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DOCTORAL DISSERTATION

THESIS BOOKLET

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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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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.

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.

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 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 (enabling) foreign language learning 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. A summary of the whole study (research methods, key findings) can be found in Appendix A.

2 Theoretical and Empirical Background

2.1 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).

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); 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). 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. Furthermore, 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.

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.

2.2 Language Aptitude and Explicit–Implicit Language Aptitude Profiles

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). 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.

As a bridge between language aptitude and explicit–implicit learning, we can differentiate explicit language aptitude and implicit language aptitude 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. 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.

2.3 Differentiated Instruction: Much Ado about Teaching

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.

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).

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 posed 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).

2.4 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). 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). 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.

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 signalled 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.

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 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). This includes the already mentioned belief of teachers in the studied context that more training should be provided on differentiated instruction (Öveges and Csizér, 2018) and that differentiation is a major challenge for them (Smid and Zólyomi, 2021; Zólyomi, 2022a).

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. 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, 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, 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 Brown (2009), Dufva (2003), and 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.

2.6 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 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.

2.7 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).

3 Rationale for the Whole Study

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.

4 Research Questions

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?

5 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. 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 (Johnson & Onwuegbuzie, 2004).

Several steps were taken to ensure the quality of the instruments, and careful considerations were put into action regarding ethical issues. 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. 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. In group-related statistics, the effect size was always reported (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. Besides reliability analyses, the content validity and face validity of the instruments was strengthened by receiving expert-, peer-, and layperson-feedback. 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; theory, participant, and methodological triangulation are also applied.

6 Main Results of the Pilot Study

First of all, regarding the exploratory factor analyses, 17 scales out of the 22 had acceptable internal consistency (α and $\omega \geq .60$; Straub et al., 2004); therefore, five scales need to be developed to a great extent, while several items need minor modifications and refinement. No discriminant validity issues were spotted during the pilot analysis. 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. In Table 1, a summary of the scales is presented along with their categorisation based on the ABC model (Ostrom, 1969).

Table 1

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

7 Main Results of the Main Study

To sum up the results of the confirmatory factor analysis, 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. It is important to note that with the help of CFA, the reliability indices either increased or remained at an acceptable level ($Min_{\alpha} = .602$, $Max_{\alpha} = .942$, $Min_{\omega} = .606$, $Max_{\omega} = .943$). 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 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).

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 B for the crosstabulation), 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 B for the crosstabulation), 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 the minimum that 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. 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.

8 Main Findings of the Interview Study

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 disfavoured 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. 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.

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. 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 relates 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. Regarding differentiated instruction based on learner profiles, most of the teachers claimed that mixing the two learning approaches would be conducive to language learning success.

9 Synthesis of The Two Types of Data

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.

10 Overall Summary of the Findings of the Dissertation Study

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 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 (Budson & 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.

11 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.

List of Publications Related to the Topic of the Dissertation

- Smid, D., & Zólyomi, A. (2021). An interview study on Hungarian high school English teachers' beliefs about learning English. In Gy. Tankó & K. Csizér (Eds.), *DEAL 2021: Current explorations in English applied linguistics* (pp. 139–162). Faculty of Humanities, Eötvös Loránd University.
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- Zólyomi, A. (2020b). Designing an instrument to measure explicit and implicit learning processes. *Central European Journal of Educational Research*, 2(1), 92–102. <https://doi.org/10.37441/CEJER/2020/2/1/5762>
- Zólyomi, A. (2020c). *Magyar nyelvtanulók nyelvérzékel kapcsolatos meggyőződéseinek kutatása kvantitatív módszerrel* [Exploring the beliefs Hungarian language learners hold about language aptitude: A quantitative inquiry] [Manuscript in preparation]. Department of English Applied Linguistics, Eötvös Loránd University.
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- Zólyomi, A. (2022a). Exploring Hungarian secondary school English teachers' beliefs about differentiated instruction. *Language Teaching Research*. Online first. <https://doi.org/10.1177/13621688221114780>
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- Zólyomi, A. (2022c). What do language teachers think about tailoring language instruction to address learners' individual differences and maximise learning opportunities? OASIS Summary of Zólyomi (2022) in *Language Teaching Research*. <https://oasisdatabase.org>
- Zólyomi, A. (2023). *Perceived language aptitude, explicit–implicit learning, and differentiated instruction: A follow-up interview study on teacher trainees' beliefs* [Manuscript in preparation]. Department of English Language Pedagogy, Eötvös Loránd University.

List of Other Publications

- Csizér, K., Albert, Á., Smid, D., & Zólyomi, A. (2022). *Motivation, autonomy, and emotions in foreign language learning: A multi-perspective investigation in Hungary* [Manuscript in preparation]. Department of English Applied Linguistics, Eötvös Loránd University.
- Piniel, K., & Zólyomi, A. (2022). Gender-differences in foreign language classroom anxiety: Results of a meta-analysis. *Studies in Second Language Learning and Teaching*, 12(2), 173–203. <https://doi.org/10.14746/ssllt.2022.12.2.2>
- Szél, Zs., & Zólyomi, A. (2021). *Examining the psychometric characteristics of the Runco ideational behavior scale (RIBS): The Hungarian context* [Manuscript in preparation]. Department of English Language Pedagogy, Eötvös Loránd University.

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Table 2
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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • QUAN + QUAL complementary findings • Learner profile variance • Gender differences • Limiting aptitude beliefs → negative effort beliefs • Success: implicit learning and language use

Appendix B: Crosstabulation of the Gender Distribution in the Clusters

Table 3

Crosstabulation of the Three Language Learner Clusters based on the Biographical Variable Gender

Gender	Language learner groups			Total	$\chi^2(df)$	Cramer's V
	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.