). The role of implicit learning through exposure to gamification is attributed to the prevailing presence of online-and video games in the 21st century. Although a recent study (Alshareef et al., 2022) highlighted the potential of implementing DI through technology, the gamified aspect of DI is relatively novel and has not been covered in recent studies employing quantitative methods (see Gheyssens et al., 2021; Vantieghem et al., 2020) but nonetheless seems to be noteworthy considering today’s rapid technological developments. In fact, teachers in the Hungarian context do seem to have a positive attitude and a flexible mindset towards the use of digital tools, and they are also aware of the role of these devices; however, apparently, due to two main hindrances, that is, lack of equipment and low self-

efficacy beliefs, teachers are not capable of fully exploiting the potential digital tools have to offer (Öveges & Csizér, 2018).

Therefore, along with showing students ways to engage in extramural English, it is important to examine what teachers can do for effective implementation of DI within the walls of the school. Especially because, according to Barbarics (2015), gamification enhances the positive emotions of the students as well compared to traditional grading. Barbarics emphasised that Hungarian secondary schools would benefit from the fine-tuning of DI through the different levels of difficulty that are used in gamification. It must also be noted that implementing game-based elements into language teaching does not equal playing instead of studying (Duchon, 2021). The only hindrance in the way of gamification is that – being relatively new, at least concept-wise – it does not have a universally accepted conceptualisation and a clear-cut model of the framework yet (Fridrich, 2022a, 2022b).

To sum up the answer to the first research question about DI perceptions, it can be stated that the teachers have similar conceptualisations of DI, and these are similar to what is described in Tomlinson's (1999) model. The teachers mainly claim to employ DI based on readiness levels, and all of them are aware of the importance of paying attention to learner variance to maximise the capacities of each individual. However, there are challenges concerning workload, group sizes, and lack of time (both concerning the duration and the number of contact hours). The teachers also expressed their disfavour of traditional five-point grading, and a promising method was proposed, namely, gamification – not only for assessment but to enhance student motivation and engagement as a DI tool.

6.5.5 Perceptions about Language Aptitude: Limiting Beliefs

To answer the second research question, one of the most frequently emerging themes regarding language aptitude was that based on the teachers' reports, students label themselves negatively based on their language aptitude and language learning skills. The teachers gave voice to the

fact that they keep hearing their students negatively labelling themselves, which is very harmful to their language learning progress: “[…] I keep hearing that he can't do it, he doesn’t know it, and he doesn't have the talent, so we struggle with him every day” (Bettina), “I don't think they think it [language aptitude] can be improved. A lot of times I meet kids who write themselves off as not being able to do it, and then they label themselves that they cannot do it” (Otília), “I think they're convinced that ‘oh, I really can't do this, I'm stupid’ and they're labelling themselves, that's the hardest part. This can usually be overcome over two-three years that you can get a student out of that state” (Loránd).

Szabina also shares the belief that getting students out of the state of having limiting beliefs regarding language learning is difficult because these are deeply rooted; she highlighted that primary school experiences weigh a lot in formulating these beliefs:

Excerpt 10

> The problem is that... we get them at the age of 14 or 15, by which time they've had quite a lot of language instruction, and they're sort of labelling themselves. So, we get them with a certain mindset that they have already labelled themselves as this or that. So, there we need a lot of extra individual work and motivation, so that if someone has, say, labelled themselves negatively, then we could get them out of it. (Szabina)

Many teachers drew attention to the danger of this line of thinking or fixed mindset and said that this can create a vicious circle of limiting beliefs and less invested effort in language learning. Specifically, because students have negative lay theories about their language aptitude, they invest less effort in language learning, and because they put less effort into it, they have negative lay theories about their language aptitude (see Excerpts 11–13):

Excerpt 11

> It's a self-fulfilling prophecy, so if I say that I am not capable of doing it, then I won't do anything for it, then I'll sit in class unmotivated, and then the child will spread his hands

and say that they won't be able to do it anyway. So, if the child believes that it [language aptitude] can be developed and they can do it, then they will have a different attitude to learning." (Otília)

Excerpt 12

[…] very often they negatively influence themselves. They say a hundred times a day that "I have no language aptitude" instead of starting to look for things like… and by the way, a lot of kids, let's say on TikTok or wherever, they watch things in English, and they don't even realize that they understand it. So, they pigeonhole themselves, yes, so, "I don't know this". And in fact, they just don't know what they are expected to know in class; like they don't learn the words, they don't pay attention to grammar, and they're getting, say, grade 1 in grammar, so because of these, and it's not language aptitude, it's laziness, I think. (Hedvig)

This can be linked to negative effort beliefs within the language-mindset meaning system as proposed, for example, by Lou and Noels (2019). As highlighted by Lou and Noels, negative effort beliefs are within the fixed-oriented subsystem and exhibit the beliefs that "exertion of effort reflects one's lack of natural talent" or "effort cannot compensate a lack of talent" (p. 4). In the examples mentioned above, based on the teachers' accounts, students displayed the latter aspect of negative effort beliefs. Negative effort beliefs are also rightly expressed by, for example, Sternberg (2002): "I certainly lacked language-aptitude skills. At that point I decided never to take another course in a foreign language. Why bother if I had no talent for it?" (p. 13). In another study, Blackwell et al. (2007) found that the incremental theory of intelligence (the belief that intelligence can be developed) is positively linked to positive effort beliefs ($r = .54$, $p < .01$). This means that those secondary school students who believed that their intelligence is malleable also believed that "effort is the key to improvement and a means to become capable" (Lou & Noels, 2019, p. 4.). As Blackwell et al. (2007) put it,

according to the implicit theories of intelligence, as opposed to those who hold an incremental theory, others hold an entity theory: "the belief in a fixed, uncontrollable intelligence – a 'thing' they have a lot or a little of – orients them toward measuring that ability and giving up or withdrawing effort if the verdict seems negative." (p. 247). In this sense, students holding an entity theory about language aptitude possibly think of this construct as an *ability*, which is unfavourable considering the fact that "the term ability connotes what we sometimes believe to be a more or less fixed and inborn trait" (Tomlinson & Imbeau, 2010, p. 16). When I asked the teachers about the role they attribute to students' incremental theory of their language aptitude, they all agreed that it is key that the students believe that their language aptitude can be developed.

More teachers emphasised that it is not only the students who may have negative opinions on their own skills (lay theories), but their families have a decisive influence on their beliefs as well (Barcelos & Kalaja, 2011). Students' beliefs as to whether other stakeholders believe that the students' ability is malleable theoretically belong to meta-lay theories (Lou & Noels, 2020). Evelin, for example, expressed that students think of their language aptitude as an either-or category (entity theory) due to the beliefs of others (in this case, their parents):

Excerpt 13

> I think the way they see it [language aptitude] is that some people are like that, and some people are not, they accept themselves like that. Which unfortunately is not good – that they accept that they are not like that – because there are a lot of things that can be improved in language learning. A lot of things, a lot. […] and at home, unfortunately, they hear a lot of times that... Many parents come to me and say, "they don't have the talent". "He's not a language talent". A lot of times it's accepted at home, and the child accepts it as well and then they struggle less, then we have to struggle a little bit more with them. (Evelin)

Evelin, besides Otília (Excerpt 11) and Hedvig (Excerpt 12), acknowledges that students who have limiting beliefs of their own skills are highly likely to put less effort into language learning. Loránd further elaborated on the importance of family influence on students' beliefs. He contrasted the impact of limiting beliefs (entity theory) to enabling beliefs (incremental theory):

Excerpt 14

> […] I would say that they [students] build on the stereotypes that society has imposed on them. So, if they hear at home that "oh, my old man didn't do so well in English because I didn't do so well in English either, my dear boy, it's okay if you don't do so well in English", then it really won't be so easy, and it's hard to get them out of this state. If, on the other hand, the student comes from a background of "yes, try it, try it even if it's difficult". With this, you can improve a lot, really. (Loránd)

Loránd also mentioned a case of a student with special educational needs, who had limiting beliefs about their own language learning skills. However, Loránd stated that with invested effort (positive effort beliefs) and with finding the language learning habit suitable for them, they could develop their skills and also leave their limiting beliefs behind:

Excerpt 15

> […] And with a year and a half of diligent work, he was able to improve a grade by conquering the belief that he wasn't stupid, he just needed to look at what he was doing differently and approach it in a different way. And this has to be decided in the mind, first and foremost. So, if the student has some difficulty that hinders progress and they don't decide in their own mind that "yes, it could be anything", then we can't move on until then. (Loránd)

What Loránd highlighted is also present in Lou and Noels's (2019) language-mindset meaning system. When learners interpret attribution within the growth-oriented subsystem,

they tend to believe that they have control over their learning outcomes; therefore, they "interpret success to hard work and failures/mistakes to insufficient effort and motivation" (p. 4). Loránd continued this line of thought and gave voice to the role teachers have in enhancing an enabling belief in students about their own skills. Loránd claimed that teachers can foster an incremental lay theory in their students by, for example, showing that a possible weakness in one area of the language should not be generalised to the whole language learning process:

Excerpt 16

> People who have, say, less developed communication skills, or less developed memorisation skills, or less developed logical skills, they usually say "oh, I don't have that good language skills", and then "that's why I can't learn so easily", whereas if we prove these people that, yes, they need improvement in that area, but they can do much better in the other areas than in that area, they will realise that it's not just about learning words or learning grammar. A lot of people say, "but I can't speak this language", speaking is something everybody can do […]. (Loránd)

Besides negative effort beliefs, Loránd's report can be interpreted along the lines of the so-called *helpless attributions* (Yeager & Dweck, 2020) in students which expresses that those students who attribute their low performance to a self-related fault or obstacle are inclined to label themselves "stupid" in the face of challenging situations. Szabina highlighted that she is always trying to take the opportunity to get exchange students in her classes so that those students who have limiting beliefs of their own language learning abilities (entity theory) are somewhat forced to speak in English to a foreigner, which helps a lot in alleviating their limiting beliefs:

Excerpt 17

> I have students who very often label themselves as not being able to... they're studying in vain, they can't speak, nothing. There they are, and with a foreigner, and they're forced

> to because they can't sit there and smile for 45 minutes because it's totally embarrassing, and so they talk. And then after the class I ask them, "Well, how was it?" and they're like... "Well, we talked for 45 minutes... but Miss, it must have been wrong." I said, "but did he understand what you were saying?" ... "Well, yes...", "Did he answer?... "Yes, he answered". "So then...?", so when they are put in a situation like that, and they are thrown into a situation like that as shock therapy, they realise "oh, right, they don't really sell me for two camels". (Szabina)

Therefore, as shown by the above excerpts, teachers can do much to enhance students' incremental theories about their own language aptitude and language learning skills (Lou & Noels, 2016, 2017, 2020, 2021). Additionally, it must also be emphasised that based on the teachers' beliefs, it is much more important that students believe in the malleability of their language aptitude than whether they "in fact" have a good language aptitude. This lends an additional justification as to why it is more beneficial to explore students' and teachers' beliefs rather than solely measuring students' scores on a language aptitude test. Fortunately, the teachers of this study did not mention that students' language aptitude (or the lack of it thereof) would be one of the main causes of poor results in language teaching (cf. Öveges & Csizér, 2018).

Although this study alone cannot provide an answer to the complex patterns emerging from the cluster analysis of the student questionnaire, it is still worthwhile to consider some important aspects. Based on the results of the cluster analysis (see Table 32), the three groups had lower mean values on the *Perceived language aptitude* scale as compared to the other scales related to lay theories (*Self-perceived success, Self-perceived achievement, and Self-efficacy beliefs*). There were significant differences between the three groups for all four scales, in the pattern of $3 < 1 < 2$, meaning that Group 3, *Incognisant learners* scored the lowest on the scales, followed by Group 1, *Mixed (non-gamer) learners*, and Group 2, *Implicit*

(gamer) learners displayed the most positive lay theories about themselves. Interestingly, while the means show similar values within the groups for the *Self-perceived success, Self-perceived achievement,* and *Self-efficacy beliefs* scales (3.37, 3.49, 3.58 in Group 3; 4.16, 4.20, 4.26 in Group 1; 4.39, 4.40, 4.43 in Group 2, respectively), the means are much lower, all below 4.00 for the *Perceived language aptitude* scale (2.75 in Group 3; 3.51 in Group 1; 3.87 in Group 2). From the findings of the interviews, it can be assumed that the cluster groups scored lower on the language aptitude scale due to the limiting beliefs (entity theories) associated with the construct of language talent. In addition, in parallel with the line of thinking presented by Baudson and Preckel (2013), "Unlike the term *intelligence* with its clearly positive valence, *giftedness* has more ambivalent connotations, thus triggering strong and contradictory associations" (p. 38), it can be stated that, unlike *success*, *achievement*, and *efficacy*, *talent/aptitude/giftedness* have a less positive valence. In relation to valency, the term *good* language learners also has an "evaluative dimension" (Mercer, 2011b, p. 59).

In the following subsections, teachers' perceptions about students' explicit and implicit profiles are discussed. First, teachers' perceptions about explicit and implicit learning profiles are examined and how they describe these dispositions to answer the third research question (see section 6.5.6), which is then followed by teachers' reports on how they can implement DI based on the explicit and implicit learner profiles to answer the fourth research question (see section 6.5.7).

6.5.6 Perceptions about Explicit–Implicit Learner Dispositions: Description of Profiles

In accordance with the tendencies found in the questionnaire study, each participating teacher agreed that there are differences among the students with regard to their explicit and implicit learning habits. The teachers reported that they are aware of these dispositional differences and clearly observed patterns of explicit and implicit learning habits. Additionally, an abundance of associations emerged from the interviews regarding the characteristics of explicit and implicit

learning adding a wealth of keywords to the repertoire of associations presented in Table 21 in section 6.3.

Four teachers overtly highlighted that these differences come from a biographical variable, that is, gender. The teachers themselves were explicitly referring to the binary biographical variable rather than the social construct of gender, so the traditional male/female differences are considered. The way gender correlates to language learning habits, based on the teachers' reports, is that boys typically have implicit language learning habits with a strong inclination of playing video games, while girls tend to have explicit language learning habits typically without playing video games. This is in line with the questionnaire data as the cluster groups are concerned. The crosstabulation and the bar chart depicting these differences are displayed in Appendix M. While there are more boys (54%) in Group 2, *Implicit (gamer) learners*, there are more girls (88%) in Group 1, *Mixed (non-gamer) learners*. Group 3, *Incognisant learners* consists of 80 girls (50%) and 68 (43%) boys – the rest is undisclosed. In addition to this, the results also correspond to the labels Sundqvist and Wikström (2015) described as "studious girls" and "nerdy boys" (p. 74).

Naturally, the complex composition of Group 3 cannot be clearly explained just by looking at the interview data, this is where classroom observations could add more to the understanding of this group depicting either the lack of strong inclinations, lack of dominant beliefs, indecisiveness, or more likely, lack of metacognitive knowledge. Alternatively, this may be the limitation of self-report as self-reflection and introspection might be challenging for secondary school students, and they might not reveal all cognitive processes (Granena, 2016). It may be a good idea for further research to concentrate on less successful students in eliciting this third group in the teachers' accounts since I was focusing on what type of students the teachers consider as successful. However, there are clear tendencies detected in both types of data which point to the existence of students who have a learner profile characterised by highly

implicit language learning habits involving playing video games, and these students are typically boys, and there are learners who exhibit a mixed learner disposition whereby explicit language learning habits are also present, but playing video games is not frequent, and these learners are typically girls. The harmony between the results of the student questionnaire and the findings of the interview study points to the fact that the teachers seem to detect the students' learning habits appropriately (and this lends additional validity to the scales as well).

