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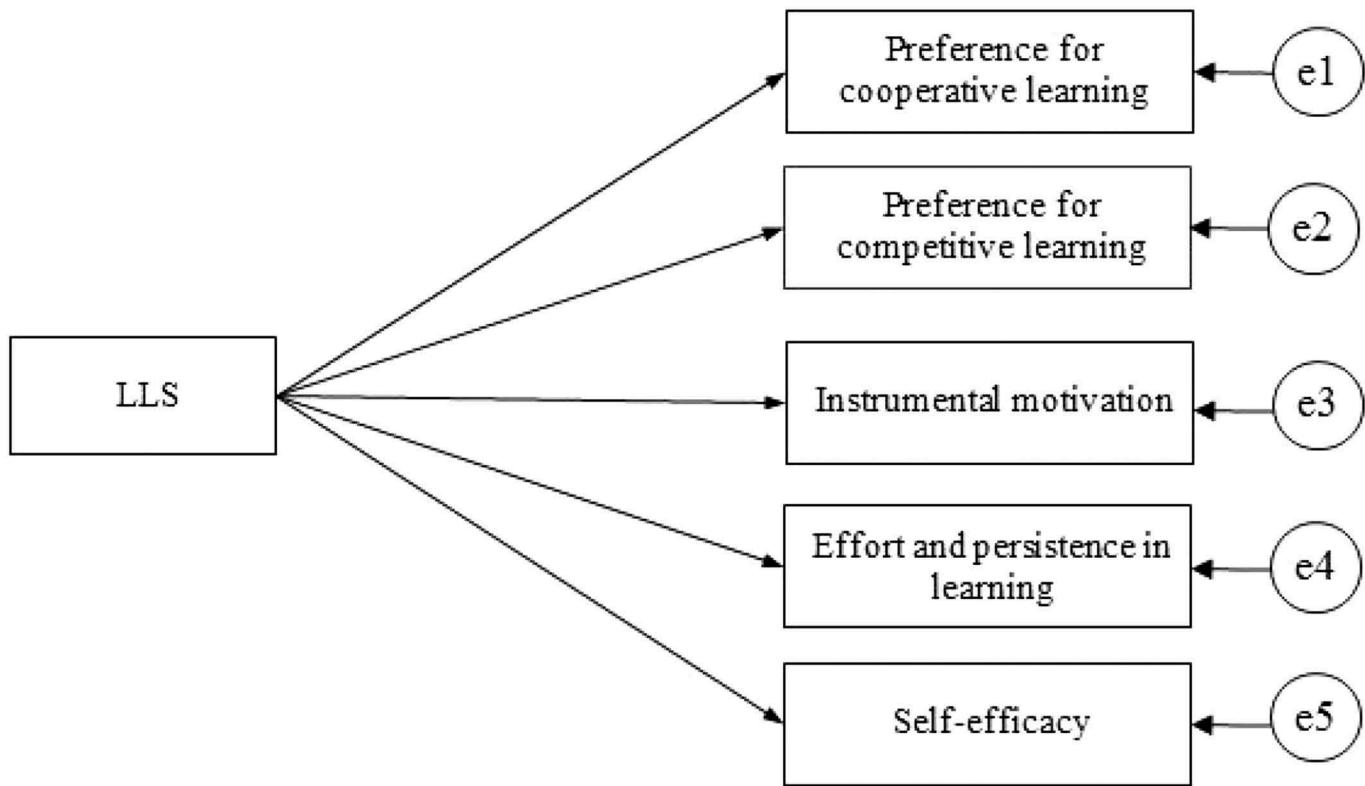


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Abstract: The purpose of the study is to analyse how second language learning is supported by language learning strategies (LLS) and various learning approaches, namely, self-efficacy, instrumental motivation, effort and perseverance, and preferences for cooperative or competitive learning. The sample of the research was composed of students in Hungary in Years 5–8 (10–14-year olds, N = 1600). Two questionnaires were used to collect the data: an adapted version of Oxford's "Strategies Inventory for Language Learning" (SILL) questionnaire and the "Student Characteristics as Learners" questionnaire. A path analysis showed that learning components can be explained differently via language learning strategies and learning approaches. Our results have confirmed our hypotheses that strategy use significantly influences several learning approaches in the sample. Students, who willingly apply their language learning strategies set their learning goals more confidently, plan their learning process more consciously as they learn, and develop more self-efficacy and motivation towards language learning.

Subjects: Educational Research; Bilingualism / ESL; Educational Psychology

Keywords: foreign language learning; language learning strategies; learning approaches; secondary school

ABOUT THE AUTHORS

Anita Habók is an assistant professor at the Institute of Education at the University of Szeged. She has 15 years of teaching experience in the field of education, furthermore, she is a supervisor for pre-service teachers and PhD students. Her research interests include self-regulated learning, learning approach, perceptions of learning, foreign language learning strategies and reading, and the project method.

Andrea Magyar has been a practising EFL teacher in primary and secondary education over 25 years. She has received a PhD in Educational sciences. Her main research interests focus on ICT in education with emphasis on computerised testing and language learning strategies in second language acquisition.

PUBLIC INTEREST STATEMENT

When learning and teaching a foreign language, it is important to examine whether learners use language learning strategies and what strategies they use. It is also important to study how these language learning strategies affect their learning-related components, such as their self-efficacy, effort, or motivation. It is also vital to know about their attitudes towards group work, namely their cooperative or competitive learning situation preferences. Our study aimed at to explore these factors with two questionnaires. According to our results the most frequently used strategies were the metacognitive language learning strategies that shows that learners think a lot about how to learn the most effectively. We also found that the use of language learning strategies influence some factors of learning approach. Effort and persistence in learning and self-efficacy are the most strongly influenced. This draws attention to the need of monitoring the learning approach related factors during language teaching and learning.

