

ORIGINAL RESEARCH PAPER

THE INTERCONNECTEDNESS OF MINDSET AND LEARNING STRATEGIES: HOW TEACHING THE LEXICAL APPROACH COULD SUPPORT DEEP LEARNING

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ABSTRACT

Mindset can have a profound effect on language learners' willingness to engage in learning as well as their choice of learning strategy. Growth mindset learners, who embrace challenge, could prefer deep learning strategies, which require deep cognitive engagement. Conversely, fixed mindset learners, who believe that their abilities are unchangeable, would prefer shallow learning strategies, which need less cognitive effort. To exploit an existing growth mindset and to foster the move away from a fixed mindset, this study proposes introducing the Lexical Approach as a deep learning strategy. Consequently, the research explored the relationship between mindset and learning strategy by way of an online questionnaire administered to Bachelor degree students at the UAS Burgenland, Austria. Additionally, mindset and learning strategy's connection with age, mode of study and English achievement were examined. Results obtained from 211 participants revealed no significant relationship between mindset and learning strategy overall or with age and mode of study. However, clear trends showed that most students endorsed a growth mindset and had a strong preference for deep learning strategies. English achievement alone, despite no significant relationship with mindset and learning strategy, showed that better grades were associated with a more fixed mindset and a preference for shallower learning strategies. Based on these results the Lexical Approach as a deep learning strategy can still be useful, since a general preference for this type of approach was visible and the prevalent growth mindset would present a good basis for such a challenge.

Keywords: mindset, learning strategy, lexical approach, deep learning

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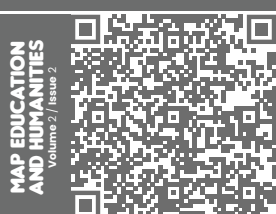
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Introduction

In her TED talk “The Power of Yet” Dr. Carol Dweck (2014) shows how the belief that one’s abilities are flexible and always open to development – also known as a growth mindset – exerts a significantly positive influence on student performance throughout different grade levels. In contrast, students who believe that their intelligence and abilities are set in stone and unchangeable – characteristics of a fixed mindset – show significantly worse performance levels. Thus, a growth mindset would be the preferred and more beneficial attitude towards learning in general and, consequently, also in the case of language learning. Yet, more factors than learners’ mindset play a role in more or less successful language development. One of these areas is the learning strategies people prefer. Assuming a clear distinction (Craik & Lockhart, 1972) between deep learning strategies, that involve active engagement and cognitive processing, and shallow learning strategies, which focus on surface level information processing without in-depth engagement, it would stand to reason that learners with a growth mindset would most likely prefer deep learning strategies. Conversely, fixed mindset learners would likely gravitate towards shallow learning strategies. Naturally, such less cognitively engaging types of learning will not yield the quick and sustainable results so often required in today’s modern business and academic world of continuous (language) learning (Schuetze & Slowey, 2000). Thus, it is suggested here that Michael Lewis’ Lexical Approach, which proposes that language is composed of a large variety of prefabricated chunks which are basically ready for usage in the appropriate contexts (Lewis, 1997), could offer a way to encourage learners with a preference for shallow strategies to engage more deeply with the learning process and material and, equally, strengthen deep learners’ efficiency and effectiveness. While the benefits of the Lexical Approach have been well respected (Carter & McCarthy, 1988; Lewis, 2012; McCarthy, 1991; Nattinger & DeCarrico, 1992a) and much English teaching and learning material has been designed according to this principle, little effort has been made to actually introduce the theory of the Lexical Approach to learners in order to help them apply this useful tool accurately and efficiently.

Thus, this paper’s intention is manifold. First, it will examine the relationship between mindset and learning strategy. Secondly, mindset and learning strategy will be related to participants’

mode of study. Especially at a University of Applied Sciences, where this research was conducted, mindset and learning strategy preferences may vary according to whether participants study full-time or have already joined the corporate world and study part-time. Thirdly, age will be examined for a connection to mindset and learning strategy since life experience and job perspectives might have an impact on students’ view of the changeability of their skills and their choice of strategy to further such change. Fourthly, mindset and learning strategy will be explored as possible predictors of English grade achievement as participants’ belief about their abilities can be crucial in language learning success.

Literature Review

Mindset and Learning Strategies

It has been found that mindset is linked to people’s (language) learning strategy preferences. A learning strategy is generally regarded as a set of study habits or skills. However, according to processing theory there are two quite distinct kinds of learning strategies. Craik and Lockhart (1972) distinguish between deep and shallow strategies. Deep learning strategies are characterized by requiring increased cognitive effort by engaging actively and deeply with the material. As such, deep learning strategies focus on the input stage of the learning process by allowing for proactive processing of information and subsequent organization according to systems that suit the individual learner most. In contrast, shallow learning strategies are not as cognitively engaging and frequently only require activities such as rote-memorization, repetition, vocabulary lists and other mechanical study methods. These are popular with many language learners but often only yield short-term results and, thus, do not lead to sustainable language learning needed in today’s fast-paced (corporate) world (Schuetze & Slowey, 2000).