Remarkably interesting patterns could be observed when the teachers were asked about the students' dispositions regarding their language learning habits. Five teachers clearly claimed that those who employ implicit language learning habits are more successful, which is in accordance with the results of the questionnaire study. Szabina claimed that implicit learners may be more successful in the short term only, while mixing and fine-tuning these learning habits would be the ideal solution. Loránd is also convinced that those who are mixing these processes are the most successful. There was only one teacher who did not report any association between learning habits and being successful in language learning; Hedvig did not witness any instance of either implicit or explicit learners (or the mixture of the two) being more successful than the other. In accordance with success, high language aptitude was also associated most often with implicit learning. The fact that most teachers associated language learning success with implicit learner profiles is compliant with the questionnaire results as this is underpinned by the results of two analyses. First, it can be seen from the high means of *Implicit (gamer) learners* on the scales related to their own skills (lay theories), see Table 32. Second, besides positive self-related lay theories, implicit language use also contributed to a high sense of success, see Table 33. Unlike in a previous study (Zólyomi, 2021a), the effort invested in language learning did not contribute to a high sense of success in language learning, which is also in line with the findings of the interviews as learner profiles are considered.

Concerning students' language learning preferences, Klára, Evelin, and Otília stated that the students they teach clearly prefer implicit learning, Adrienn, Bettina, and Hedvig were convinced of gender-related distributions in this respect, Szabina said that these are highly dependent on the individual. Interestingly, Loránd reported that the students he is teaching prefer explicit to implicit learning, which is puzzling regarding the fact that he is applying gamification not only regarding assessment but also as a DI method, which is highly based on implicit learning techniques. These language learning preferences (affective), however, did not necessarily show the same tendencies as compared to what the students employ (behavioural) and what they consider efficient (cognitive) based on what their teachers said. In fact, there was only one teacher, Evelin, who mentioned that the students prefer one type of learning – which is implicit –, and they do employ this more often and perceive it to be more efficient too, as compared to explicit learning. The other teachers reported that there are different patterns in what the students like, perceive as more efficient, and actually employ. This is also in line with the questionnaire data when the cluster groups were analysed with respect to the remaining scales (see Table 32).

There are some students, however, who tend to mix implicit and explicit learning based on the accounts of eight teachers. Klára, Loránd, and Adrienn stated that there are stages in language learning where either of the two types of language learning are more dominant. The former two teachers said that the first half of the language learning process is characterised by highly implicit language learning approaches, which are then followed by explicit learning, while Adrienn mentioned the opposite; explicit learning takes place first followed by implicit learning, and they all gave examples to support their beliefs. Hedvig claimed that mixing these types of learning is certainly up to the individual, while Otília was convinced that implicit and explicit learning are mutually exclusive:

Excerpt 18

> I say it's rather one or the other. It is a very rare example when the two work together. I don't know why, by the way. Maybe there are some students, I can imagine, there are rule followers who feel safe when it's said, it's written down, really, some of them even ask for it to be written down so that they can see it through, and it helps them in language learning. And those who pick up the language naturally, so to speak, don't require it because they are more creative or flexible in their approach to language learning. The two together are very rare, at least in my groups. (Otília)

Just like Otília in the above example, the teachers described in detail how these explicit and implicit language learning habit differences are manifested in their groups. The teachers reported remarkably similar characteristics of these profiles, namely, students with dominant implicit language learning habits are typically boys, have high language aptitude, put less effort into language learning, their accuracy tends to be lower, they follow their instincts rather than rules, they do not like frameworks, they have willingness to communicate, they have good communicative skills, they have lower foreign language anxiety, they are easy-going, relaxed, and they are language users (language is a tool for them). While students with dominant explicit language learning habits are typically girls, have lower language aptitude, put more effort into language learning, they tend to be more accurate in their grammar, they are following rules rather than relying on their instincts, they like frameworks, they are timid to speak up and are not willing to communicate, they have lower communicative skills, they have higher foreign language anxiety, they are stiff and rigid, and they are language learners rather than users (they do not see language as a tool). To illustrate these differences in terms of the learning profiles, some of the teachers' quotes are displayed in the following paragraphs.

Hedvig, for example, noted that there are two main types of learners (explicit language learning and implicit language learning profiles) depending on their individual differences, and both ways can lead to success. She told the story of a student who did not put much effort into

language learning, and always received grade 3 in English but was always exposed to the language through extramural activities. Based on this description, the student had implicit language learning habits, and Hedvig said that this student was able to complete both the intermediate and the advanced-level final exams in English with exceedingly high scores. Besides this, she gave a description of the characteristics of the two types of learners:

Excerpt 19

> These are exactly the two types […] so, there are the studious learners, and then there are those whom the language sticks on because they are doing things the way it's good for them. And both can be the path to success, and I stress that this is because we're not the same, we're not all the same type. […] so there are the types who are cramming, those who need grammar explained to them because they will know it this way, they will understand it this way, and they will be able to apply it this way if I explain it, and there are those who read all the time, who are constantly exposed to impulses, and don't need to learn grammar because it simply comes. (Hedvig)

Bettina also emphasised that both types of learning can lead to success as students have individual differences and that these depend on students' individual dispositions. She was talking about differences in invested effort as well as gender differences. She clearly connected implicit learning to language aptitude:

Excerpt 20

> The kids are not the same, just as we adults are not the same. Some children are more conscious, and they are called all sorts of words, but it's easier for them to learn that way. And for some, as we say, language comes from the guts […] they don't invest energy into it, but they achieve the same thing, maybe that's where talent comes out. But the other one, the one who does it consciously, are very skilful too and they are very good at it. They just need to highlight things with the little marker, I sit down next to them, they read

it three times, rote learn it, and recite it, while the other one doesn't need that. In terms of results, however, I'm not sure there is a difference. So, I think it's just a matter of disposition and personality. I tend to feel girls are the more conscious ones, and boys have the more visceral feelings […] it's somehow easier for boys. And girls are more studious, I think, they play it safe. The girls are playing it safe. (Bettina)

Szabina, when describing the characteristics of these learning profiles, highlighted accuracy and short-term success differences: "One is more accurate but less daring to speak and express themselves in a certain situation, and the other will obviously be successful in life, but may not have the language exam they need to continue their studies". Klára commented on traits as well as success differences: "they are much more relaxed, they are definitely the better ones at a glance, the relaxed ones", and she mentioned that students who are not relaxed may create a vicious circle: "The others are much more stiff and rigid, and because they're more stiff and rigid, they're much more likely to commit mistakes that otherwise, if they were relaxed, they wouldn't make […]".

Otília further gave examples of these differences in that she mentioned a case of a student who has never studied English before and started studying with her for the first time (NB. I use the gender-neutral pronoun "they" throughout the study unless the gender of the pupils is specifically highlighted by their teachers or if explicitly stating their gender has rhetorical value):

Excerpt 21

I know from what they tell me that they watch a lot of films and they have improved very rapidly compared to others who have studied language before, so I encourage them to do that, to listen as much as possible, or to listen consciously, and that's not for everyone, so some people have to be consciously paying attention to – for example, when they play video games or listen to music – the fact that they can learn a lot from that because some

people don't even notice it, they just realise it. A lot of times it turns out from the conversation that they realise, "oh, I knew that from one of the video games by the way". So, I think that awareness cannot be left out of this, especially based on this example […] those are improving very rapidly, or in a much better way who add this on top of it. And these students may be more prone to laziness in class by the way. […] Most of the time this is the case with lazy students, who are not so pedantic in class, but who can learn the language very easily and skilfully. This is my experience. (Otília)

It is apparent from Otília's account that she regards implicit learning to be very efficient especially when it comes to the rate of progress of the student as compared to their peers (a part of language aptitude). She also pinpointed the importance of noticing, which is in accordance with Schmidt's (2010) Noticing Hypothesis positing that learners should notice the input consciously in order to advance in language learning, even if the encoding process happens implicitly. Adrienn (like Bettina in Excerpt 20) also emphasised gender differences as well as success differences in learning profiles:

Excerpt 22

This sounds like a generalisation, but boys prefer playing video games, watching videos and movies, and then the language sticks on them. There are the hard-working girls, but of course, there are some hard-working boys as well who prefer keeping the dictionary beautifully, writing down the words, writing the Hungarian equivalent next to it, the grammar is discernible, but somehow in the end it's always the bad boys who are more successful. So, they will be the ones using the language more instinctively, and there's no sign of rigidness and overthinking what the good solution is. The other might be totally flawless as well, just rigid. While the boys are bound to make mistakes, not saying it as required, not saying it right, etc. But the end result will be much more enjoyable, I think, for a native speaker as well as compared to the conscious version. (Adrienn)

Many teachers mentioned that students with implicit learning profiles tend to exert less effort into learning the language (as already mentioned in the previous excerpts). This corresponds to the questionnaire data where Group 1, *Mixed (non-gamer) learners* had higher means on the invested effort scale than Group 2, *Implicit (gamer) learners*, see Table 32. Klára underpinned this when it comes to the process of learning and the effort invested in language learning:

Excerpt 23

> […] in terms of the end result, there is often no difference. The terrible thing is that some people who are relaxed can achieve the same or even better results by just about anything, precisely because they have the linguistic audacity [cheekiness, impertinence] needed to speak a foreign language, to be relaxed and not rigid. And those who know that they don't know it and work very hard will always be much more rigid, and on the whole they can reach the same level, but with tremendous work, while the other one can do it in a much more relaxed way, but it's again a question of mental attitude and socialisation, what they brought from home, "My son, you have to study a lot because you know that you come from a poor family, we can give you this to study for it... ", and they will not allow themselves the relaxedness to not study because “it will stick on me”. (Klára)

Besides Klára, Hedvig and Bettina (Excerpts 19 and 20) also mentioned that there may not be a difference in student profiles when it comes to the outcome. Thus, they attached no value or quality difference to these IDs (see Öveges, 2019). Hedvig had a very similar observation to Klára’s regarding gender differences in invested effort in language learning: “boys tend to be the more practical and logical ones, and girls are the more studious ones”. Szabina described learner profiles in the following way regarding invested effort and success:

Excerpt 24

> Some people don't even know the word homework. They don't have a notebook because "what for?". I tell them 86 times in class in vain to underline the word or highlight it or something, but nothing... But they're very good, so I ask them about anything, we can talk, though they've never really sat down to study at home, but they're always watching TV series, playing video games, etc., and it sticks on them, they have friends abroad, so they are using the language. Obviously, they are usually not receiving grade 5, because they are absolutely inaccurate, and they don't sit down to study the core material. And then there are the ones who, well, usually the more timid, not so social students, who go home and underline everything to the minute, highlight, rewrite, do it, that sort of thing. They're usually receiving grade 5 or at least 4, but they don't... So, they're the ones who are more rigid, and they don't use the modern language as much. (Szabina)

Szabina further described dispositional differences highlighting the importance of language use besides language learning: "There are some people who are less social, but they're very capable of hard work […] they like to work, they like frameworks", she continued, "there are the others who don't like frameworks […] they want to use it, but they don't care very much where it is used or not".

What is highlighted by Szabina and other interviewees concerning language use also has empirical support from the questionnaire data as Group 2, *Implicit (gamer) learners* have higher means on the language use scales as compared to Group 1, *Mixed (non-gamer) learners*. In fact, in order to dig deeper into these differences, I computed cluster analysis controlling for the language use scales (for the cluster centroids, the crosstabulations, and the bar chart, see Appendix N). Two cluster groups were formulated controlling for language use, the first displaying no dominant language use, and the second showing high implicit language use. It is apparent from the results that *Implicit (gamer) learners* can be characterised mainly by implicit language use (88%), *Mixed (non-gamer) learners* are also mixed in their language use due to

the tendencies they display (either implicit language use or no dominant language use), while the majority (60%) of those students who are the so-called *Incognisant learners* correspondingly did not show any dominant language use.

As it kept emerging from the interview data, teachers mostly associate high language aptitude with implicit learning profiles. They also showed firm beliefs regarding the behavioural dispositions of these students, which is intricately linked to two hypotheses. Based on teachers' perceptions of gifted students, "The harmony hypothesis suggests that the gifted and talented exhibit superior intellectual abilities and also are more socially competent, more successful, and better at adapting to new circumstances" (Baudson & Preckel, 2013, p. 38), while the disharmony hypothesis posits that the gifted and talented can be characterised by more negative social-emotional personality traits. In this sense, based on the harmony hypothesis, gifted students have high social skills, are generally extroverted, and are generally more successful in everyday life, while gifted students through the lens of the disharmony hypothesis are viewed as learners with maladaptive behaviour, low social skills, and they are generally showing introversion (Baudson & Preckel, 2013; Matheis et al., 2017).

The teacher participants of this study clearly interpret giftedness from the point of view of the harmony hypothesis; they associate implicit learning profiles with natural talent, giftedness, effortless acquisition, and instinctive language use. They clearly state that these learners generally tend to be more successful in all areas of life, have high social skills, and show a tendency to be extroverted. Many teachers linked the biographical variable, gender to learning profiles, and said that students with implicit learning profiles are typically boys. The most negative association linked to students displaying implicit language learning profiles was that they exert less effort in language learning because they are lazy ("bad boys"; see Excerpt 22). This does not necessarily indicate maladaptive behaviour, it only indicates teachers' perceptions of the "troublesome boys" and "compliant girls" stereotypes in general regardless

of achievement (Jones & Myhill, 2004). Interestingly, in contrast to the findings of this study, some previous studies support disharmony theories in teachers' beliefs, moreover, found no impact of students' biographical gender (Baudson & Preckel, 2013).

6.5.7 Perceptions about Explicit–Implicit Learner Dispositions: Differentiated Instruction

Before discussing differentiated instruction (DI) along the lines of explicit and implicit learner dispositions, it must be noted that teachers' general DI practices will not be discussed in detail due to space limitations. Nonetheless, the patterns are very similar to those emerging in Santangelo and Tomlinson's (2012), Kótay-Nagy's (2023), and Zólyomi's (2022a) endeavours. While the present study shares more similarities with the latter two studies (same context: Hungary, same population: secondary school English teachers, the same type of data collection instrument: interview guide), Santangelo and Tomlinson (2012) conducted their study in the North American context with teacher educators at a university and using a questionnaire. Interestingly, despite these differences, the findings of the three previous studies and the present study show great resemblance. Along with these previous pieces of research, the findings of the present study indicate that teachers seem to mostly employ DI based on readiness levels (i.e., proficiency level differences), they somewhat take learners' interests into account, while learner profile variance remains on the periphery, which would otherwise be of pivotal importance to be in focus (Tomlinson et al., 2003). This is exactly why I intended to explore teachers' perceptions as to how they can employ DI based on explicit and implicit learner profiles – if at all.

Since the teachers clearly demonstrated to have realised explicit and implicit dispositional differences (see section 6.5.6), I investigated how the teachers say they can differentiate along these lines. Two teachers (Loránd and Adrienn) said, for example, that they think it is not necessary to employ DI with regard to explicit and implicit learner profiles:

Excerpt 25

I don't think it's a good idea to differentiate along these lines because if you strengthen one more than the other, then you'll be behind in the non-developed areas or less developed areas. The good thing is to combine the two so that all areas are developed, so you don't only strengthen the areas in which the student is good anyway. That's when such lessons come up when the students say "oh, we had such a good conversation in class". Of course, it's very important to have good conversations in class, but if you don't develop certain areas, it will backfire in an exam situation later on. So, I don't think it's a good idea to differentiate groups based on this. (Loránd)

Loránd, besides clearly stating that he is against employing DI as far as explicit and implicit learning profiles are concerned, expressed that it would be better to mix the two types of learning, thus developing all skills in all areas. Adrienn also shared this belief that it is not necessarily important to differentiate along implicit and explicit learning profiles; however, showing learners "the other way to do it" may help them in the learning process:

Excerpt 26

I suppose we could differentiate along these lines. But I'm not sure it's needed. So, I think that it might be better if those who are more of these nerds see that it is possible to go with the other type of learning, or perhaps they can learn things from them, but I also think it's not a bad thing if those who prefer this more relaxed approach, so not this... they see that it makes sense when we learn the grammar […] because native speakers can also commit mistakes as we don't speak Hungarian perfectly either, and obviously native speakers don't speak English perfectly either. This is one side of it. The other is that whichever way you look at it, we have to prepare people for exams, so very often we are talking about topics which they would never in a million years watch on film or in any other way. […] So, in some cases it might be better if they are there, and we talk about it, and they write down the words and learn them, etc. Well, we can differentiate in this or

differentiate along these lines, but I think life will sort it out on its own, so when they go home, they will take part in this differentiated instruction in the fleeting 4-5 hours they spend playing on the computer with their friends. (Adrienn)

Adrienn highlighted the role of extramural activities and playing video games, which, as she put it, are great tools that differentiate by themselves. Hedvig said that she would tailor the structure of the lesson so as to match the needs of both explicit and implicit learners: "[…] one approach has to be favoured and the other approach has to be favoured as well. And then maybe there'll be a transition between the two. So that maybe I can motivate someone to like the other one". Szabina also claimed that mixing these two learner profiles would be ideal; however, she expressed that this means a great challenge for the teacher:

Excerpt 27

It takes a very big investment of effort to fine-tune both ends. So, as I said, you have to motivate in a different way, you have to steer it in a different direction. And let's say they are in the same group, with different motivations and attitudes, then it's a bit difficult because then you have to drive them in different directions. (Szabina)

Klára also emphasised that it would be imperative to fine-tune both "extremes". In accordance with Szabina, she added that employing DI along these lines posits a challenge for the teacher. In Klára's account, low self-efficacy beliefs also appeared as she expressed uncertainty on how she can differentiate:

Excerpt 28

This is a rather philosophical question. I have no idea. The problem is that it should start earlier. So, it's terribly difficult... with inhibition and uninhibitedness it's very difficult. I'm sure it can be done, but I have no idea, I don't know. […] I try to encourage those who are timid a little bit, "It's okay if it's not flawless, just say it, tell the other one", and I always comment to the other that "little brother, get down on the floor, because you're

> still…" that's the only way for me at the moment, but I think that's not enough... So, just because I tell them in four lessons a week, "it's OK, you're good, just say it, let the word come out", this won't make them open. Because that's not going to make them drop their inhibitions as they are not only inhibited in language class but everywhere else. (Klára)

Low self-efficacy beliefs regarding implementing DI also appeared internationally in Matheis et al. (2017) and in the Hungarian context in Kótay-Nagy's (2023) and in Zólyomi's (2022a) studies. As mentioned earlier, Szabina shared the same belief, namely, that the teachers' task to adjust the two types of learning is not an easy job:

> Excerpt 29
>
> The difficulty is that we have to work towards some kind of output, so we have to produce some kind of exam at the end, and with those who are very talented and very communicative, they are not... so it's difficult to get them to be purposeful for the exam and to sit down for these fine-tunings, and it's also difficult to get the other side to see that we are basically learning the language for life, not for an exam. And there you have to learn the language from the other direction, so that you learn the language because we will need it later in your job and we will be travelling, then we have to communicate. So, it is precisely the other side that needs to be strengthened. (Szabina)

Again, just like in the previous section, language talent (or language aptitude) is associated with implicit learning and being highly communicative along the lines of the harmony hypothesis (Baudson & Preckel, 2013). However, those students who have implicit learning profiles are lazy and thus do not acknowledge the importance of certain requirements. The same is highlighted by another teacher, Otília: "those who prefer the unconscious way […] there are some who have aptitude, and I often hear from them that they don't know why, but it sounds good, and then they circle it […] so they have an aptitude for it". She added that teachers should pay attention to students who prefer the unconscious type of learning as they have to be

prepared for being more accurate in their grammar. She mentioned the importance of noticing (Schmidt, 2010) again which she finds indispensable so that the input becomes intake for students with implicit learner profiles. While those conscious language learners who are uncertain, they need confidence and encouragement through extramural activities. Consequently, along with the other teachers, she is also convinced that mixing the two types would be ideal: “if they can connect the two, then they can make even more progress in language learning”.

The good communicative skills associated with implicit learners and the grammatical accuracy associated with explicit learners also emerged in Adrienn’s interview: “The boys who play games regularly, and their communication skills, for example, don't need to be developed so much, given that they talk a lot of English anyway […] it's grammar where they need a bit of precision”, she continued, “because obviously this everyday talk is not quite the same as what English grammar requires […], but there are girls who don't play games, and they hardly dare to speak”. She added that she can imagine two ways to implement DI concerning implicit and explicit learner profiles. First, with the possibility to give gaming-related tasks to implicit learners. Second, in the forms of flexible grouping, either by creating homogeneous or heterogeneous groups according to their learner profiles. Previous studies show mixed results of grouping methods; for example, according to Scrivener (2011), heterogeneous grouping is more efficient, while Öveges (2018b) showed that the teachers participating in a nationwide study are convinced that homogeneous grouping is better. Based on the beliefs of the participants in this study, homogeneous grouping is to be preferred, whereas Coubergs et al. (2017), Vantieghem et al. (2020), and Zólyomi (2022a) call for flexible grouping through Tomlinson’s (2017) framework, that is, creating homogeneous and heterogeneous groups adaptively based on students’ readiness, interests, and learner profiles.

To round up the perceptions of teachers related to DI based on explicit and implicit profiles, Loránd gave a good summary of what all of the teachers expressed:

Excerpt 30

Actually, if you combine the two, you'll have much better knowledge. That's why it's important to know what both methods include, so that if they use both, they're also improving the area where they're weaker and less good, and that's why they'll reach a higher level than if they only followed one of the conscious or unconscious methods because they might talk better with the unconscious one but less good with the conscious one. (Loránd)

6.6 Summary of the Synthesis of the Two Types of Data

To answer the fifth research question as to how Hungarian secondary school English teachers' and students' beliefs regarding language aptitude and explicit–implicit learning can be linked based on the two types of data, the interview study helped greatly in digging deeper into the investigated phenomena. Based on the synthesis of the two types of data, firstly, the cluster groups had relatively low scores (lower than 4.00) on the *Perceived language aptitude* scale supposedly due to limiting beliefs centred around talent (in contrast to other lay theories like *Self-efficacy beliefs, Self-perceived success,* and *Self-perceived achievement*) and the ambivalent connotations associated with this construct (Baudson & Preckel, 2013). Secondly, implicit and explicit language learning habits-related differences do seem to exist, so focusing on these is not at all negligible in the foreign language learning classroom. Gender-related differences are also salient when it comes to explicit and implicit learning profiles, specifically, boys who are gamers tend to have mainly implicit language learning habits, they seem to be more successful, they have high language aptitude, they have good communicative skills, are open and generally extroverted, though their accuracy tends to be lower, and they are rather lazy. Compared to this, girls tend to be much more conscious language learners, are not gamers,

they are stiff and rigid, which is why they usually make more mistakes as compared to their counterparts, and they do not have good communicative skills as they have a low willingness to communicate. They are usually more introverted; however, their accuracy tends to be higher, and they are diligent. Adapting Sundqvist and Wikström's (2015) nomenclature, the former type of learners can be characterized as the "nerdy boys" and the latter as the "studious girls" (p. 74).

The complex composition of the group which does not seem to have dominant language learning habits and does not seem to be cognisant of their language learning habits could not be discovered fully with the interviews, so classroom observations would be needed to answer the puzzling questions related to this group. Implicit language learning is associated most frequently with language learning success, as well as language aptitude based on the two types of data, which points to the importance of this approach. The effort invested in language learning was not considered as a main factor contributing to success in language learning, supposedly because implicit language learners use the language instinctively and effortlessly. The two types of data also showed that there are affective-behavioural-cognitive differences as per explicit and implicit learning, which means that the learners show variance regarding these dimensions. Language use also tended to correspond to learner profiles, meaning that implicit language learners can be characterised by implicit language use, and mixed language learners are also mixed in their use of the language.

7 Overall Summary of the Findings of the Dissertation Study

A comprehensive summary of the most fundamental findings along with the proposed main research questions can be found in Table 41 on the last page of the Appendices. The main aim of this research endeavour was to analyse Hungarian English language learners' and teachers' beliefs about language aptitude and explicit and implicit learning. To this end, the study

employed an exploratory sequential mixed-methods design subdivided into three main parts: a pilot study and a main study involving the analysis of student questionnaire data (n = 51 and n = 688, respectively), and an interview study subsuming the analysis of emerging themes in the teacher interviews (n = 8).

The aims of the pilot study were to validate the use of a questionnaire for the secondary school student population encompassing lay theories about language aptitude, explicit and implicit learning, and intricately linked constructs by examining the factor structure of the questionnaire and the reliability of the scales. The pilot study also aimed to investigate the characteristics of the selected cohort of students regarding perceived language aptitude and explicit–implicit learning and to examine the associations between the finalised scales. The main study aimed to check the measurement theories formulated in the pilot study, to analyse learner profiles with respect to explicit and implicit learning habits, and to investigate what contributes to students' high self-perceived success in language learning. The aims of the interview study were to explore teachers' perceptions regarding differentiated instruction (DI), language aptitude, explicit–implicit learner profiles, and how they can employ DI based on learners' explicit and implicit learner profiles – if at all. Finally, to synthesise the findings of the whole study, the aim was to check whether the findings are consistent or if there is a great discrepancy between the results of the student questionnaire and the teacher interviews.

In the pilot study, the underlying dimensions of a questionnaire that is intended to measure students' beliefs regarding the constructs in question were piloted and validated for the secondary school student population. The exploratory factor analysis indicated the existence of 22 scales of which 17 proved to be reliable, and the factors related to mindsets appeared to be more complex. The pilot study participants can generally be characterised by having positive lay theories regarding their skills (high perceived success, high-achievers, high self-efficacy beliefs) despite the fact that most of them did not have a language exam in English at the time

of the data collection. This might mean that the selected secondary school students believe that being successful and high-achieving does not necessarily equal having a language exam. Their perceived language aptitude is lower as compared to the other scales related to their lay theories. Generally, they do not exert a remarkably high effort into language learning, and they do not seem to have either a fixed mindset or a preference towards explicit learning. The students show the highest standard deviations in terms of their reported language learning habits. The interrelationships between the scales showed that *Self-perceived success, Implicit language use: instinctive oral output,* and *Perceived language aptitude* tend to have the strongest correlations. This circular relationship between two lay theories and one reported behavioural dimension points to the importance of implicit processes as well as language use. The results of the pilot study informed the main study and highly contributed to the development of the instrument.

In the main study, the confirmatory factor analysis showed that out of the 22 scales, 20 scales seemed to align with the a-priori hypothesised factor structure in the pilot study. The rigorous development of the instrument was beneficial in creating a high-quality instrument. The mindset scales have shown an underlying complexity which can be explained either by their multicomponential and overlapping nature (Dweck, 2006), their mixture (Lou & Noels, 2021), or their lack of skills-based domain specificity.

The language learning habits scales showed the largest standard deviations, and based on this, three groups could be detected that are different in their learner profiles: *Mixed (non-gamer) learners*, *Implicit (gamer) learners*, and *Incognisant learners*. The single-system approach to explicit–implicit learning (Granena & Yilmaz, 2019) received support by the tendency of not having either-or categories (*polarity fallacy*; Reber, 1993). Based on the ANOVA and the post-hoc analyses, there are significant intergroup differences in most of the scales, the most important being that *Implicit (gamer) learners* have the most positive lay

theories about their skills; however, all three groups display a relatively low mean on the *Perceived language aptitude* scale.

The two groups who regard themselves as rather successful seem to have implicit language learning preferences, and they also think that implicit learning is more effective. However, members of the *Implicit (gamer) learners* group do not exert that much effort into learning the English language as compared to members of the *Mixed (non-gamer) learners* group. As *Mixed (non-gamer) learners* have the highest means on *Effort* as well as the *Perceived malleability of language aptitude*, it can be assumed that they have positive effort beliefs (Lou & Noels, 2019). The group which showed a lack of metacognitive awareness of their own language learning processes (*Incognisant learners*) may be confused and may lack metacognitive knowledge either because they are struggling to verbalise or find their optimal learning habit or, alternatively, they have a third approach not measured by the scales. The third and most possible reason for the appearance of this group might be that they believe that explicit language learning would be needed, but they did not achieve success with this type of learning. In upcoming studies, it would be advisable to investigate teachers' beliefs of unsuccessful students to be able to get a fuller understanding. From this analysis, it also turned out that implicit learning with the help of playing video games seems to be important as it showed a completely different pattern as compared to the other scales.

Based on the results of the regression analysis, five scales contribute to students' high *Self-perceived success*; three scales related to lay theories (*Self-perceived achievement, Perceived language aptitude, Self-efficacy beliefs*), the *Perceived importance of language aptitude: rate of progress as compared to peers* (albeit negatively), and most importantly, *Implicit language use: instinctive oral output*. This again points to the importance of using the language instinctively. Since the importance of language use keeps emerging from the results

of the dissertation, it can be concluded that there may have been a shift of focus from exam-oriented to language use-oriented attitudes.

In the interview study, regarding the perceptions of DI; fortunately, the teachers demonstrated remarkably similar conceptualisations of DI, which were corresponding to Tomlinson's (1999) model. While more of them mentioned readiness levels (i.e., DI based on proficiency level differences), some of them mentioned DI based on interests. All of the teachers agreed that DI is important in order to maximise the capacities of each learner. Unfortunately, the teachers mentioned three main hindrances which make DI challenging for them, these being additional workload, group size, and lack of time with respect to the length as well as the number of contact hours per week. However, the teachers may not be aware that they are not expected to implement DI in every classroom (Tomlinson, 1999). Besides this, most of the teachers claimed that the traditional five-point grading scale is outdated; moreover, it makes DI harder to be employed. Gamification, as a way of assessment as well as a way to motivate and keep students engaged emerged from the interviews, which has great potential as a DI tool, especially because admittedly, the teachers mainly employ DI based on readiness levels; consequently, learner profile variance remains on the periphery of attention.

The most frequently emerging theme concerning the perceptions about language aptitude was that students label themselves negatively in terms of that, which is detrimental to their language learning progress. Many of them highlighted that students are likely to fall into a vicious circle of low perceived language aptitude and low invested effort due to their limiting beliefs, in other words, their entity theories (i.e., their skills cannot be developed). However, with enabling beliefs, in other words, incremental theories (i.e., the beliefs that skills can be developed) and positive effort beliefs, students can overcome these obstacles. Based on their descriptions, they generally detected learner profiles based on explicit and implicit learning. Many of them pointed out the existence of those students who employ mainly implicit learning

habits and those who employ mainly explicit learning habits, and some of them also observed the mixture of these habits in learners. Most of the teachers associated success with students employing highly implicit learning habits, who are typically boys, gamers, and language users. Teachers associating high language proficiency with those students who play video games is in accordance with previous studies (Lajtai, 2020). With respect to DI based on these learner profiles, the teachers emphasised the importance of mixing the two approaches to learning in order to fine-tune all areas of skills.

Finally, during the synthesis of the results of the questionnaire and the findings of the interview, it can be claimed that similarities rather than discrepancies were detected. With the help of the interviews, the possible explanation as to why the three cluster groups showed lower means on the *Perceived language aptitude* scale as compared to other scales related to lay theories was revealed. Supposedly, the students generally do not really believe that they have high language aptitude due to their limiting beliefs (entity lay and meta-lay theories) concerning the construct, which, otherwise has rather ambivalent connotations and thus shows less valence (Baudson & Preckel, 2013).

It was also apparent from the two types of data that language learner profile variance based on explicit and implicit learning exists; therefore, students can be categorised according to these habits. Gender differences regarding explicit and implicit learning were also detected by the interviewees, which was underpinned by the questionnaire data. In this sense, boys mostly employ implicit language learning habits, are gamers, are highly effortless, and focus on language use, while girls mostly employ explicit language learning habits, are not playing video games, are effortful, and focus on accuracy and form rather than the instinctive use of the language. Implicit learning was associated with having a high language aptitude and being a successful language learner based on learners' as well as teachers' beliefs, which corresponds to the harmony hypothesis (Baudson & Preckel, 2013). From this, it seems to be more

straightforward as to why intended effort did not appear to be influencing self-perceived success to a high extent as success was associated with implicit learners (effortless, instinctive use of the language). Based on the synthesis of the two data, there are individual differences concerning what the students prefer (affective), what they believe to be more efficient (cognitive), and what they tend to employ as a language learning habit (behavioural). The language use of the students also corresponds to their language learning profiles based on the two types of data, namely, those who have mainly implicit language learning habits also have mostly implicit language use, while students with mixed language learning habits are also mixed in their language use.