Research has also shown that the choice of strategy does not necessarily only refer to the umbrella terms of deep or shallow learning strategies, which are the focus of this paper, but that other, simpler strategies may become relevant as well. Dweck (2017) found in her research that fixed mindset children reported that, upon failing to perform well on a test, they would simply try to cheat the next time. Thereby, their focus is clearly on the result and on appearing smart and hiding any inadequacies without making much of an effort. Such

an approach places them on the shallow strategy side of the dichotomy. By contrast, the learning strategy of a growth mindset learner would be to analyze the errors they made and work harder to understand the material better (Yeager & Dweck, 2012) and achieve mastery rather than immediate success in terms of a grade or score (Blackwell et al., 2007). This shows a tendency towards deep learning strategies in such growth mindset learners. Apart from the inclination to cheat, if learners are closer to the fixed end of the mindset continuum, there is also a high likelihood that, when confronted with failure of any kind, they will be more inclined to simply abandon the endeavor. In their minds, there is no opportunity for improvement of their skills because these are predefined and, thus, there is no point in engaging in any kind of deeper learning process. Conversely, on the other side of the continuum – the growth mindset side – learners may be frustrated with setbacks but consciously choose to face these challenges and, with the appropriate strategy, overcome them. Indeed, they have been shown to possess more flexibility in terms of changing and adapting their learning strategy and also exhibit a tendency of using deeper learning strategies compared to learners with a more fixed mindset (Grant & Dweck, 2003; Ommundsen, 2003; Yan et al., 2014). A study by Yan et al. (2014), which examined a possible relationship between mindset and the extent to which learners used certain learning strategies, showed that those with a growth mindset were more likely to study more. These learners were 1.37 times more likely to reread parts of information and 1.48 times more likely to reread entire texts they had already covered. Consequently, they also revisited information during their studies 1.20 more often and returned to old course material with a likelihood of 1.18 times more often compared to learners with the fixed mindset. Growth-oriented learners are also much less likely to become defensive or aggressive when receiving corrective feedback as they do not perceive this as failure but as part of the learning process – a point that should also be stressed by teachers as crucial and important part of language learning (Knowles et al., 2011). However, such behavior of the learner requires much courage and self-awareness as humans generally wish to stay within their comfort zone to avoid risk and failure which can lead to embarrassment and, consequently, is perceived as a threat (Lewis, 2012). Fortunately, this perception of failure as a threat can be counteracted by “logical” explanation on the part of the teacher. It has also been found that one recipe for success consists of “Effort

+ Strategies + Help From Others” (Yeager & Dweck, 2012, p. 311). This already points towards the usefulness of the Lexical Approach as a learning strategy to support learners in overcoming challenges and growing their language skills. However, before exploring the concept of the Lexical Approach, the topic of mindset will be discussed further.

Mindset – Language Learning, Age and Performance

The Oxford Advanced Learner’s Dictionary (Hornby, 2022) defines ‘mindset’ as “a set of attitudes or fixed ideas that somebody has and that are often difficult to change”. These beliefs manifest and are clearly visible in individuals in early childhood already. Research (Dweck, 2017) found that when 10-year olds were given tasks that were just slightly above their skill level, they reacted astonishingly differently to this challenge. Some were desperate and frustrated because they could not solve the tasks, while others were exhilarated by how their minds and abilities were stimulated. Dweck terms these two different attitudes towards facing challenges the fixed and growth mindset respectively. People with a fixed mindset operate on the belief that “if at first you don’t succeed, you probably don’t have the ability” (Dweck, 2017, pp. 9–10). They are convinced that their intelligence, abilities and talents are defined at birth and there is no possibility for genuine change or development through effort, practice or study (Bećirović & Akbarov, 2016). These people would also forego any attempts at asking for support as this would show their incompetence, which is to be avoided at all costs. The fixed mindset causes them to make it their first priority to demonstrate their inherent intelligence and skill, often stressing how little they have to work to attain certain goals. Hence, any obvious sign of failure or inadequacy is perceived as disastrous and embarrassing and means that these people’s intelligence and entire sense of self-worth has been undermined (Dweck, 2017; Yeager & Dweck, 2012). Unsurprisingly, people with a growth mindset have, in many ways, a more pleasurable learning experience – not one free of setbacks, but one where failure is an opportunity to learn and improve. They are certain that they can use every challenge as a chance to propel them forward. They can and do believe in their capacity for development even if, at first, they are not good or competent at the subject, or language, they are studying. They believe that setbacks are lessons to learn and grow from instead of a life sentence that assesses one’s intelligence and ability once and for all and beyond

any doubt and change. Growth mindset learners embrace challenge and, along with it, the saying “nothing ventured, nothing gained” (Dweck, 2017). Such a dichotomy between different mindsets is also reflected in a second language learning study by Henry and Davydenko (2020) in which they examined 21 adults who were learning Swedish for a variety of purposes ranging from needing it to get a job to pure interest in the language for private reasons. Results also showed that those with avoidance motivation – which represents the fixed mindset – found the learning process far more gruelling and only engaged in it in order to achieve an external goal such as obtaining a workplace. In contrast, other participants were driven by approach motivation – corresponding to the growth mindset. They engaged in the learning process willingly, pursuing an intrinsically motivated goal such as receiving citizenship to settle in Sweden with their partner.

Language Learning

This already shows that, similar to its effect on a multitude of areas of human existence, a person’s mindset also exerts strong influence on the perception of their success in second language learning. In this field it is crucial to differentiate between language learning mindset overall and linguistic cognitions, such as knowledge of specific grammar rules or pronunciation. The latter is related to cognitive processes and concrete knowledge, whereas the language learning mindset represents a broader concept. It encompasses a variety of emotional components that determine whether a person believes they have the capability to develop in the area of foreign language learning. This belief is crucial for the success or failure of all development, including language learning (Bećirović & Polz, 2021; Lou & Noels, 2019) and will be focused on in this paper. Even though the present research treats mindsets as a dichotomous concept of ‘fixed’ and ‘growth’, it is important to point out that people can, and usually do, hold different mindsets to different extents regarding certain areas in their lives (Lamb et al., 2020).

Remaining with the black and white distinction of mindsets for language learning, the fixed mindset prevents language learners from taking risks and challenging themselves by engaging in unknown activities or with new subjects. The fear of failure or a lack of competence is overwhelming. For language learning this might become visible in a refusal to speak in class, to ask questions, to improve a piece of writing based on the teacher’s feedback or to try out a new learning tool such as

the Lexical Approach. Growth mindset learners, on the other hand, will benefit more from the learning journey as they are much more likely to face new and uncertain linguistic situations with courage and explore unknown learning tools like the Lexical Approach with curiosity.

Age

This is why the mindset a learner has adopted over the course of their life is so relevant. It exerts a significant influence on language learning development. Yet, where does this mindset originate and how could it be influenced through teaching practices like the Lexical Approach? Comparable to the critical period hypothesis, which posits that, after a certain window has closed, language learning requires much more conscious effort than it did before the closure of that window (Dervić & Bećirović, 2020; Lenneberg, 1967) and, thus children acquire language naturally, without much effort, whereas the process is more cumbersome for adults, it is not certain when and how precisely a person’s mindset is shaped. Still, Dweck’s research with young children (e.g. Dweck & Reppucci, 1973) has shown that even at such a young age, individual beliefs about ability and the opportunities for improvement are already rather strongly developed. Whether this established growth or fixed mindset stems from nature or nurture has been debated for quite some time. Today most researchers agree that it is not a matter of either aspect in isolation but “a constant give-and-take between the two” (Dweck, 2017).

Mindsets can also change naturally over time as a person matures. It has been found, however, that younger women in particular have a tendency towards adopting a more fixed mindset related to intelligence, while younger men are more likely to endorse a growth mindset in this area. However, these differences have been found to even out or even reverse with increasing age and, thus, the relationship between mindset and age remains inconclusive (Macnamara & Rupani, 2017). A pilot study (Popa et al., 2017) conducted at the University of Oradea in Romania with 58 participants also did not find a significant relationship between mindset and age. Yet, the youngest age group between 18 and 25 obtained the highest mean scores, indicating the biggest tendency towards a growth mindset. Sigmundsson (2021) found, however, that passion and mindset correlated significantly for younger people of the age groups 14–19 ($r = .226$) and 20–36 ($r = .161$) and grit and mindset correlated for the 20–36 age group ($r = .195$).

Performance

Clearly, regardless of a person's age, it would be beneficial for their implicit belief system to lean into the direction of a growth mindset. Then it "is not some fixed prior ability, but purposeful engagement" that produces success and furthers the (language) learning process (Sternberg, 2005). However, even the most growth mindset-oriented adult learner might, for a multitude of reasons, have established a fixed mindset specifically concerning language learning. It is also possible that a learner might believe their ability to improve their grasp of the target language's grammar is changeable but not their pronunciation skills. Similarly, learners might hold a growth or fixed mindset related to a certain domain of language learning such as writing, leading them to believe that they can or cannot change their expertise in this area (Bećirović & Hurić – Bećirović, 2017; Lamb et al., 2020; Lou & Noels, 2019). Thus, the deeply rooted belief someone holds about the nature of their abilities and potential is crucial and impacts performance dramatically. It might be that learners who hold a fixed mindset regarding a certain language skill genuinely do not believe that they have any talent and, thus, they will likely shrink away from the mere attempt to achieve the set performance goals in order to avoid the shame and embarrassment that failure entails (Dweck, 2017). In stark contrast, learners with a growth mindset concerning (one area of) language learning relate their performance to effort instead of focusing too much on ability or results (Yeager & Dweck, 2012). To these learners effort is the key ingredient to sustainable language learning. They value and enjoy the process and focus on improving and learning from mistakes instead of being fixated on specific performance outcomes such as test scores or grades. Corrective feedback is welcome and provides them with the opportunity to grow and develop their skills and encourages them to engage in the process by searching for additional resources to gain a better understanding of the subject matter (Lou & Noels, 2019; Rizvić & Bećirović, 2017). However, it must also be mentioned that other factors as varied as attitude towards goals, effort beliefs and self-regulation strategies may be covariants in the relationship between mindset and achievement. Studies where mindsets have been shown to directly influence performance are scarce (Paunesku et al., 2015) and a meta-analysis (Burnette et al., 2013) actually found only a weak correlation between achievement and mindset. Similarly, Macnamara & Rupani (2017) report no correlation between a growth mindset and achievement and even point out the reverse in that

they state that a fixed mindset seems to correlate, though insignificantly, with achievement. Thus, performance in language learning must always be viewed in connection with other motivational factors (Lou & Noels, 2019). A study by Tarbetsky et al. (2016) investigated the role of motivation based on beliefs about the changeability of intelligence and ability (mindset) among indigenous and non-indigenous Australian students. Results showed that indigenous status and was a negative predictor of mindset regarding intelligence and ability and that, in turn, mindsets predicted academic achievement. The researchers note that it was not indigenous status that was directly associated with academic achievement, but that this happened indirectly via a more fixed mindset endorsed by the indigenous students.