8 Conclusions and Pedagogical Implications

In this section, the importance and the novelty of the outcomes in the field of applied linguistics and language pedagogy are highlighted, which is then followed by a couple of limitations and suggestions for further research. With the results of this study, I intend to inform fellow researchers, practising teachers, and teacher trainers as well as teacher trainees since I would like to make recommendations for improving teacher training. Furthermore, and most important of all, with the results of the present mixed-methods study, I hope that I can provide recommendations for learner training thus developing the teaching of foreign languages. First, as large standard deviations exist between students in their explicit and implicit learning habits based on the questionnaire data as well as based on the beliefs of the teachers, it can be concluded that language learning habits, as formulated in this study is a novel individual difference construct that was not addressed like this before.

The findings indicate that explicit–implicit learner profiles do exist; consequently, it is worthwhile to examine these dispositional differences. This is a clarion call for teachers to consider implementing DI based on learner profiles besides readiness levels and interests, especially because paying attention to learner profiles is scarcely in the focus when it comes to

DI. It would be imperative to administer diagnostic tests to understand how learners may benefit from different kinds of instructions. Gender differences being a tendency when it comes to explicit–implicit learning profiles are worth paying attention to; however, showing the other possible learning habits to the students may enhance their efficacy of language learning. Mindsets related to language learning are elusive constructs that needs to be further specified so that researchers can grasp the complexity behind this. Based on the data, teachers can do much to enhance incremental theories in students to avoid having hardly malleable limiting beliefs (entity theory), which hinders the learning process; therefore, teachers are advised to encourage students through their positive meta-lay theories.

Interestingly, based on the learners' and teachers' beliefs, high effort does not necessarily contribute to success, or at least, that is not the most important factor. Consequently, in the minds of learners and teachers, it is not motivation that leads to success but implicit language learning and implicit language use (besides avoiding limiting beliefs posed by language aptitude). Playing video games as a form of implicit language learning habit also turned out to be important; therefore, the findings of this study point to the need of a methodological renewal. First of all, it is of key importance to think of language aptitude (for learners and teachers alike) through the lens of incremental theory. Secondly, it is recommended that teachers implement DI flexibly rather than trying to squeeze it into every single class. Thirdly, more emphasis should be put on language use besides language learning. As language aptitude was associated with implicit language learning habits, it would be worthwhile to design more language aptitude tests focused on this approach since most of them rely heavily on explicit processes. Lastly, this study also points to the importance of methodological renewal concerning assessment and motivational systems (traditional five-point grading scale vs. gamification). Gamification would serve as the impetus for incorporating implicit learning in the classroom as well, so it would be worthwhile to exploit its potential as a DI tool. The

problem of implementing DI while giving standardised tests is also highlighted by Blum (2020) and Geary (2021); therefore, in order to avoid following deficit models, they advise following ungrading instead of grading. Therefore, gamification seems to be a promising tool not only in assessment but overall in DI.

This study has a number of limitations that should be addressed. The first limitation might concern generalisability; although questionnaire data was obtained from a large sample, the results cannot be generalised since this only applies to the Hungarian context, and the results are not representative of the populations in all contexts. To this end, further research is needed whether these results hold in different contexts with students and teachers from different backgrounds. Additionally, as it is also highlighted by Granena (2016), not all cognitive processes might be revealed with the use of self-reports due to the fact that self-reflection and introspection might be challenging for individuals (especially for secondary school students). Besides the known drawbacks of self-report data, it must also be highlighted that a questionnaire involving 105 statements and eight additional biographical questions might have been exhausting and overwhelming for the students.

This study would have benefitted from employing the fresh method of exploratory structural equation modelling (Alamer & Marsh, 2022), which converges the advantages of both exploratory and confirmatory factor analyses. The reason I did not opt for this method is that it does not work best with complex models, and I think I can safely say that my models are rather complex. Besides this, there are likely to be possible mismatches between beliefs and actual in-class practices and behaviour (Basturkmen, 2012; Phipps & Borg, 2009). This is an aspect that could not be mitigated considering the scope of the present study; however, during the interviews, questions referring to teachers' classroom practices including probe questions were asked thus allowing room for reporting actual practices. Undoubtedly, classroom observations would add more to our understanding of whether reported practices are akin to

actual practices and in-class behaviour; nevertheless, by exploring learners' and teachers' beliefs, this study has gained an emic perspective of the investigated phenomena (Kalaja et al., 2015).

Another issue is the potential social desirability bias (Nederhof, 1985; Dörnyei, 2007) which may have arisen due to teachers' beliefs that it is required from them to differentiate in the classroom. Teachers might report behaviour to differentiate when they actually do not intend to differentiate in real life. Apart from asking them to answer honestly, asking more questions that might elicit different behaviours may alleviate social desirability bias to a certain extent. I tried to ask probe questions in addition to examples of reported behaviour in order to shed more light on their teaching philosophies and practices.

To mitigate at least some of the limitations posed by this study, it would be advisable to embark on developing a short version of the scales in upcoming studies. After this, the questionnaire can be efficiently administered in different contexts to see whether the results hold with participants of different language learning backgrounds. Classroom observations would not only be beneficial to check for belief-behaviour discrepancies but to explore whether a third type of language learning habit exists that the teachers could not verbalise and that I failed to measure. In addition to this, conducting further interviews with secondary school teachers of English would be beneficial as the sample size in this study was rather small (N = 8). To see whether students' and teachers' beliefs change over time (Borg, 2017; Kalaja & Barcelos, 2003), a longitudinal design encompassing the Complex Dynamic Systems Theory framework (CDST; Lowie & Verspoor, 2007) would be recommended.

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Appendix A

The English Translation of the Language Aptitude Beliefs Survey (LABS)

Platform: https://online-kerdoiv.com

Exploring learner beliefs on language aptitude

Dear language learner! Thank you for completing this questionnaire and thus helping me in the present study within the New National Excellence Programme (ÚNKP). I am Anna Zólyomi, I am working and studying at the Department of English Applied Linguistics at ELTE, and in this research, I would like to study your beliefs about language learning. The questionnaire will be analysed for research purposes only and the data will be analysed in a holistic manner. Filling in the questionnaire is on a voluntary basis and anonymous. I am interested in your personal opinion during the questionnaire, so there are no "right" and "wrong" answers. It takes approximately 10 minutes to fill in this questionnaire.

Zólyomi Anna

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First of all, I would like to ask a few questions about your opinion on language learning. Please think carefully about your answers before moving on to the next question as you cannot cancel.

Please choose the definition that you think best defines the concept of language talent from the definitions below (if you cannot choose only one, you can select more definitions).

Language talent…

a) …does not exist.

b) …determines whether someone is able to learn a foreign language.
c) …is not talent specifically but rather referring to the speed of learning.
d) …is an inner drive to learn more about the language.
e) …means that for someone, acquiring a language does not mean any particular effort or obstacle.
f) …is what language aptitude tests measure.
g) …is an innate skill, so it is not possible to change it.
h) …determines how intelligent someone is.
i) …means that some can achieve similar results with less effort than others who invest more effort.
j) …denotes a talent that divides our society into students with good language skills and students with less good language skills.
k) …facilitates the language learning processes.
l) …means that the language learner can learn foreign languages easily and quickly.

Several things can influence language talent, and in my research, I attempt to get an answer to how Hungarian language learners view language talent; that is, based on their beliefs, what factors may determine students' language talent.

Please indicate on a scale from 1 to 5 (1 – not at all true, 5 – completely true) how much you agree with the following statements and how you think the following factors are related to language talent. Please think carefully about your answers before you move on to the next question as you cannot cancel.

	not at all true	not really true	partly true, partly not	mostly true	completely true
1. I think language talent is important in the success of language learning.	**1**	**2**	**3**	**4**	**5**
2. I think I have good language talent.	**1**	**2**	**3**	**4**	**5**
3. I think that the majority of Hungarian language learners have good language talent.	**1**	**2**	**3**	**4**	**5**
4. I think that the majority of Hungarian language learners are mostly successful in language learning.	**1**	**2**	**3**	**4**	**5**
5. I think the low level of language talent is used as an excuse by a lot of people in language learning.	**1**	**2**	**3**	**4**	**5**
6. I think language talent can be developed.	**1**	**2**	**3**	**4**	**5**
7. I think everyone has language talent to some extent.	**1**	**2**	**3**	**4**	**5**
8. I think there is a gene responsible for language talent.	**1**	**2**	**3**	**4**	**5**
9. I think it depends on the specific language how much talent the learner has for it.	**1**	**2**	**3**	**4**	**5**
10. I think that language learners react differently to teaching methods depending on their language talent.	**1**	**2**	**3**	**4**	**5**
11. I think the extent to which a language learner takes risks in language learning is important in language talent.	**1**	**2**	**3**	**4**	**5**
12. I think that it is important for language talent how well a language learner can step out of their comfort zone.	**1**	**2**	**3**	**4**	**5**

	not at all true	not really true	partly true, partly not	mostly true	completely true
13. I think that it is important for language talent how much a learner avoids uncertain situations in language learning.	**1**	**2**	**3**	**4**	**5**
14. I think that it is important for language talent how well a language learner can withstand possible failures.	**1**	**2**	**3**	**4**	**5**
15. I think there is a gender difference in terms of language talent, so boys and girls have different language talents.	**1**	**2**	**3**	**4**	**5**
16. I think that language talent depends on age, so there is a difference between the language talent of younger and older people.	**1**	**2**	**3**	**4**	**5**
17. I think language talent depends on how intelligent a language learner is.	**1**	**2**	**3**	**4**	**5**
18. I think that language talent depends on the learning experience a language learner has gained.	**1**	**2**	**3**	**4**	**5**
19. I think that language talent depends on the emotions the learner had in connection with language learning.	**1**	**2**	**3**	**4**	**5**
20. I think language talent depends on how much a language learner enjoys language learning.	**1**	**2**	**3**	**4**	**5**

	not at all true	not really true	partly true, partly not	mostly true	completely true
21. I think language talent depends on how much the language learner is anxious to speak in a foreign language.	**1**	**2**	**3**	**4**	**5**
22. I think language talent depends on how much a language learner feels an inner urge to learn a particular language.	**1**	**2**	**3**	**4**	**5**
23. I think success depends on language talent.	**1**	**2**	**3**	**4**	**5**
24. I think language talent depends on how much effort a language learner puts into language learning.	**1**	**2**	**3**	**4**	**5**
25. I think language talent depends on what the language learner's mother tongue is.	**1**	**2**	**3**	**4**	**5**
26. I think language talent depends on which of the language learner's hemispheres is dominant.	**1**	**2**	**3**	**4**	**5**
27. I think girls have better language talent than boys.	**1**	**2**	**3**	**4**	**5**
28. I think language talent depends on how language learners relate to the language they are learning.	**1**	**2**	**3**	**4**	**5**
29. I think intelligence depends on what language talent a language learner has.	**1**	**2**	**3**	**4**	**5**
30. I think children have better language talent than older people.	**1**	**2**	**3**	**4**	**5**
31. I think language talent depends on family background.	**1**	**2**	**3**	**4**	**5**

	not at all true	not really true	partly true, partly not	mostly true	completely true
32. I think language talent depends on how successful a language learner is in language learning.	**1**	**2**	**3**	**4**	**5**
33. I think language talent depends on how easily the language learner can memorise information.	**1**	**2**	**3**	**4**	**5**
34. I think language talent depends on the language learner's ability to handle novelties in language learning.	**1**	**2**	**3**	**4**	**5**
35. I think language talent depends on the language learner's ability to adapt to new situations in language learning.	**1**	**2**	**3**	**4**	**5**
36. I think language talent depends on the personality of the language learner.	**1**	**2**	**3**	**4**	**5**
37. I think the language learner's language talent depends on how well they can distinguish unknown sounds.	**1**	**2**	**3**	**4**	**5**
38. I think language talent depends on whether the language learner recognises what part words play in a given sentence (subject, predicate, etc.)	**1**	**2**	**3**	**4**	**5**
39. I think language talent depends on the extent to which a language learner can independently discover regularities in a given language.	**1**	**2**	**3**	**4**	**5**

	not at all true	not really true	partly true, partly not	mostly true	completely true
40. I think language talent depends on how easily a language learner can learn new words.	**1**	**2**	**3**	**4**	**5**
41. I think language talent depends on the learning method used by the language learner to learn a particular language.	**1**	**2**	**3**	**4**	**5**
42. I think language talent depends on how much a language learner can focus their attention on a particular thing.	**1**	**2**	**3**	**4**	**5**
43. I think the extent of language talent depends on the particular situation, for example, it may differ in different teaching methods.	**1**	**2**	**3**	**4**	**5**
44. I think the extent of language talent may be different in different tasks.	**1**	**2**	**3**	**4**	**5**
45. I think language talent depends on what kind of feedback a language learner receives from the teacher.	**1**	**2**	**3**	**4**	**5**
46. I think language talent depends on how consciously a language learner learns.	**1**	**2**	**3**	**4**	**5**
47. I think that language talent is not based on knowledge of facts but on the fact that a language learner knows how to do certain tasks.	**1**	**2**	**3**	**4**	**5**

Due to the sample description, I would like to ask the following questions:

1. Please indicate your gender.
   a) male
   b) female
2. How old are you?

   _____

3. How old were you when you started studying foreign languages?

   _____

4. What level of language exam do you have?

   (Please, if you have more than one language exam, mark the highest level of it; for example, if you have both B2 and C1, choose C1.)

   1. I do not have a language exam
   2. A1-A2
   3. B1-B2
   4. C1-C2
   5. I have language exams in more than one language

5. Where do you study foreign languages nowadays?
   1. at home alone/with a private teacher
   2. in language school
   3. in primary school
   4. in secondary school (vocational school, technical school, high school)

5. in college/university
6. other

6. What language learner do you consider yourself?
    1. I do not consider myself to be successful at all
    2. I am not really successful
    3. I am successful in some things but not successful in others
    4. I rather consider myself successful
    5. I consider myself completely successful

7. How often do you use your first language?
    1. yearly
    2. less than monthly
    3. a couple of times a month
    4. more times a week
    5. almost every day or every day

If you would like to participate voluntarily in further research on similar topics, then please, provide your email address (optional): _____

The questionnaire is over.

Please click the SUBMIT button to finalise and send in your answers. Thank you so much for helping my work with filling out this questionnaire.

Appendix B

The English Translation of the Explicit–implicit Language Learning Habits Survey (EXIS)

Platform: Google Forms

Questionnaire on learning habits

Dear language learner! Thank you for completing this questionnaire and thus helping me in the present study within the New National Excellence Programme (ÚNKP). I am Anna Zólyomi, I am working and studying at the Department of English Applied Linguistics at ELTE, and in this research, I would like to study your language learning habits. The questionnaire will be analysed for research purposes only and the data will be analysed in a holistic manner. Filling in the questionnaire is on a voluntary basis and anonymous. I am interested in your personal opinion during the questionnaire, so there are no "right" and "wrong" answers. It takes approximately 10 minutes to fill in this questionnaire.

Zólyomi Anna

azolyomi@caesar.elte.hu

Now, please indicate your answer from 1 to 5 in each line, depending on how true the following statements are to you.