Although mindset may indirectly influence performance, the methods learners use to develop their language skills play a major part in success or failure of the endeavor. As the Lexical Approach is the 'strategy of choice' presented in this paper, the next section introduces this concept and its usefulness for sustainable language learning. The Lexical Approach would have the potential to support the maintenance of a growth mindset or to slowly help learners transition from a fixed mindset towards a more growth-oriented perspective. A fixed mindset represses the ability to handle and exploit feedback and setbacks, whereas a growth mindset promotes resilience. These types of learners can use corrective input to embrace a world of opportunities for development (Mašić et al., 2020; Yeager & Dweck, 2012).

Especially, in the area of adult second language learning there are indications that in the lexical domain – which is targeted specifically by the Lexical Approach – adult learners can have a distinct advantage over younger learners. Hellman (2008) studied the extent of ultimate lexical attainment in adult-onset second language acquisition. She conducted her research with three groups. The first group consisted of 33 highly proficient English L2 learners who all had between 10–52 years of significant exposure to the target language. The reference groups comprised 30 monolingual English native speakers in one group and 30 English bilinguals in a third group. Participants' performance was measured by way of two tests related to vocabulary size and one revolving around depth of word knowledge. The results revealed that the second language learners reached lower scores compared to the native and bilingual groups concern-

ing mean scores on vocabulary size. However, 76% of L2 learners still performed on a native-like level on all three test tasks and 15% even performed better than native speakers. These results support the claim that the lexical domain can be ideal to exploit adult learners' more mature cognitive abilities and their life experience through the Lexical Approach. The Lexical Approach could be a tool that not only requires but genuinely exploits their age-related advanced cognitive abilities that encourages learners to engage with theoretical and practical knowledge and tasks and language learning development could be made more tangible and results could be seen faster. Thereby, the possibly low resilience of learners in academic settings at the fixed end of the mindset continuum could be strengthened (Yeager & Dweck, 2012) and they could understand more clearly that their abilities are not fixed but that they are in charge of their own learning and development.

Mindset and the Influence of Teaching Practices on Performance

Research has proven that mindsets can be changed by carefully teaching learners the principles that are at the core of these implicit beliefs. This is reason for optimism as outcomes of studies include not only better performance but, more importantly, increased resilience to succumbing to failure (Yeager & Dweck, 2012). Mindsets have been linked to performance and achievement in various areas of language learning such as grades, willingness to take part in extra tuition or task performance (e.g. Dervić & Bećirović, 2019; Hong et al., 1999; Robins & Pals, 2002). A study by Aronson et al. (2002) found that teaching college students about the scientifically proven way in which academic challenges allow the brain to form new connections and, thus, make an individual smarter, produced a significantly higher grade point average over time compared to students who were not taught this growth mindset. A study (Khajavy et al., 2021) their reactions to these failures might be different based on their perceptions of L2 learning ability and their subsequent effort put into L2 learning. Based on this, the present study aimed at exploring two underresearched constructs within the field of applied linguistics, namely grit (continuous effort and interest for long-term goals of 1,178 university students also found that such a growth mindset in language learning functioned as a weak, positive predictor of achievement in second language learning. The same positive effect was proven in a study where middle school students were sent a mentoring

email containing information about how the brain becomes smarter with challenges throughout the school year. These students performed significantly better in the statewide achievement tests than students who did not receive this information (Good et al., 2003). Similarly, college students attending developmental math classes to improve their grades were exposed to a reading and writing exercise related to an article which talked specifically about the malleability of the brain in adulthood and how it is highly beneficial for the brain to be exposed to new information and challenges. After reading the article, students were asked to write a letter explaining this new concept to a younger student. The results obtained after a few months showed that only 9% of the students in the experimental group had dropped out of the course, while 20% of the control group had resigned (Paunesku et al., 2012).

Such positive influence of the knowledge regarding mindset can be taken as indication that knowledge of a deep learning strategy, such as the Lexical Approach, could also contribute to better performance.

The Lexical Approach – Concept and Potential as a Deep Learning Strategy

The central idea of the Lexical Approach is that “language consists not of traditional grammar and vocabulary but often of multi-word pre-fabricated chunks” (Lewis, 1997, p. 3). This is also supported by the fact that first language acquisition happens through a focus on communication and meaning of (lexical) chunks rather than the absorbing of isolated vocabulary items and grammar (Lewis, 2012). In fact, as much as 40% of native speaker speech is based on lexical chunks (Erman & Warren, 2000). Fortunately, not only native speakers have this habit of using lexical chunks but also language learners will, at some point in the learning process, start to employ ready-made language items in the appropriate context in an unanalyzed fashion (Dervić & Bećirović, 2020; Nattinger & DeCarrico, 1992). Yet, prevalence is still often given to teaching and learning isolated vocabulary items instead of word combinations (chunks) even though it is accepted that genuinely knowing a word comprises more than just being aware of its existence. True knowledge of a word requires awareness of its lexical and semantic properties. This is often the biggest obstacle in attaining competence in a second language (Marconi, 2020). Learners often translate a word from their native language into the new language and believe that it