1 = not at all true; 2 = not really true; 3 = partly true, partly not; 4 = mostly true; 5 = completely true

	not at all true	not really true	partly true, partly not	mostly true	completely true
1. When I speak in English, I know exactly what verb tense I am using.	**1**	**2**	**3**	**4**	**5**
2. With the help of video games, one can learn new English words quasi incidentally.	**1**	**2**	**3**	**4**	**5**
3. When I speak in English, I do not think about what grammatical rules there are in my sentence.	**1**	**2**	**3**	**4**	**5**
4. The most efficient learning habit is to learn the rules thoroughly, not just by „being exposed to" the language.	**1**	**2**	**3**	**4**	**5**
5. I am willing to make an effort to learn English.	**1**	**2**	**3**	**4**	**5**
6. I avoid challenges in foreign language learning.	**1**	**2**	**3**	**4**	**5**
7. I think that criticism is advice to be considered, I learn from it.	**1**	**2**	**3**	**4**	**5**
8. Feedback shows that I am proficient in language learning.	**1**	**2**	**3**	**4**	**5**
9. I think it is an effective learning habit to read for entertainment and be exposed to new words.	**1**	**2**	**3**	**4**	**5**
10. When I speak in English, words just come naturally.	**1**	**2**	**3**	**4**	**5**
11. I like to use vocabulary notebooks or apps that help me learn words, such as Quizlet.	**1**	**2**	**3**	**4**	**5**

	not at all true	not really true	partly true, partly not	mostly true	completely true
12. When I speak in English, I pay attention to the meaning of the message and not the rules.	**1**	**2**	**3**	**4**	**5**
13. I think speaking in English is a more effective way to learn it than cramming.	**1**	**2**	**3**	**4**	**5**
14. I usually watch series on a weekly basis just to improve my language skills.	**1**	**2**	**3**	**4**	**5**
15. I like watching series/movies in English just for fun.	**1**	**2**	**3**	**4**	**5**
16. I often chat in English for fun, for example, while playing video games.	**1**	**2**	**3**	**4**	**5**
17. One can learn a language to a certain extent by using apps.	**1**	**2**	**3**	**4**	**5**
18. I think the most effective is not conscious learning but if I watch a movie in English for fun.	**1**	**2**	**3**	**4**	**5**
19. I like the challenges in foreign language learning.	**1**	**2**	**3**	**4**	**5**
20. When I watch series/movies in English, I write down unknown phrases for learning purposes.	**1**	**2**	**3**	**4**	**5**
21. Despite possible failures, I persevere in foreign language learning.	**1**	**2**	**3**	**4**	**5**
22. Learning English outside the classroom undoubtedly has a greater impact than in-class learning.	**1**	**2**	**3**	**4**	**5**
23. I play video games in English for fun.	**1**	**2**	**3**	**4**	**5**

	not at all true	not really true	partly true, partly not	mostly true	completely true
24. I consider myself successful in foreign language learning.	**1**	**2**	**3**	**4**	**5**
25. I am determined to learn English well.	**1**	**2**	**3**	**4**	**5**
26. When obstacles arise, I easily give up learning a foreign language.	**1**	**2**	**3**	**4**	**5**
27. I do my best to learn English well.	**1**	**2**	**3**	**4**	**5**
28. I often watch series and movies in English because of the sound of the English language.	**1**	**2**	**3**	**4**	**5**
29. I do not think one can learn English without using a textbook and similar aiding materials.	**1**	**2**	**3**	**4**	**5**
30. I rather learn unfamiliar words while reading inferring the words from the context.	**1**	**2**	**3**	**4**	**5**
31. I like to learn grammar by hearing it repeatedly, so sooner or later it sticks to my mind.	**1**	**2**	**3**	**4**	**5**
32. Learning English is a very important thing in my life.	**1**	**2**	**3**	**4**	**5**
33. I think the most effective is if I learn consciously, for example, reading a book/article deliberately for the purpose of collecting and learning new words/phrases.	**1**	**2**	**3**	**4**	**5**
34. When I read in English, I do not create a glossary.	**1**	**2**	**3**	**4**	**5**
35. I think that the most effective method is to cram the new words.	**1**	**2**	**3**	**4**	**5**

	not at all true	not really true	partly true, partly not	mostly true	completely true
36. I think I have effective language learning habits.	**1**	**2**	**3**	**4**	**5**
37. I think I am a good language learner.	**1**	**2**	**3**	**4**	**5**
38. I consider the success of others in language learning a threat to myself, as it makes me anxious.	**1**	**2**	**3**	**4**	**5**
39. When I read in English, I usually create a glossary for unknown words.	**1**	**2**	**3**	**4**	**5**
40. I need to acquire new knowledge to achieve my goals.	**1**	**2**	**3**	**4**	**5**
41. I had/have good grades in English classes.	**1**	**2**	**3**	**4**	**5**
42. When I speak in English, I always think ahead consciously about which grammatical rules I use.	**1**	**2**	**3**	**4**	**5**
43. It is important for me to learn English well.	**1**	**2**	**3**	**4**	**5**
44. When I speak in English, sentences always come automatically.	**1**	**2**	**3**	**4**	**5**
45. I like to chat in English in order to improve my language skills.	**1**	**2**	**3**	**4**	**5**
46. I see the foreign language learning success of others as an example to be followed.	**1**	**2**	**3**	**4**	**5**
47. When I speak in English, words do not come naturally.	**1**	**2**	**3**	**4**	**5**
48. I achieve good results in learning English.	**1**	**2**	**3**	**4**	**5**
49. When I speak in English, I use verb tenses instinctively.	**1**	**2**	**3**	**4**	**5**

	not at all true	not really true	partly true, partly not	mostly true	completely true
50. When I use English, I always try to incorporate newly learned words into my sentences.	**1**	**2**	**3**	**4**	**5**
51. I usually speak in English on a weekly basis only to learn the language.	**1**	**2**	**3**	**4**	**5**
52. When I read something in English, I mostly pay attention to grammar and vocabulary.	**1**	**2**	**3**	**4**	**5**
53. I usually read books/articles in English for fun on a weekly basis.	**1**	**2**	**3**	**4**	**5**
54. I usually look up lyrics and look for unknown words.	**1**	**2**	**3**	**4**	**5**
55. I have a good aptitude for English.	**1**	**2**	**3**	**4**	**5**
56. In order to achieve my goals, I prefer to stick to my existing knowledge, I do not need new knowledge.	**1**	**2**	**3**	**4**	**5**
57. I think that during reading a book/article in English, I will understand unfamiliar words from the context.	**1**	**2**	**3**	**4**	**5**
58. When solving a task, I rely on the regularities that I have learnt earlier.	**1**	**2**	**3**	**4**	**5**
59. I like to learn grammar based on the rules and practice of a textbook or online aids.	**1**	**2**	**3**	**4**	**5**
60. I like to listen to music in English just to learn new words.	**1**	**2**	**3**	**4**	**5**

	not at all true	not really true	partly true, partly not	mostly true	completely true
61. I always make a glossary for new words when I am reading a book in English.	**1**	**2**	**3**	**4**	**5**
62. I like to rely on my intuition when solving a task.	**1**	**2**	**3**	**4**	**5**
63. I see effort as a path towards ultimate attainment.	**1**	**2**	**3**	**4**	**5**
64. I consider exerting excessive effort in order to achieve my goals meaningless and in vain.	**1**	**2**	**3**	**4**	**5**
65. I like to learn grammar when the teacher explains the rules thoroughly.	**1**	**2**	**3**	**4**	**5**
66. When I watch series or movies in English, I can also hear slang and phrases that are not necessarily emerging in class.	**1**	**2**	**3**	**4**	**5**
67. When I read something in English, I focus mostly on understanding what I am reading instead of focusing on grammar.	**1**	**2**	**3**	**4**	**5**
68. I do not take criticism into account.	**1**	**2**	**3**	**4**	**5**
69. When I speak in English, I know why I use certain verb tenses.	**1**	**2**	**3**	**4**	**5**
70. I usually speak English for fun on a weekly basis.	**1**	**2**	**3**	**4**	**5**

Due to sample description, I would like to ask the following questions:

1. Please indicate your gender.
   c) male
   d) female

2. How old are you?

   _____

3. How old were you when you started studying foreign languages?

   _____

4. How old were you when you started studying English?

   _____

5. What level of language exam do you have in English?
   6. I do not have a language exam
   7. A1-A2
   8. B1-B2
   9. C1-C2

6. Which foreign language is English for you?
   1. first
   2. second
   3. third
   4. fourth
   5. fifth

7. What foreign languages are you studying besides English?

   _____

8. Where do you study foreign languages nowadays? You can select more answers.
   7. at home alone/with a private teacher
   8. in language school
   9. in primary school
   10. in secondary school (vocational school, technical school, high school)
   11. in college/university
   12. other

9. How often do you use English?
   6. yearly
   7. less than monthly
   8. a couple of times a month
   9. more times a week
   10. almost every day or every day

10. If you would like to participate voluntarily in further research on similar topics, then please, provide your email address (optional): _____

Appendix C

The Pilot Version of the Questionnaire

Dear English language learner! Thank you very much for filling in this questionnaire to help me with my dissertation research. My name is Anna Zólyomi, I work and study at the Department of Applied English Linguistics at ELTE, and in this research I am interested in your opinion on language learning. I will use the questionnaire for research purposes, I will analyse the data in aggregate, so I will not show your individual answers to anyone from your school. The questionnaire is voluntary and anonymous. I am interested in your personal opinion during the questionnaire, so there are no "good" or "bad" answers. The questionnaire takes about 15-20 minutes to complete.

Anna Zólyomi

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Please indicate on a scale of 1 to 5 (1 = not at all true, 2 = not really true, 3 = partly true, partly not true, 4 = mostly true, 5 = completely true) how much you agree with the following statements. Please focus on learning the ENGLISH language when completing the questionnaire.

Perceived language aptitude (ideas from Zólyomi, 2020; used in Zólyomi, 2021, 2022; Széll & Zólyomi, 2021), 6 items

1. P46 I learn English quickly compared to my peers.
2. P06 I learn English easily compared to my peers.
3. P15 I can deal well with difficulties in learning English.
4. P77 I think I have good general language learning skills for English.
5. P38 I can say that I can easily overcome obstacles in learning English.
6. P14 I have good general English language skills.

Perceived importance of language aptitude (Zólyomi, 2021), 6 items

7. P53 To be successful in learning English, it is important that I can learn English quickly compared to my peers.
8. P67 To be successful in learning English, it is important that I can learn English easily compared to my peers.
9. P66 To be successful in learning English, it is important to be able to deal with the difficulties involved.
10. P34 To be successful in learning English, it is important to have good general English language learning skills.

11. P65 In order to be successful in learning English, it is important that I take the obstacles easily.
12. P03 To be successful in learning English, it is important to have good general English language skills.

Perceived malleability of own language aptitude (ideas from language aptitude beliefs survey [LABS]; Zólyomi, 2020), 4 items

13. P13 How fast I can learn English can be improved with practice.
14. P88 The ease with which I can learn English can be improved with practice.
15. P78 I can improve my general English language learning skills by practising.
16. P41 With practice, I can overcome the obstacles to learning English more and more easily.

Implicit language use (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021), 5 items

17. P50 When I speak in English, my main focus is to make sure that they understand what I am saying very well.
18. P81 When I speak in English, most of the time words just come to me instinctively, so I don't have to think about what words to use.
19. P85 When I speak English, I don't usually think about the grammatical structures in my sentences.
20. P05 When I speak English, I use verb tenses mostly instinctively, so I don't consciously think about them.
21. P36 When I speak in English, most of the time the sentences come automatically, so I don't have to think too much.

Explicit language use (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021), 6 items

22. P30 When I speak English, I concentrate on using grammatical structures very well.
23. P79 When I speak in English, I usually plan in advance exactly what I am going to say.
24. P39 Most of the time when I speak in English, I can explain afterwards why I used that particular verb tense.
25. P24 Most of the time when I speak English, I know what verb tense I am using.
26. P25 When I speak in English, most of the time the words come to me only when I think about exactly what I want to use.
27. P95 When I use English outside class, I usually try to consciously incorporate the newly learned words into my sentences.

Implicit language learning habits (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021), 7 items

28. P47 I read in English about once a week just for recreation.
29. P04 Most of the time, I read English without spelling out the words.
30. P56 I chat in English for fun outside of class on a roughly weekly basis.

31. P57 When reading an English text, I usually understand the unknown words from the context.
32. P01 I have English conversation outside of class on a roughly weekly basis as a recreational activity.
33. P08 I play English language video games for fun on a roughly weekly basis.
34. P74 I have conversations in English while playing video games on a roughly weekly basis.

Explicit language learning habits (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021), 6 items

35. P23 When I read in English, I usually replace unfamiliar words.
36. P19 Most of the time, when I watch series and/or films in English, I write down some unfamiliar phrase to learn.
37. P43 I watch series and/or films in English on a roughly weekly basis, mainly to improve my language skills.
38. P48 Most of the time I look up a lyric and check for unfamiliar English words.
39. P80 I have English conversations outside of class on a roughly weekly basis, mainly for foreign language learning.
40. P69 On a roughly weekly basis, I make a note of expressions I hear in a film/series so that I can use them later.

Implicit language learning preferences (affective dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021), 4 items

41. P51 I prefer to learn unfamiliar English words by deducing them from the context.
42. P54 I like to watch series and/or films in English for recreation.
43. P33 The way I like to learn grammar is that I hear a certain grammatical structure used a lot, so it sticks with me sooner or later.
44. P16 When solving a problem in English, I prefer to rely on my intuition.

Explicit language learning preferences (affective dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021), 5 items

45. P29 I like to use a dictionary or word learning apps to learn words.
46. P11 I like to chat in English mainly to improve my language skills.
47. P32 I like to learn grammar according to the rules in a textbook or online help.
48. P02 I like to learn grammar with the teacher explaining the rules thoroughly.
49. P37 When solving an English problem, I prefer to deduce the solution from the rules.

Perceived efficacy of implicit language learning (cognitive dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021), 6 items

50. P94 It is an effective learning habit to read English for recreation and new words just stick with me.
51. P73 It's effective for me to watch films and/or series in English because the expressions stick to me effortlessly and without me noticing.

52. P52 I find talking in English a more effective way of learning than sitting down to study.
53. P71 It's most effective if I don't study consciously, but if I get hooked on the language, for example by watching films and/or series in English for fun.
54. P60 Video games help me learn new English words almost without realising it.
55. P58 The best way to learn words is to deduce them from the context.

Perceived efficacy of explicit language learning (cognitive dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021), 6 items

56. P18 I find it an effective learning habit to start reading in English and memorising new words as I go.
57. P89 I think it's most effective if I study consciously, for example, I read English for the specific purpose of spelling out and learning new phrases.
58. P83 The most effective way for me to learn words is to repeat them.
59. P68 Learning the grammar rules carefully leads me to good grammar.
60. P31 It is impossible to learn English from films and/or TV series alone.
61. P10 The best way to learn words is to use phone apps developed specifically for this purpose.

Effort (Zólyomi, 2021, based on Csizér et al., 2022 MLB, a refined and modified version of this), 5 items

62. P84 I will do my best to learn English well.
63. P75 It is important for me to learn English well.
64. P12 I am ready to learn English well.
65. P70 Learning English is very important in my life.
66. P87 I am willing to make an effort to learn English.

Self-perceived proficiency (Zólyomi, 2021, 2022), 8 items

67. P62 I consider myself successful in English.
68. P63 I think I'm a good student of English.
69. P92 I have good grades in English.
70. P49 I have a good command of English.
71. P07 I think I have an effective English learning habit.
72. P35 I am making good progress in English.
73. P76 My English teacher's feedback shows that I am good at learning English.
74. P82 Feedback from my peers shows that I am good at learning English.

Growth L2 mindset (Dweck, 2006; emerging theme Zólyomi, 2020, used in Zólyomi, 2021) - domain-specific, 7 items

75. P21 I like challenges when learning English.
76. P64 I persevere in my English language learning despite possible setbacks.
77. P61 I can achieve my English language learning goals with effort.
78. P59 In my English studies, I am open to constructive criticism as it helps me to improve.

79. P72 When one of my partners is successful in learning English, I consider him or her an example to follow.
80. P42 To achieve my goals in English, I need to keep learning new skills.
81. P93 I can learn English very well with a lot of effort.

Fixed L2 mindset (Dweck, 2006; emerging theme Zólyomi, 2020, used in Zólyomi, 2021) - domain-specific, 7 items

82. P40 I avoid challenges when learning English.
83. P91 If I encounter obstacles in my English learning, I may decide to give up learning English altogether.
84. P20 It is futile to make great efforts towards my English language learning goals.
85. P45 In my English learning, I ignore negative feedback that is meant to be constructive because it does not serve my development.
86. P44 When a partner is successful in learning English, I feel threatened.
87. P22 My existing knowledge is enough to achieve my English learning goals, it is not necessary to learn new skills.
88. P27 Effort or not, I think there is no way I can learn English very well.

Self-efficacy beliefs (modified version of Albert et al., 2018; Csizér et al., 2021; Csizér et al., 2022; Piniel & Csizér, 2013, similar to this used for OTAK participants in Zólyomi, 2022), 7 items

89. P55 I'm sure that when we listen to English texts in class, I can do the exercises related to them.
90. P26 I am confident that I can answer questions in English in class.
91. P09 I am confident that I can do the comprehension tasks in English.
92. P17 I am confident that I can do the written assignments in English.
93. P90 I am sure I understand what my English classmates tell me in English.
94. P28 I am sure I understand what my English teacher says to me in English in class.
95. P86 I am confident that I can do the oral tasks in English.

Due to sample description, I would like to ask the following questions:

1. What is your gender? Please select the appropriate one!

a) Boy

b) Girl

c) I do not wish to disclose

2. How old are you?

3. At what age did you start learning English? (This includes anything you consider to be learning English, in addition to learning English in class, time spent in a foreign language area and any activities that were done in English.)

4. Approximately how many years have you been learning English in a row (e.g. if there were several years of study, please subtract. This includes anything you consider to be English learning, in addition to classroom English learning, this includes time spent in a foreign language area and any occupation that was in English.)
5. Which school do you go to? Please give the name of the city and the name of the school (e.g., Budapest, Madách Imre High School)!
6. What class are you in? Please include the grade and group code (e.g., 10/B)!
7. What is the highest level of English you have? Please select the appropriate one from the drop- down list!

a) I don't have an English exam yet

b) Entry level (A2), written

c) Entry level (A2), oral

d) Entry level (A2), complex (written and oral)

e) Basic level (B1), written

f) Basic level (B1), oral

g) Basic (B1), complex (written and oral)

h) Intermediate (B2), written

i) Intermediate (B2), oral

j) Intermediate (B2), complex (written and oral)

k) Advanced level (C1), written

l) Advanced (C1), oral

m) Advanced level (C1), complex (written and oral)

8. What language(s) are you learning besides English? You can tick more than one answer.

a) German

b) French

c) Italian

d) Spanish

e) Portuguese

f) Russian

g) Other:

Thank you very much for your help! Please click on the "submit form" button. If you have any questions about the survey, please send an email to zolyomi.anna@btk.elte.hu.

Appendix D

The Final Version of the Questionnaire

Dissertation questionnaire main study final version (proofread by two English teachers)

Introduction:

Dear English language learner! Thank you very much for filling in this questionnaire to help me with my dissertation research. My name is Anna Zólyomi, I work and study at the Department of Applied English Linguistics at ELTE, and in this study I am interested in your opinion on language learning. I will use the questionnaire for research purposes, I will analyse the data in a summarised way, so I will not show your individual answers to anyone from your school. Participation in this study is voluntary and anonymous. I am interested in your personal opinion during the questionnaire, so there are no "good" or "bad" answers. The questionnaire takes about 15–20 minutes to complete.

Anna Zólyomi

zolyomi.anna@btk.elte.hu

Please indicate on a scale of 1 to 5 (1 = not at all true, 2 = not really true, 3 = partly true, partly not true, 4 = mostly true, 5 = completely true) how much you agree with the following statements. Please focus on learning **ENGLISH** when completing the questionnaire.

1.

Perceived language aptitude (ideas from Zólyomi, 2020; used in Zólyomi, 2021, 2022; Széll & Zólyomi, 2021), 9 items

1. P46, I learn English quickly compared to my peers.
2. P06, I think I develop my skills in English faster than my peers.
3. P61, I have noticed that I progress better in learning English than my peers.

4. P44, My peers think that I have a special talent for English.
5. P15, I can handle difficulties well in learning English.
6. P77, I think I have good general English language learning skills.
7. P38, I can say that I can easily overcome obstacles in learning English.
8. P82, Feedback from my peers shows that I am good at learning English.
9. P49, I am talented in learning English.

Self-perceived success (Zólyomi, 2021, 2022), 5 items

10. P62, My English knowledge is good.
11. P63, I think I am a good English language learner.
12. P14, I have good general English language skills.
13. P42, I can speak English well.
14. P27, I have a good level of English.

Self-perceived achievement, 4 items

15. P92, I consider myself an effective English language learner.
16. P07, My results reflect that I am good at English.
17. P35, I am making good achievements in English.
18. P76, Based on my performance, I am at the top of the class in English.

2.

Implicit language use: instinctive oral output (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 4 items

19. P36, When I speak in English, the words come naturally most of the time.
20. P50, When I speak in English, words come out of my mouth upon instinct most of the time.
21. P81, When I speak in English, words just come instinctively most of the time, so I do

not have to think about what words to use.

22. P79R, When I speak in English, I usually plan exactly what I am going to say in advance.

Implicit language use: less focus on grammar (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 4 items

23. P85, When I use English outside class, I do not think much about correct grammar.
24. P57, When I use English outside the classroom, I focus on real-life communication rather than precise or accurate grammar.
25. P05, When I speak English, I use verb tenses instinctively, so I do not consciously think them through.
26. P100, I do not have to consciously focus on grammar when I speak in English because I feel that what I am saying is probably correct.

Explicit language use: conscious focus on grammar (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 4 items

27. P30, When I speak English outside class, I focus on using grammatical structures very well.
28. P39, Most of the time when I speak English, I could explain afterwards why I used a particular verb tense.
29. P24, Most of the time when I speak English, I know what verb tense I am using.
30. P95, When I use English outside of class, I usually make a conscious effort to use grammar accurately and regularly.

3.

Implicit language learning habits: extramural activities (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 4 items

31. P01, I have English conversations outside of class as an activity for fun on a roughly weekly basis.
32. P56, I chat in English for fun outside of class on a roughly weekly basis.
33. P47, I use media content in English at my leisure time on a roughly weekly basis.
34. P74, I watch films/series in English on a roughly weekly basis.

Implicit language learning habits: playing video games (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 4 items

35. P08, I play English language video games for fun on a roughly weekly basis.
36. P101, I communicate in English with my classmates while playing video games on a roughly weekly basis.
37. P96, I read the small English texts I come across while playing video games on a roughly weekly basis.
38. P104, While playing video games, some English phrases just stick in my mind on a weekly basis.

Implicit language learning habits: vocabulary acquisition (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 4 items

39. P23R, When I read in English, I most often look up and write down unknown words.
40. P04, I use new English words that I have no idea where I heard on a roughly weekly basis.
41. P102, I learn English words almost without realising while listening to media content on a roughly weekly basis.
42. P105, Most of the time, when I listen to something in English, new English phrases simply stick in my mind.

Explicit language learning habits: vocabulary acquisition (behavioural dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 4 items

43. P19, Most of the time when I watch series and/or films in English, I write down some new words in order to learn them.
44. P69, On a roughly weekly basis, I make note of English phrases I hear from films/series so that I can use them later.
45. P99, I learn English words on a roughly weekly basis by sitting above them and repeating them until I know them.
46. P103, Most of the time when I use media content in English, I consciously pay attention to learn some new English words.

4.

Implicit language learning preferences (affective dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 5 items

47. P54, I like to watch series and/or films in English for fun.
48. P33, The way I like to learn English grammar is that I hear a certain grammatical structure used a lot, so it sticks in my mind sooner or later.
49. P16, I like to learn English by sitting in front of the TV/tablet with an empty head and just listening.
50. P37R, When solving a problem in English, I prefer to figure out the solution from the rules.
51. P98, I like to use my intuition to solve problems in English.

Explicit language learning preferences (affective dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 5 items

52. P51R, I prefer learning unfamiliar English words by deducing them from the context.
53. P29, I like to learn English systematically, following the rules.
54. P11, I like to learn English by rote until I know it by heart.
55. P32, I like to learn English according to the rules in the textbook or with the help of rules I encounter in online grammar materials.
56. P02, I like to learn English grammar with the teacher explaining the rules thoroughly.

5.

Perceived efficacy of implicit language learning: focus on meaning (cognitive dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 5 items

57. P58, For me, English words are best learnt by deducing them from the context.
58. P52, I find talking in English a more effective way of learning for me than sitting down to cram.
59. P68R, Learning grammar rules thoroughly is what leads me to have a good knowledge of English.
60. P31, One of the most effective ways to learn English for me is to be in a native English-speaking environment.
61. P89, Being in the English language environment is very effective for language learning.

Perceived efficacy of implicit language learning: acquisition without realising (cognitive dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 5 items

62. P94, It is an effective learning habit for me to read English for fun and new words just stick in my mind.
63. P71, It's most effective if I don't study consciously, but if the language sticks in my mind, for example by watching films and/or TV series in English for fun.

64. P18, I find it effective to listen to songs in English because they fill my head with vocabulary almost imperceptibly.
65. P10, When communicating with foreigners, I improve my English effectively because language knowledge simply sticks in my mind.
66. P73, It's effective for me to watch films and/or series in English because the expressions stick in my mind effortlessly and without me realizing this.

Perceived efficacy of explicit language learning: vocabulary learning (cognitive dimension; from explicit–implicit learning habits survey [EXIS]; Zólyomi, 2021a, 2021c), 5 items

67. P60R, Video games help me learn new English words almost without noticing.
68. P83, The most effective way for me to learn English words is to repeat them all over.
69. P97, I develop the most if I memorise English words one by one.
70. P03, When learning English phrases, cramming works best for me.
71. P72, I can learn English words well if I use word cards.

6.

Effort (Zólyomi, 2021, based on Csizér et al., 2022 MLB, a refined and modified version of this), 5 items

72. P84, I am doing my best to learn English well.
73. P75, English plays a very important role in my life.
74. P12, I am willing to give up my free time to learn English.
75. P70, To be good at English, I am ready to make an effort.
76. P87, I am willing to make an effort to learn English.

Self-efficacy beliefs (modified version of Albert et al., 2018a, 2018b; Csizér et al., 2021; Csizér et al., 2022; Piniel & Csizér, 2013, similar to this used for teacher trainee participants in Zólyomi, 2022b), 7 items

77. P55, I am confident that I can do the listening comprehension tasks in English.
78. P26, I am confident that I can answer questions in English in the class.
79. P09, I am confident that I can do the reading comprehension tasks in English.
80. P17, I am confident that I can do the writing tasks in English.
81. P90, I am confident that I can use the grammatical structures I have learned in English.
82. P28, I am confident that I can I understand what my English teacher says to me in English in class.
83. P86, I am confident that I can do the oral tasks in the English language classroom.

7.

Growth L2 mindset (Dweck, 2006; emerging theme Zólyomi, 2020a, used in Zólyomi, 2021a, 2021c) - domain-specific, 4 items

84. P21, I like challenges when learning English.
85. P64, I believe that I am able to develop my skills in English.
86. P59, In my English studies, I am open to constructive criticism as it helps me to develop my skills.
87. P40R, I avoid challenges when learning English.

Fixed L2 mindset (Dweck, 2006; emerging theme Zólyomi, 2020a, used in Zólyomi, 2021a, 2021c, 2022b) - domain-specific, 5 items

88. P93R, I can learn English very well with a lot of effort.
89. P91, If I encounter obstacles in my English learning, I may decide to give up learning English entirely.
90. P20, It is futile to make great efforts towards my English language learning goals.
91. P45, In my English learning, I ignore negative feedback that is meant to be constructive because it does not serve my development.

92. P22, My existing knowledge is enough to achieve my English learning goals, it is not necessary to acquire new skills.

8.

Perceived malleability of own language aptitude (ideas from language aptitude beliefs survey [LABS]; Zólyomi, 2020c), 4 items

93. P13, How fast I can learn English can be developed with practice.
94. P88, The pace at which I can progress in English can be improved with practice.
95. P78, With practice, I can deal with the difficulties of learning English more smoothly.
96. P41, With practice, I can overcome the obstacles in learning English more and more easily.

Perceived importance of language aptitude: handling obstacles (Zólyomi, 2021a, 2021c), 4 items

97. P65, In order to be successful in learning English, it is important that I tackle obstacles easily.
98. P66, To be successful in learning English, it is important to be able to deal the emerging difficulties well.
99. P43, The ability to deal with emerging issues efficiently is important for the success of learning English.
100. P48 Good problem-solving skills are important for my success in learning English.

Perceived importance of language aptitude: rate of progress as compared to peers (Zólyomi, 2021a, 2021c), 5 items

101. P53, To be successful in learning English, it is important that I can learn English quickly

compared to my peers.

102. P67, In order to be successful in learning English, it is important that I can learn English at a pace that is faster than my peers.
103. P34, To be successful in learning English, it is important to be able to make good progress compared to my peers.
104. P80, It is important for my success in learning English that I learn the rules of the language faster than my peers.
105. P25, The key to my success in learning English is to progress faster than my peers.

I would also like to ask the following questions about the sample description: 8 items

1. What is your gender? Please select the appropriate one.
    a) Boy
    b) Girl
    c) I do not wish to disclose
2. How old are you?
3. At what age did you start learning English? (This includes anything you consider to be learning English, in addition to learning English in class, time spent in a foreign language environment and any activities that were done in English.)
4. Approximately how many years have you been learning English in a row (e.g., if there were several years of without studying, please subtract it from the total. This includes anything you consider to be learning English, in addition to learning English in class, time spent in a foreign language environment and any activities that were done in English.)
5. Which school do you go to? Please give the name of the city and the name of the

school (e.g., Budapest, Madách Imre High School).

6. What class are you in? Please include the grade and class code as well (e.g., 10/B).
7. What is the highest level of English exam you have? Please select the appropriate one from the drop- down list.
    a) I don't have an English exam yet
    b) Entry level (A2), written
    c) Entry level (A2), oral
    d) Entry level (A2), complex (written and oral)
    e) Basic level (B1), written
    f) Basic level (B1), oral
    g) Basic (B1), complex (written and oral)
    h) Intermediate (B2), written
    i) Intermediate (B2), oral
    j) Intermediate (B2), complex (written and oral)
    k) Advanced level (C1), written
    l) Advanced (C1), oral
    m) Advanced level (C1), complex (written and oral)
8. What language(s) are you learning besides English? You can choose more than one answer.
    a) German
    b) French
    c) Italian
    d) Spanish
    e) Portuguese

f) Russian

g) Other:

Thank you very much for your help. Please click on the "submit form" button. If you have any questions about the survey, please send an email to zolyomi.anna@btk.elte.hu.

Appendix E

The Pilot Version of the Interview Guide

Dear (name of the interviewee). Thank you very much for participating in this interview and thus helping me in my dissertation study. I am Anna Zólyomi, I am studying and working at Eötvös Loránd University, and I would like to gather information about the opinions of English teachers on English language learning. The interview will be used for research purposes only, and I will analyse the data in a summarised way. You are participating in the research completely anonymously, and I will not disclose any identifying characteristics. During the interview, I am interested in your personal opinion, so there are no "right" or "wrong" answers. The interview will last about 30 minutes, and if you give your consent to record the conversation, we can get started.

I. First, I would like to ask you about some background information for sample description purposes.

1. How old are you?
2. How long have you been teaching English?
3. Do you teach any other subjects besides English? If so, what?
4. What qualification do you have as a language teacher?
5. What types of schools do you teach English in?
6. What grade are you teaching?

II. Now I have a few questions about teaching English.

7. How would you put in your own words what differentiation is?
8. How do you differentiate in the language classroom? What individual differences do you take into account? Do you take into account individual differences other than language skills? Besides language proficiency differences, do you take any other individual differences into account?
9. Why is it important or not important to differentiate in the language classroom, that is, to take individual differences into account?
10. In the school where you teach, do you create different small groups in the language classes according to the pedagogical programme or do you teach English as you receive the class? If so, how and on what basis do you group them?
11. What do you think could be done to make language teaching in Hungary better or more effective?
12. What do you think about grading?

III The next few questions will focus on students learning English.

Many people believe that there is a special ability associated with language learning, which we call language ability or language talent. I have a few questions about this first.

13. Do you think there are differences between students in terms of language talent? What

makes you think so?
14. How do you think language talent differs from language proficiency, the level of the language learner?
15. Do you think language talent is malleable or can be developed?
16. What do you think learners think about language talent, can it be improved or not?
17. How important or unimportant is the language talent of a language learner?
18. How important do you think it is for a language learner to see their own language talent as something that can be developed?