will serve exactly the same purpose there. However, this is frequently not the case and, consequently, the language output generated will sound somewhat “off” when compared to a native speaker. In the worst case, serious misunderstandings, that can have far-reaching consequences in (business) life, might occur. Teaching learners about lexical chunks can, therefore, be an effective way to avoid such incidences and, along the way, support them in increasing their scope of vocabulary. This is supported by several studies which found that there is a positive linear relationship between vocabulary scope and proficiency (Yang, 2008) and that scope of vocabulary is superior as predictor of English level than vocabulary size (Zhao & Song, 2015). Yang and Yang’s (2012) research came to the same result stressing the significant positive correlation between English proficiency and vocabulary scope. Similarly, Zhang and Qiu (2006) discovered in their research that vocabulary depth showed a stronger correlation with reading skills than vocabulary size, which has also been found to be of vital importance for second language competence (e.g. Lu, 2004; Shahar-Yames & Prior, 2018; X. Yang, 2008). However, in the context of this paper, vocabulary breadth is of less interest since the Lexical Approach, as a deep learning strategy, predominantly lends itself to deepening learners’ scope of vocabulary and, possibly, to influencing learners’ beliefs about their language learning abilities positively.

Potential as a Deep Learning Strategy

Introducing the Lexical Approach as a deep learning strategy would be reasonable as adult learners do not only benefit from advanced cognitive abilities due to the natural maturation process and extensive experience but also from deeper meta-linguistic awareness (Burgo, 2006; Lichtman, 2013). A large-scale study examining language learning strategies (Rubin et al., 2007) revealed that awareness of and instruction regarding the usage of learning strategies correlates positively with improved motivation and language skills. In the same vein, it was found that teaching (language) learning strategies supports learners in becoming more self-directed (Oxford, 1990). The theoretical understanding of the Lexical Approach and the successful employment of lexical chunks would definitely require a ‘deeper’ cognitive effort than strategies such as memorization. Such an increased processing effort would definitely support and improve language learning in the long run even if the initial phase is more challenging. Learning with the Lexical Approach in mind requires procedural knowledge;

that is the knowledge regarding how to use the information obtained effectively. Once learners grasp the Lexical Approach and the usefulness of lexical chunks, this learning tool or strategy can then be employed to consciously steer the learning process and improve language competence (O’Malley & Chamot, 1990). As such, the Lexical Approach also qualifies as a cognitive learning strategy which focuses on empowering learners and giving them the ability to “manipulate the language material in direct ways, e.g., through reasoning, analysis, note-taking, summarizing, synthesizing, outlining, reorganizing information to develop stronger schemas (knowledge structures), practicing in naturalistic settings, and practicing structures and sounds formally” (Oxford, 2003, p. 12). As has been pointed out above, such strategies force the learner to process the input at the incoming stage. This is more difficult at the beginning, until the strategy has been properly integrated in the learning process, but will yield more long-term benefits than shallow strategies like the popular memorization of vocabulary lists, for example. A tool like the Lexical Approach, which functions as a meta-cognitive learning strategy by providing a theory and practical framework how to handle language input, gives learners tools needed for “planning L2 tasks, for gathering and organizing materials, for arranging a study space and a schedule, for monitoring mistakes and evaluating task success, and for evaluating the success of their own learning strategies” (Oxford, 2003 as cited in Waldvogel, 2011, p. 25).

Thus, self-direction in second language learning can be supported (Wenden, 1998) and it was discovered that, generally, the combined use of meta-cognitive strategies and cognitive strategies results in better performance when compared to the use of cognitive strategies alone (Purpura, 1999). In other words, the theory behind the Lexical Approach is critical to reaping the benefits of working with lexical chunks in language learning. Yet, such a meta-cognitive strategy must be developed and carefully and consistently (O’Malley & Chamot, 1990). Once grasped, however, the Lexical Approach, as a meta-cognitive learning strategy, and the work with lexical chunks as cognitive strategy combined have the potential to exert immense positive influence on language development. A growth mindset could be supported by providing learners with a strategy and a way to engage in language learning with a clear goal in mind and the additional motivation that tools are available to reach it.

Overall, it has been shown that mindset and learning strategy choice are connected and that either of these two factors also relates to age and performance. Further, it has been highlighted how the Lexical Approach, which is viewed as a deep learning strategy here, can be of value to language learners. Those who already hold a growth mindset might naturally gravitate towards accepting and using the Lexical Approach, while more fixed mindset-oriented learners might be more skeptical and anxious in the face of such a new opportunity.

Thus, the following hypotheses have been formulated:

- H1:** There will be a statistically significant difference in mindset between students based on their mode of study.
- H2:** There will be a statistically significant difference in preferred learning strategies between students based on their mode of study.
- H3:** There will be a statistically significant difference in mindset between students based on age group.
- H4:** There will be a statistically significant difference in preferred learning strategies between students based on age group.
- H5:** There will be a statistically significant influence of mindset on English achievement.
- H6:** There will be a statistically significant influence of learning strategy on English achievement.

In the following section the methodology will be presented and then each of these hypotheses will be examined and the results will be discussed also with respect to the potential of teaching learners to use the Lexical Approach as a deep learning strategy.