IV. The next few questions focus on language learners' learning habits.

Let us say that there are two main learning habits. One is said to be an unconscious process, requiring less conscious effort, such as watching a film/series, playing a video game, reading in English, when learners concentrate on understanding what is being said. So, they are not doing these things deliberately for learning purposes, but the language still sticks to them as they receive some input. The other method requires more conscious effort, such as using the textbook to learn new features, paying attention to grammatical structures, writing down new words so that they can learn them later.

19. Do you think there are differences in language learning habits between students? What makes you think so?
20. Do you think there is a difference between students in terms of which method they prefer, which they think is more effective and which they actually use more often?
21. Do you know of any students who combine these methods well?
22. What do you think is the relationship between language talent and language learning habits? Have you noticed any tendencies towards better language talent among those who use conscious or unconscious methods, or a combination of both?
23. How do you think you could differentiate based on these?

Is there anything else you would like to add to the interview or is there anything that you consider important and we have not covered?

Thank you very much for taking the time to do the interview, it means an enormous help to me.

Appendix F

The Final Version of the Interview Guide

(proofread by two English teachers)

Dear (name of the interviewee). Thank you very much for participating in this interview and thus helping me in my dissertation study. I am Anna Zólyomi, I am studying and working at Eötvös Loránd University, and I would like to collect information about the opinions of English language teachers on English language learning. The interview will be used for research purposes only, and I will analyse the data in a summarised way. You are participating in the study completely anonymously, and I will not disclose any identifying characteristics of you. During the interview, I am interested in your personal opinion, so there are no "right" or "wrong" answers. The interview will last about 30 minutes, and if you give your consent to record the conversation, we can get started.

I. First, I would like to ask you about some background information for sample description purposes.

1. How old are you?
2. How long have you been teaching English?
3. Are you teaching any other subjects besides English currently? If so, what?
4. What qualification or certificate do you have as a language teacher?
5. What types of schools are you teaching English in currently?
6. What grades are you teaching currently?

II. Now I have a few questions about teaching English specifically.

7. How would you define with your own words what differentiation is?
8. How do you differentiate in the language classroom? What individual differences do you take into account? Do you take into account individual differences other than language skills? Besides language proficiency differences, do you take any other individual differences into account? Why do you take these into account?
9. Why is it important or not important to differentiate in the language classroom, that is, to take individual differences into account?
10. In the school where you teach, do you create different small groups in the language classes based on the pedagogical programme or do you teach English as you are told to? Do you create groups on your own in the language classroom? If so, how and on what basis do you group them? What do you think about homogeneous and heterogeneous grouping?
11. What do you think could be done to make language teaching better or more effective in Hungary?
12. What do you think about grading? Is there an alternative that you think would be better?

III The next few questions will focus on students learning English, the students whom you teach currently.

Many people believe that there is a special ability associated with language learning, which we call language ability, affinity, language talent, or language aptitude. I have a few questions about this first.

13. How would you define with your own words what this language talent is? What does it involve?

14. Do you think there are differences between students in terms of language talent? What makes you think so?
15. How do you think language talent differs from language proficiency, that is, the level of the language learner? Can you give examples from the classes you teach, are there some students who have better and worse language talent?
16. Do you think language talent is malleable or can be developed?
17. Do you think language talent can be improved according to language learners?
18. How important or not important is the language talent of a language learner?
19. How important it is for a language learner to see their own language talent as something that can be developed?

IV. The next few questions focus on language learners' learning habits.

Let us say that there are two main learning habits. One exhibits that language learning is an unconscious process, requires little conscious effort and ideally is centred around activities such as watching films/series, playing video games, reading in English, when learners concentrate on understanding the message. So, they are not doing these things deliberately for learning purposes, but the language still sticks to them as they are exposed to the foreign language and have relatively larger amount of input. The other approach is that foreign language learning is a highly conscious process and requires a great deal of conscious effort, such as using the textbook to learn new features about the foreign language itself, paying attention to grammatical structures, writing down new words so that they can learn them later. The next few questions relate to these learning habits.

20. Do you think there are differences in language learning habits/preferences between students? What makes you think so?
21. Do you think there are differences between students in which of the two approaches mentioned above they like prefer?
22. Do you think there is a difference between students in terms of which of the two approaches mentioned above they think is more effective?
23. Do you think there is a difference between students in terms of which of the two approaches mentioned above the students actually use more often?
24. Do you know of any students who mix these approaches well?
25. What do you think is the relationship between language talent and language learning habits? Have you noticed any tendencies towards better language talent among those who use conscious or unconscious approaches, or a combination of both?
26. How do you think you could differentiate based on these approaches?

Is there anything else you would like to add to the interview or is there anything that you consider important, and we have not covered?

Thank you very much for taking the time to do the interview, it has been really helpful for me.

Appendix G

Research Ethics Approval

(version with signatures can be shared upon request)

Researcher's name:	**Anna Zólyomi**
e-mail address:	zolyomi.anna@btk.elte.hu
Title of the research:	Exploring Hungarian Secondary School EFL Learners' and Teachers' Beliefs about Language Aptitude and Explicit–Implicit Learning: A Mixed Methods Inquiry
Co-researchers (if any):	–
Expected dates of the beginning and the end of the research:	2021 – 2022
Research funder (if any):	–
Date of the submission of the application:	2021.01.15.
Research goal (100-200 words):	The aims of this study are (1) to discover English as a foreign language (EFL) learners' and EFL teachers' beliefs regarding language aptitude, (2) to explore EFL learner profiles based on what language learning habits they have on the explicit–implicit continuum, (3) to understand EFL teachers' beliefs about language aptitude and the effectiveness they attribute to explicit–implicit language learning habits, (4) to investigate how EFL teachers report they would differentiate in the foreign language learning classroom based on learner profiles (if at all), and finally, (5) to examine the possible discrepancies between EFL

	teachers' and EFL learners' beliefs about language aptitude and explicit–implicit learning habits.
Age of the research participants (underline):	Under 3 years Between 3-14 years <u>Between 14-18 years</u> <u>Over 18 years</u>
How many research participants will be involved?	At least 150 secondary school students (age range from 15 to typically 20) + 15 secondary school teachers (at any age)
Method of the selection of the participants. Please, attach the appropriate documentation: text of the advertising, invitation letter, etc.	Convenience and snowball sampling: I would like to ask my teacher friends and peers to recommend schools where I can distribute the online questionnaire and ask teachers to participate in the interview. It must be noted that my friends and peers will not participate in my study as they may know my research area very well.
Location of the study	Hungary (online)
Short description of the study (The research protocol should be described in details. The theoretical background of the research is not relevant from the ethical point of view.)	This is a mixed-methods study whereby in the first part, I would like to explore EFL learners' beliefs regarding language aptitude and their language learning habits on the explicit–implicit continuum using an online questionnaire. In the second part, with interviews conducted online, I would like to understand how EFL teachers perceive language aptitude and explicit–implicit learning habits. I would like to investigate how they report they would differentiate in the foreign language learning classroom based on learner profiles (if at all). I would also like to examine if there are mismatches between learners' and teachers' beliefs regarding the above-mentioned constructs.

What kind of equipment, instruments, tools will you use? Please, attach the appropriate documentation.	Google Forms platform for the questionnaire, Skype/Microsoft Teams/Zoom for the one-to-one interviews (whichever the participants prefer and are used to, I am an experienced user of all three platforms)
What kind of questionnaires, tests, and interview techniques are you planning to use? Please, attach the questionnaires, interview guides and tests.	One online questionnaire and one semi-structured in-depth interview guide conducted online (the questionnaires, parts of which I would like use in this study, can be found in the Appendices in my research proposal attached to this document).
Explain the short and long term handling and archiving of the recorded data and what measures will be taken to ensure that the participants' anonymity is preserved.	Short-term handling: I usually record interviews with two devices (with my phone and with my tablet), so I instantly have two recordings for one interview. These are stored on the devices, and I keep a different folder for audio recordings on my laptop. I usually upload the recordings to my personal online cloud. I am the only person who has access to the folder as well as to the online storage. Long-term handling: I always save every research-related file to two pen drives typically once every week. The pen drives are in a special box on my desk that no one ever uses but me. The raw data and the processed data will be stored for at least 5 years but the lifetime of pen drives is usually longer. I will assign pseudonyms to interview participants instantly. I will create an Excel file for their real names and pseudonyms which is to be stored on these pen drives. I do not intend to ask for any confidential data from student participants, filling out the questionnaire is completely anonymous.

Appendix H

Information for the Head Principal and Request for Consent

EÖTVÖS LORÁND TUDOMÁNYEGYETEM

BÖLCSÉSZETTUDOMÁNYI KAR

Intézményvezetői tájékoztató és beleegyező nyilatkozat

Tisztelt Intézményvezető Úr/Asszony!

Zólyomi Anna vagyok, az Eötvös Loránd Tudományegyetem (ELTE) Nyelvpedagógia programjának negyedéves állami ösztöndíjas doktorandusz hallgatója. Doktori értekezésemben a nyelvtanulással kapcsolatos egyéni különbségekkel foglalkozom, többek között a nyelvérzékkel és a nyelvtanulási szokásokkal. Szeretnék engedélyt kérni ahhoz, hogy iskolájuk angolt tanuló diákjai részt vegyenek a disszertációs kutatásomban, majd pár héttel később az iskola angoltanárai is.

A kutatás menete: a kutatásban való részvétel teljes mértékben önkéntes és kizárólag online történik. A résztvevőknek bármikor lehetőségük van a kutatásban való részvétel megszakítására. A kutatás három fő részből áll, ennek első fázisával készen vagyok. Első lépésként 50 angolt tanuló diákot kértem meg egy intézményből, hogy töltsék ki az online kérdőívemet, ami teljes mértékben anonim és körülbelül 15-20 percet vesz igénybe. Ezt egy rövid elemzés követte, amiben felkészültem a nagymintás adatgyűjtésre, amiben országszerte több iskola összes angolul tanuló diákját szeretném megkérni, hogy töltsék ki az online kérdőívet. Pár hét múlva, az elemzés után szeretném az iskola angoltanárait megkérni, hogy egy rövid online interjú keretében (kb. 30 perc) válaszoljanak az angoltanítással kapcsolatos kérdéseimre. Az adatokat bizalmasan és kizárólag kutatási céllal fogom kezelni, valamint a disszertációban, konferenciákon, egyéb közleményekben kizárólag álnévvel fogom az iskolai angoltanárait megemlíteni, így garantálom, hogy sem az intézmény, sem az egyes tanulók nem lesznek az adatok alapján beazonosíthatóak. Az eredményeket elsősorban a disszertációmban használnám fel.

A kutatással kapcsolatos információkat összefoglaló táblázat

A kérelmező (kutatásvezető) neve:	**Zólyomi Anna**
MTMT azonosító:	10071808
Intézmény:	ELTE Angol Alkalmazott Nyelvészeti Tanszék ELTE Angol Nyelvpedagógiai Tanszék
E-mail címe:	zolyomi.anna@btk.elte.hu
A kutatás tárgya:	Egyéni különbségek: nyelvérzék és nyelvtanulási szokások
A kutatás tudományterülete(i):	Bölcsészettudomány (neveléstudomány és alkalmazott nyelvészet)
A témavezető neve, titulusa:	Dr. Albert Ágnes Erzsébet, egyetemi adjunktus (albert.agnes@btk.elte.hu)
A kérelem beadásának dátuma:	2022. 10. 12.
A kutatás nyelve:	magyar
A kutatás résztvevői:	Angolt tanuló középiskolás diákok és középiskolai angoltanárok
Mérőeszközök:	Online Google Forms tanulói kérdőív (15–20 perc) és pár héttel később a kérdőíves adatok alapján online tanári interjú (kb. 30 perc)
A felvett adatok bizalmas, rövid és hosszú távú kezelésének ismertetése:	A középiskola nem kerül megnevezésre, illetve a részvevők (jelen kutatás esetében a tanárok) minden esetben álnevet kapnak a kutatás során, a diákok adataihoz még álnév sem szükséges, mivel teljes mértékben anonim a kérdőív. A felvett adatok közlése (disszertáció, konferencia előadások) nem fogja felfedni a részvevők nevét, így sem a részvevő tanulók, sem maga az intézmény nem lesz beazonosítható.

Előre is nagyon köszönöm a segítséget és az együttműködését:

Kelt: Budapest, 2022. 10. 12.

Köszönettel: A kutatást engedélyezem:

Zólyomi Anna s.k.

…….. …….

a kutatásvezető (kérelmező) aláírása Intézményvezető aláírása

zolyomi.anna@btk.elte.hu
06/70-629-4150

Appendix I

Request for Parental Consent for Participating in Research

EÖTVÖS LORÁND TUDOMÁNYEGYETEM

BÖLCSÉSZETTUDOMÁNYI KAR

HOZZÁJÁRULÓ NYILATKOZAT KUTATÁSHOZ

Tisztelt Szülők!

Zólyomi Anna vagyok, az Eötvös Loránd Tudományegyetem (ELTE) Nyelvpedagógia programjának negyedéves állami ösztöndíjas doktorandusz hallgatója. Doktori értekezésemben a nyelvtanulással kapcsolatos egyéni különbségekkel foglalkozom, többek között a nyelvérzékkel és a nyelvtanulási szokásokkal. Szeretnék engedélyt kérni ahhoz, hogy gyermekeik részt vegyenek a disszertációs kutatásomban.

A kutatás menete: a kutatásban való részvétel teljes mértékben önkéntes és kizárólag online történik. A résztvevőknek bármikor lehetőségük van a kutatásban való részvétel megszakítására. A kutatás diákokra vonatkozó része két fő részből áll, aminek első részével már készen vagyok. Első lépésként 50 angolt tanuló diákot kértem meg egy intézményből, hogy töltsék ki az online kérdőívemet, ami teljes mértékben anonim és körülbelül 15-20 percet vesz igénybe. Ezt egy rövid elemzés követte, amiben felkészültem a nagymintás adatgyűjtésre. Ezután pedig országszerte több iskola összes angolul tanuló diákját szeretném megkérni, hogy töltsék ki az online kérdőívet. Pár hét múlva, az elemzés után szeretném az iskola angoltanárait megkérni, hogy egy rövid online interjú keretében (kb. 30 perc) válaszoljanak az angoltanítással kapcsolatos kérdéseimre. Az adatokat bizalmasan és kizárólag kutatási céllal fogom kezelni, valamint a disszertációban, konferenciákon, egyéb közleményekben kizárólag álnévvel fogom az iskolai angoltanárait megemlíteni, így garantálom, hogy sem az intézmény, sem az egyes tanulók nem lesznek az adatok alapján beazonosíthatóak. Az eredményeket elsősorban a disszertációmban használnám fel.

Ezúton kérem Önöket, hogy amennyiben **NEM** járulnak hozzá ahhoz, hogy gyermekük részt vegyen a kérdőív kitöltésében, úgy kérem, jelezzék ezt gyermekük angoltanára felé október 19-ig.

Előre is nagyon köszönöm a segítséget és az együttműködésüket.

Kelt: Budapest, 2022. 10. 12.