Methodology

A learner's mindset is connected to many elements of the (language) learning process. It might influence the choice of learning strategy and might have a significant impact on performance in a given area of study. Equally, the age of the learner might play a part in whether they endorse a fixed or growth mindset more, as can their mode of study. Thus, this study aims to investigate the relation-

ships between mindset and learning strategies as well as their connections with age, mode of study and English achievement.

Participants

211 participants (Table 1) from the University of Applied Sciences (UAS) Burgenland in Austria completed the online questionnaire. All respondents were enrolled in one of the ten full-time and part-time Bachelor degree programs available across the five departments of the UAS Burgenland where English is a compulsory subject. 116 participants studied full-time and 95 were enrolled in a part-time program. Accordingly, the largest age group comprised 103 students between 21 and 25 years, followed by 44 in the 26-30 age group and 35 below 20. 29 students were aged between 31 and 40+. In terms of the English grade they received at the end of the previous semester, the majority of participants (114) reported receiving a 2, 58 achieved a 1, 32 were given a 3 and 7 passed with a 4. Grades were distributed according to Austrian standards ranging from 1 (highest) to 5 (lowest).

Table 1:
Descriptive Analysis of Participants

Variable		n	%
Age	< 20	35	16.6%
	21-25	103	48.8%
	26-30	44	20.9%
	31-40+	29	13.7%
Mode of Study	full-time	116	55%
	part-time	95	45%
English grade	1	58	27.5%
	2	114	54%
	3	32	15.2%
	4	7	3.3%

Instruments

Mindset was measured by the Growth Mindset Scale (Dweck et al., 2018) consisting of 3 items (e.g. You have a certain amount of intelligence, and you can't really do much to change it.) rated on a 6-point Likert scale from strongly agree (1) to strongly disagree (6). As all items are negatively phrased, indicating a fixed mindset, a lower overall score would confirm this, while a higher score would

support a growth mindset. Learning strategies were assessed by the revised Two Factor Study Process Questionnaire (Biggs et al., 2001) containing 20 items of which 10 each represent deep (e.g. I find that at times studying gives me a feeling of deep personal satisfaction.) and shallow (e.g. My aim is to pass the course while doing as little work as possible.) learning strategies. The rating was based on a 5-point Likert scale ranging from never/rarely true (1) to always/almost always true (5).

Procedure

The link to the questionnaire was distributed to all Bachelor degree students through the internal email network of the UAS Burgenland. Participation, which needed to be voluntary, was strongly encouraged through a short explanatory statement of the purpose of the research. After the end of the data collection period, the data were screened. Concerning the 20 questions measuring learning strategy, all items related to shallow learning strategies were reverse-coded in order to retain the correct application of the rating from never/rarely true (1) to always/almost always true (5). Thus, a higher overall score would represent a preference for a deep learning strategy, whereas a lower score would indicate a tendency towards a more shallow learning strategy.

Data analysis

Data was analyzed through the Statistical Package for the Social Sciences 26.0. Normality criteria of the data (Table 2) were checked and results indicated normality by remaining between -1 and +1. The underlying assumptions for application of the statistical procedures used were also confirmed (Mertler & Vannatta Reinhart, 2016). Descriptive data were obtained by calculating frequencies, means, standard deviations and correlations. Reliability and internal consistency of the subscales (Table 2) was confirmed through the calculation of Cronbach's alpha. The hypotheses were tested through independent samples t-tests, one-way ANOVAs and linear regression are presented. These methods were used to establish whether there was indeed a significant difference between mindset/learning strategies based on students' mode of study, age and grade achievement.

Table 2:
Descriptive Analysis, Normality and Reliability

Variable	n	M	SD	Skewness	Kurtosis	α
Growth mindset scale	211	3.97	1.11	-.188	-.298	.835
Learning strategies	211	3.12	.46	-.072	.715	.780

Results and Discussion

The initial analysis of the frequencies revealed that 23.70% of the participants tended towards a fixed mindset by obtaining an average score of ≤ 3 , while the remaining 76.30% displayed a growth mindset scoring on average > 3 . This is in accordance with findings by Khajavy et al. (2021) their reactions to these failures might be different based on their perceptions of L2 learning ability and their subsequent effort put into L2 learning. Based on this, the present study aimed at exploring two underresearched constructs within the field of applied linguistics, namely grit (continuous effort and interest for long-term goals and is a positive indication in so far as around two thirds of the students who took part in the survey believe that a person's intelligence and skills can be developed through effort. In terms of preferred learning strategies, only 8.53% of students leaned towards shallower strategies with an average score of ≤ 2.5 , while an overwhelming 91.47% opted for deeper learning strategies by obtaining an average score of > 2.5 . These are already encouraging results since a prevalence of the growth mindset and a strong tendency towards deep learning strategies indicate that introducing the Lexical Approach to students could be greeted with acceptance.

Mindset and Learning Strategy in relation to Mode of Study

Hypothesis 1 suggested a significant difference in mindset between students based on their mode of study. An independent samples t-test was conducted to compare mindset in part-time students and full-time students. There was no significant difference in the scores for part-time students ($M = 3.87$, $SD = 1.13$) and full-time students ($M = 4.05$, $SD = 1.08$); $t(209)=1.13$, $p = .262$. These results indicate that mode of study does not have any significant effect on students' mindset and, thus, hypothesis 1 has to be rejected.