Köszönettel:
Zólyomi Anna
Kutató, PhD hallgató, egyetemi tanársegéd
zolyomi.anna@btk.elte.hu
06/70-629-4150

Table 36
Correlation Matrix of the Scales in the Pilot Study

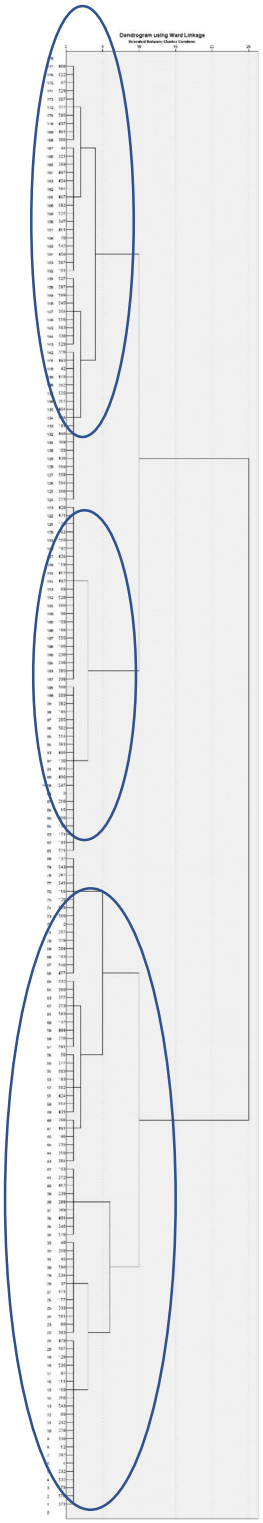
	Scales															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Perceived language aptitude																
2. Self-perceived success	.678**															
3. Self-perceived achievement	.360**															
4. Implicit language use: instinctive oral output	.556**	.731**														
5. Implicit language use: less focus on grammar		.485**		.454**												
6. Explicit language use: conscious focus on grammar					-.339*											
7. Implicit language learning: extramural activities		.323*		.448**	.325*											
8. Implicit language learning: playing video games							.361**									
9. Implicit language learning: vocabulary acquisition					.338*			.351*								
10. Explicit language learning preferences					-.338*			-.452**	-.290*							
11. Perceived efficacy of implicit language learning: focus on meaning		.308*		.405**	.435**	-.317*	.504**			-.564**						
12. Self-efficacy beliefs	.437**	.317*		.347*			.406**	.442**	.389**							
13. Effort			.334*					-.429**	-.330*	.489**						
14. Fixed L2 mindset									.408**	-.281*			-.453**			
15. Growth L2 mindset			.478**						-.369**	.302*			.349*	-.318*		
16. Perceived malleability of language aptitude			.349*							.465**			.292*	-.463**	.461**	
17. Perceived importance of handling obstacles	.288*		.346*													

Note. Only statistically significant correlations are displayed.

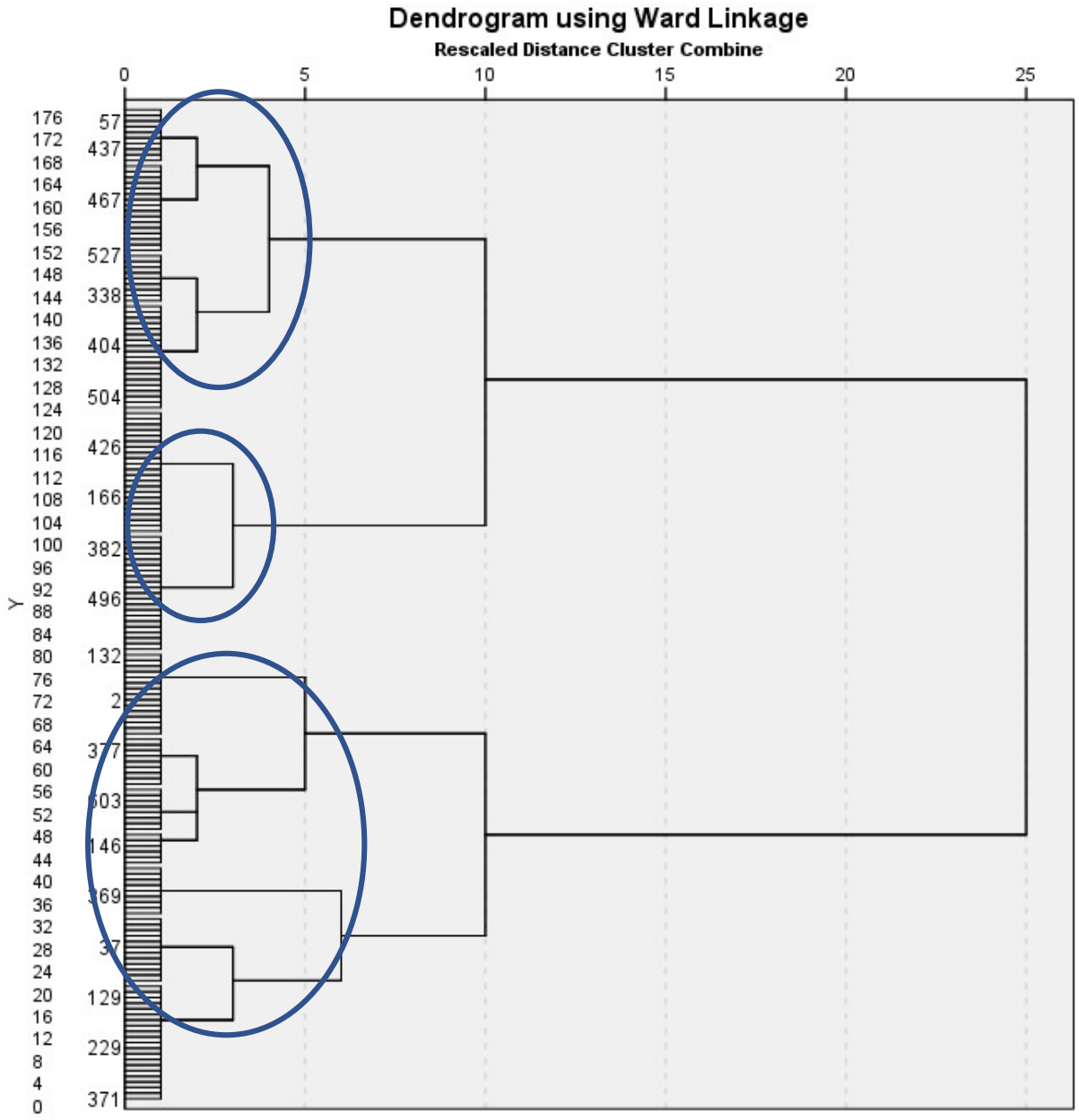
*$p < .05$, **$p < .01$

Appendix K

The Three-cluster Solution Based on the Hierarchical Cluster Analysis Using a Dendrogram on a Random 25% of the Sample (*n* = 177)



The Condensed Version of the Three-cluster Solution Based on the Hierarchical Cluster Analysis Using a Dendrogram on a Random 25% of the Sample (*n* = 177)



Appendix L

Descriptive Statistics of the Main Study Scales

Table 37
Main Study Descriptive Statistics

Scales	***k***	***M***	***SD***
Perceived efficacy of implicit language learning: focus on meaning	5	4.49	.74
Self-efficacy beliefs	7	4.19	.78
Perceived efficacy of implicit language learning: acquisition without realising	5	4.15	.84
Self-perceived achievement	4	4.14	.89
Perceived importance of language aptitude: handling obstacles	4	4.12	.71
Implicit language use: instinctive oral output	4	4.11	.95
Self-perceived success	5	4.09	.97
Perceived malleability of own language aptitude	4	4.08	.71
Implicit language learning preferences	5	4.03	.76
Implicit language use: less focus on grammar	4	3.91	1.02
Effort	5	3.86	.91
Implicit language learning: vocabulary acquisition	4	3.83	.91
Implicit language learning: extramural activities	4	3.77	.96
Perceived language aptitude	9	3.51	.95
Explicit language use: conscious focus on grammar	4	3.40	1.14
Implicit language learning: playing video games	4	3.22	1.31
Perceived importance of language aptitude: rate of progress as compared to peers	5	3.18	.96
Explicit language learning preferences	5	3.09	.96
Explicit language learning: vocabulary learning	4	2.67	1.11
Perceived efficacy of explicit language learning: vocabulary learning	5	2.66	.99

Note. k = the number of items in the scale.

Appendix M

Crosstabulation and Gender Differences in the Clusters

Table 38

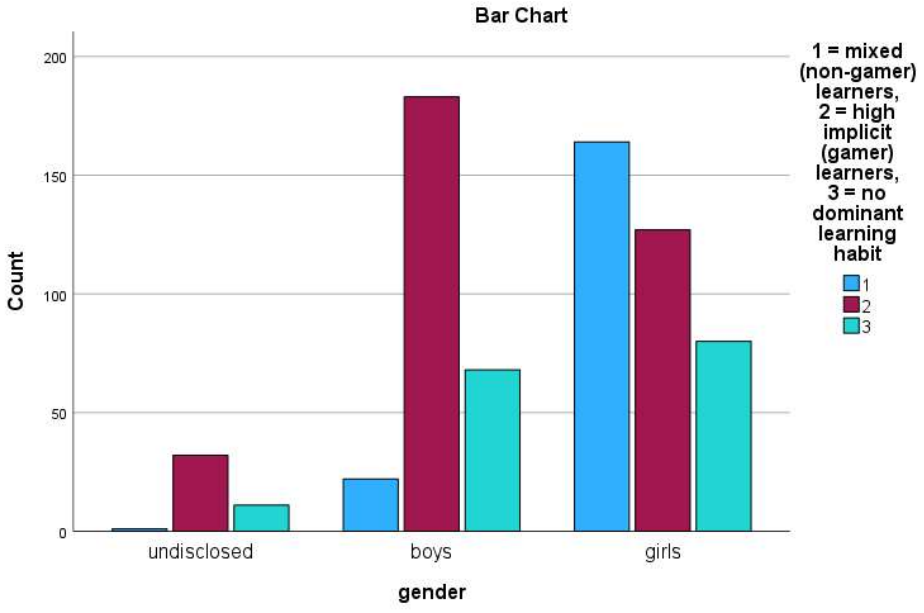
Crosstabulation of the Three Language Learner Clusters based on the Biographical Variable Gender

	Language learner groups			Total	$\chi^2(df)$	Cramer's *V*
Gender	1	2	3			
0	1	32	11	44		
Adj. resid.	–3.8	3.2	.3			
1	22	183	68	273	126.214(4)***	.303***
Adj. resid.	–9.1	7.4	.9			
2	164	127	80	371		
Adj. resid.	10.9	–8.8	–1.0			
Total	187	342	159	688		

Note. ***$p < 0.001$. Language learner groups: 1 = Mixed (non-gamer) learners, 2 = Implicit (gamer) learners, 3 = Incognisant learners. Gender groups: 0 = undisclosed, 1 = boys, 2 = girls. Adj. resid. = adjusted standardised residuals.

Figure 9

The Differences in the Three Cluster Groups Controlled for the Biographical Variable Gender



Appendix N

Clusters of Language Use and Crosstabulation

Table 39
The Final Cluster Centroids with the Three Language Use Behavioural Clustering Scales

Clustering Scales (↓)	**Cluster centres in the two clusters**	
	1	2
n (%)	200 (29%)	488 (71%)
Group labels (→)	No dominant language use	Implicit language users
Implicit language use: instinctive oral output	2.97	4.58
Implicit language use: less focus on grammar	2.68	4.41
Explicit language use: conscious focus on grammar	2.98	3.57

Table 40
Crosstabulation of the Three Language Learner Clusters and the Two Language User Clusters

	Language learner groups			Total	$\chi^2(df)$	Cramer's *V*
Language user groups	1	2	3			
1	65	40	95	200		
Adj. resid.	2.0	–10.0	9.7		$125.58(2)^{***}$	$.427^{***}$
2	122	302	64	488		
Adj. resid.	–2.0	10.0	–9.7			
Total	187	342	159	688		

Note. $^{***}p < 0.001$. Language learner groups: 1 = Mixed (non-gamer) learners, 2 = Implicit (gamer) learners, 3 = Incognisant learners. Language user groups: 1 = No dominant language use, 2 = Implicit language users. Adj. resid. = adjusted standardised residuals.

Figure 10

The Differences in the Three Cluster Groups Controlled for the Language User Clusters

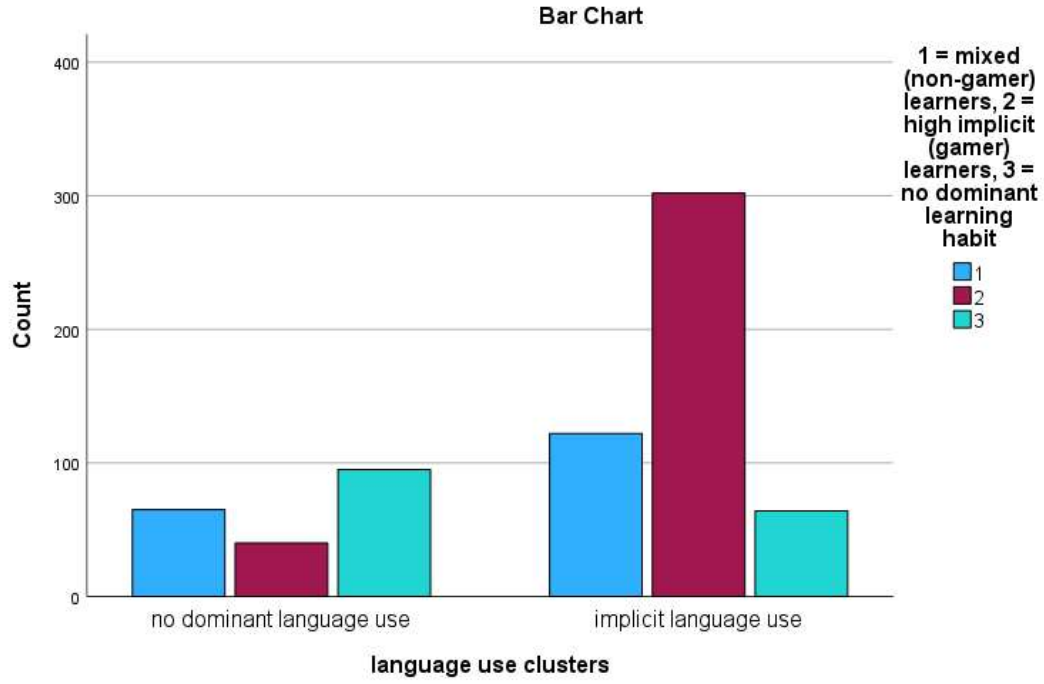


Table 41

A Summary of the Most Fundamental Findings of the Dissertation Study

Phases	Main Research Questions	Participants	Data Collection Instruments (Time Period)	Data Analysis Techniques	Key Findings
1.	What beliefs does a selected sample of Hungarian secondary school English language learners hold about their perceived language aptitude and explicit–implicit learning?	Hungarian secondary school English language learners (N = 51)	Small-scale online questionnaire (Spring 2022)	Exploratory factor analysis, reliability analyses, descriptive statistics, correlations	• 22 scales (17 reliable) • Positive self-related lay theories (despite lack of language exam) • Perceived language aptitude lower • Relatively low intended effort • High SDs in language learning habits
2.	What beliefs does a large sample of Hungarian secondary school English language learners hold about their perceived language aptitude and explicit–implicit learning?	Hungarian secondary school English language learners (N = 688)	Large-scale online questionnaire (Autumn 2022)	Confirmatory factor analysis, reliability analyses, cluster analysis, regression analysis	• 22 scales (20 reliable) • Positive self-related lay theories (despite lack of language exam) • Perceived language aptitude lower • Relatively low intended effort • High SDs in language learning habits • 3 groups: mixed (non-gamer) learners, implicit (gamer) learners, incognisant learners • Implicit (gamer) language learners, mainly boys, have the highest self-related beliefs • Besides positive self-related beliefs, instinctive language use contributes to success
3.	What beliefs do Hungarian secondary school English language teachers hold about language aptitude and explicit–implicit learning?	Hungarian secondary school English language teachers (N = 8)	Semi-structured in-depth interview guide (Winter 2022)	Thematic content analysis (structural coding) and constant-comparative method	• Explicit–implicit learner dispositions • Limiting language aptitude beliefs • Gamification as a differentiated instruction tool • Successful students: implicit learning profile, typically boys, gamers, language users • Providing a variety of input, mixing the two approaches
4.	How can the Hungarian secondary school English teachers' and students' beliefs regarding language aptitude and explicit–implicit learning be linked based on the two types of data?	Hungarian secondary school English language learners and their teachers	The questionnaire and the interview guide	Comparing the results of the two types of data	• QUAN + QUAL complimentary findings • Learner profile variance • Gender differences • Limiting aptitude beliefs → negative effort beliefs • Success: implicit learning and language use