Yet, considering the maximum of 6 points for a full growth mindset, mean scores might indicate a tendency towards such a mindset in both groups. Research has proven that holding a growth mindset positively influences people's degree of resilience to failure (Yeager & Dweck, 2012). Interestingly, the mean values show that the full-time students hold a slightly more growth-oriented mindset than the part-time students. This is slightly surprising considering that part-time students are usually already part of the corporate world and actively seek the challenge of studying alongside a regular job. They have to trust and believe in their ability to face and overcome challenges and the courage to engage in studying subject that they are not yet competent in. Thus, it would be expected for them to hold a more growth-oriented mindset when compared to full-time students who often start their studies immediately after graduating from school.

Hypothesis 2 presumed a significant difference in preferred learning strategy between students based on mode of study. The independent samples t-test conducted to compare learning strategy in part-time and full-time students revealed no significant difference in scores with a mean value of 3.09 (SD = .45) for part-time students and 3.34 (SD = .47) for full-time students; $t(209) = .778$, $p = .437$ and the hypothesis was rejected. Results show that both full- and part-time students do not differ significantly in terms of their preferences for deeper or shallower learning strategies. Given the fact that both groups are also non-significantly different regarding mindset, this is not too surprising. Still, with both mean values near 3, a general trend towards deeper learning strategies could be indicated since 5 would be the maximum value denoting a definite preference for deep learning strategies. Such a tendency could be connected to the previously found inclination towards a growth mindset overall.

Despite the absence of significant relationships between mode of study and mindset or learning strategy, the slight tendency towards a growth mindset and deeper learning strategies in both groups could be exploited by implementing the Lexical Approach and its theoretical underpinnings as part of English language classes. Since studies have shown that mindset can be trained and changed with the right tools (Yeager & Dweck, 2012), the Lexical Approach might be another addition to this arsenal. Further, as a deep learning strategy, students would be encouraged to really engage deeply with language and, therefore, could

experience more success, and an accompanying strengthening of the growth mindset, in the long run.

Mindset and Learning Strategy Related to Age

Hypothesis 3 postulated a significant difference in mindset between students based on age groups. A one-way between subjects ANOVA was conducted to compare the effect of age group (<20, 21-25, 26-30, 31- >40) on mindset. Results revealed that there was no significant effect of age group on mindset (fixed or growth) at the $p < .05$ level for the two conditions [$F(3, 207) = 2.284$, $p = .080$] and, thus, the hypothesis was rejected. A detailed examination revealed that mean scores were very similar at 4.07 (SD = 1.05) for the under 20 age group, 3.81 (SD = 1.06) for the 21-25 group, 4 (SD = 1.10) for the 26-30 age range and 4.39 (SD = 1.27) for the above 30 age group.

Keeping in mind the maximum of 6 for a full growth mindset, it can be seen that the oldest age group displays the highest mean value, followed by the youngest age group of up to 20 years in second place and the 26-30 age group only slightly behind. These findings would be supported by results stating that a growth mindset was most visible in participants between 18 and 25 years of age (Popa et al., 2017) and that initially held fixed mindsets in younger years can reverse with aging (Macnamara & Rupani, 2017). The mean value for the 21-25 age group is still more on the growth mindset side but the lowest value, especially when compared to the above 30 group.

The results indicate that mindset towards language learning is not age dependent and it might be assumed that the participants do not adhere to the common belief that higher age is a hindrance to language learning (Lenneberg, 1967; Lou & Noels, 2019). This would be beneficial since it has been recommended that language teachers pay attention to "demystifying the negative role of age" (Khajavy et al., 2021, p. 35; Mašić & Bećirović, 2021) their reactions to these failures might be different based on their perceptions of L2 learning ability and their subsequent effort put into L2 learning. Based on this, the present study aimed at exploring two underresearched constructs within the field of applied linguistics, namely grit (continuous effort and interest for long-term goals in second language learning by focusing on a growth mindset – a tendency that is already present in the sample. Yet, it

was not apparent from the data whether participants held a specific mindset regarding the entirety of the language learning experience or whether their more growth or fixed-oriented mindset was an expression of what they believe concerning a certain area of language learning. It is, after all, highly likely that one person will have varying beliefs about their abilities and their potential for change related to different areas of language learning (Lamb et al., 2020; Lou & Noels, 2019).

Hypothesis 4 assumed a significant difference in learning strategy between students based on age groups. A one-way between subjects ANOVA was conducted to compare the effect of age group (<20, 21-25, 26-30, 31- >40) on learning strategy. The results showed no significant effect of age on learning strategy (shallow or deep) at the $p < .05$ level for the two conditions [$F(3, 208) = .985, p = .401$] and, thus, the hypothesis was rejected. Mean values were very similar throughout all age groups with 3.15 (SD = .51) for the under 20 group, 3.10 (SD = .44) for the 21-25 year olds, 3.05 (SD = .46) for the 26-30 age group and 3.23 (SD = .48) for the above 30 group.

This shows a general slight trend towards deeper learning strategies across all ages, which is somewhat consistent with findings that more advanced learners tend to use deeper learning strategies (Delić & Bećirović, 2018; Magogwe & Oliver, 2007; Schmitt, 1997) age, proficiency, and self-efficacy beliefs. Responding to the call for more replication of strategy research and for research in different cultural contexts, this research was undertaken in Botswana between 2002 and 2005. The adapted versions of the Oxford [Oxford, R., 1990. Language learning strategies: what every teacher should know. Newbury House, New York] Strategies Inventory for Language Learning (strategies. However, it must be pointed out that the age of the participants in this study does not necessarily reflect their level of English and a better level of older learners can only be assumed. It has been found, however, that adult learners of any age profit from deeper learning strategies due to their more mature cognitive development and meta-linguistic awareness – a capacity that is especially useful for language learning (Burgo, 2006; Lichtman, 2013).

In conclusion, the participants' slight inclination towards a growth mindset and the general tendency towards deep strategies regardless of age group might indicate, yet again, the potential of the Lexical Approach in the language classroom

since all students seem to lean equally towards a possible acceptance of such a deeper learning strategy.

Mindset and Learning Strategy Related to English Achievement

Hypothesis 5 suggested a significant influence of mindset (fixed or growth) on English achievement. Simple linear regression was used to test if mindset significantly predicted English grade achievement. Results showed that the overall model was not significant ($R^2 = .016$), $F(1,209) = 3.309, p = .070$) and, thus, the hypothesis was rejected. Interestingly, a more growth-oriented mindset seems to be predicting a decrease in grade achievement ($\beta = -.125$). This is similar to findings by Macnamara and Rupani, 2017 who discovered that a more fixed mindset was beneficial when it came to higher levels of educational achievement. However, it stands in sharp contrast to findings that have proven that a growth mindset does have a beneficial effect on achievement overall (Cury et al., 2006; Khajavy et al., 2021; Tarbetsky et al., 2016). Results by Aronson et al. (2002) that explicitly alerting learners to how challenge and mistakes support their progress has a significantly positive effect on performance levels also underline that explicit instruction does have benefits and, thus, it would stand to reason that teaching the Lexical Approach to learners including some of its theoretical underpinnings, would also lead to performance gains (e.g. Abdellah, 2015; Debabi & Guerroud, 2018; Fahim & Vaezi, 2011; Falahi & Moinzadeh, 2012; Seesink, 2007; Webb & Kagimoto, 2009).

Hypothesis 6 presumed a significant influence of learning strategy (deep or shallow) on English achievement. The simple linear regression used to test whether English grade achievement really significantly predicts learning strategy choice revealed a non-significant result ($R^2 = .003$), $F(1,209) = .586, p = .445$). Hence, the hypothesis was rejected. Indeed, it appeared that as learning strategy choice tended towards deep strategies, English grade achievement decreased slightly ($\beta = -.053$). This is particularly surprising since research has suggested that deeper learning strategies would be favored by more skilled learners, while beginners tend to opt for shallower learning strategies (Schmitt, 1997). Yet, shallow learning strategies are often more popular among learners as they are easier to execute and require less effort. That is, at least true, in the short term but for sustainable language learning deeper strategies would definite-

ly be preferable. However, they require more engagement and are mostly harder to grasp at the beginning stages with the benefits being reaped at a later point once these strategies have been internalized (Craik & Lockhart, 1972).

Overall, it was surprising that both a growth mindset and preference for deep learning strategies seemed to possibly impact English achievement negatively, even if the results of both regressions were insignificant. This is certainly a topic that warrants further research as also Self-determination Theory (Ryan & Deci, 2017) states that the more an individual is intrinsically motivated – which would loosely correspond to a growth mindset – the more likely they are to engage in an activity with dedication – which would align with deep learning strategies. Since the participants of this study provided their English grade themselves, there is a possibility of slightly skewed data which could have impacted the results. Yet, introducing the Lexical Approach would, as mentioned above, have the potential to give learners an increased feeling of competence and autonomy, which would increase intrinsic motivation and create a more rewarding learning experience (Ryan & Deci, 2000). This, in turn, could well support the development of a more growth-oriented mindset and an increased willingness to engage with deep learning.

Conclusion and further research

Mindset is a major aspect in all areas of life and, consequently, also in language learning. Learners' overall fixed or growth mindset can be a main factor in success or failure, accompanied by beliefs held regarding certain areas of the language learning experience and their level of resilience. This study examined the relationship between mindset and learning strategies and found that, while there was no significant relationship between mindset and learning strategy choice as expected, learners endorse a growth mindset and also show a marked preference for deep learning strategies. This presents fertile ground for the idea of introducing language learners to the Lexical Approach and its theoretical underpinnings to exploit their willingness to engage deeply with language learning. Results regarding the relationships between mindset/learning strategies and age and mode of study also support this as, despite the absence of any significant relationship, participants always favor a growth mindset and deep learning strategies across all ages and modes of study. Only the area of performance remains somewhat inconclusive as results indicate that the preferred growth

mindset and deep learning strategies actually affect achievement negatively.

Although this has been found in other research, this would be an interesting question to study further in more detail. It is suggested that more reliable results could be generated in this respect by obtaining learners' grades from the institution instead of using a self-assessment questionnaire. Further, it would be of great interest to conduct a long-term comparative study, perhaps throughout the entire course of a Bachelor degree, to contrast English language performance of learners who are taught about mindset and those who are not taught this knowledge.

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