1. Introduction

In recent decades, educational research has focused attention on the role of personal characteristics and a number of other factors that influence effectiveness in school, which are often reflected in test scores and school marks (Habók & Magyar, 2018b, 2019). Learning strategies, motivation, self-related beliefs, effort and perseverance, and learning situations are crucial components of school performance and can predict students' achievement (Hattie & Anderman, 2013; Morony et al., 2013). In recent years, studies have placed increasing emphasis on these influential factors and investigated the structural relationships between them; however, these projects have dealt with individual elements or a limited number of learning approaches.

Numerous studies have focused on English as a second language (ESL) and English as foreign language (EFL) and stated that language learning strategies (LLS) can greatly support students in becoming more effective learners inside and outside school (see e.g., Khaldieh, 2000; Lan & Oxford, 2003; Morony et al., 2013; Platsidou & Kantaridou, 2014; Shang, 2010; Wong & Nunan, 2011; Wu, 2008; Yang, 2007; Yin, 2008; Yu, 2007).

Other research has pointed out that language learning strategies are closely associated with non-cognitive factors, such as approaches to language learning, learning styles, personal characteristics, motivation and attitudes (Al-Qahtani, 2013; Habók & Magyar, 2018b; Jabbari & Golkar, 2014; Magogwe & Oliver, 2007; Wong & Nunan, 2011). A large number of studies have analysed students' self-regulated processes in order to provide a more detailed interpretation of various learning factors, learner behaviours and learning outcomes (see e.g., Dignath et al., 2008). Motivation and self-related beliefs are key features among these factors, and, recently, much research has focused on analysing them (Niemiec & Ryan, 2009; OECD, 2013; Zimmerman & Schunk, 2008).

The OECD PISA survey also highlighted the significance of students' approaches. PISA (Programme for International Measurement) is the most important international educational measurement, which is organised by the OECD every three years. It measures 15-year-old students' reading, mathematics and science competences all around the world. The test aims to follow up how students master key subjects and how well prepared they are for real-world situations. Apart from the three main areas, the measurement is supplemented with questionnaires that explore certain underlying factors behind students' measurable outcomes. It focuses on various learning factors, such as motivation, self-beliefs, attitudes and the use of various learning strategies that also greatly contribute to students becoming confident, self-regulated learners. The results reinforce the idea that effective learning depends strongly on these non-cognitive factors, with a model having been developed to analyse learning approaches (Artelt et al., 2003).

The starting point of our research was that students' approaches to learning may also influence their foreign language learning processes and that further structural relationships can be built between them. The main goal of our study was to examine how certain factors in learning approaches, specifically self-efficacy, effort and perseverance, instrumental motivation and learning preferences (cooperative or competitive learning) are related to each other and to individual's language learning strategies. Our results may foster more understanding of the structural relationships, which have mainly been investigated separately in previous research projects. The research may be a valuable contribution to the practical field of the various approaches of language acquisition and highlights pathways for students to become confident, successful foreign language learners.

2. Literature Review

In our review we first describe some perspectives of language learning strategy theories with emphasizing the main constructs of the various taxonomies related to LLS. Second, we highlight

some relevant research in relation to the development of the measurement tools for LLS focusing on the different constructs. Finally, we examine the role of learning approaches and place them in the context of the language learning process.

2.1. Language Learning Strategies

Until the 1970 s, foreign language learning was regarded as a psychological phenomenon. Behaviourist theories approached foreign learning processes as a psychological manipulation of individuals (Grenfell & Macaro, 2007). Later, Chomsky's Universal Grammar theory approached language learning from a structural perspective; it dealt with the ideal language learner and language competence. In the early 1970 s, new paradigmatic theories of language learning were introduced. Vygotsky's sociocultural theory of mind and Krashen's acquisition theory both regarded language learning as a social process and placed emphasis on human interaction in foreign language learning. The emphasis from the methods and products of the language teaching process were placed on the learner, and language learning was regarded as an individual's interaction with his or her social environment.

In this context the arrival of language learning strategy research brought a fundamental shift in perspectives of thinking about language learning processes. Language learning strategy research started with Rubin's article (Rubin, 1975) "What the Good Language Learner can Teach us?" Rubin observed approaches and techniques that characterise successful language learners. From the 1980 s and 1990 s, researchers placed an emphasis on the various non-cognitive aspects (e.g., affective and social factors) that also contribute to an individual's language learning processes (O'Malley & Chamot, 1990).

In these decades, several definitions of language learning strategies were developed, which approach students' language learning from different perspectives. One of the most often cited and most widely accepted definitions was provided by Rebecca Oxford. According to her, strategies in language learning can be understood as "specific action taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford, 1990, p. 8). She pointed out that a number of strategies are employed by language learners, and she developed a complex system (Oxford, 1990), consisting of two main groups: direct and indirect strategy groups.

First, direct strategies are specific means that are closely related to language use: memory, cognitive and compensation strategies. (1) Memory strategies facilitate the storing and recalling of information and dealing with L2 vocabulary. (2) Cognitive strategies aid students in practising and manipulating language directly, for example, note taking, summarising or selecting new information. (3) Compensatory strategies support students in using language in situations where information is missing, for instance, using gestures or predicting vocabulary.

Second, indirect strategies influence language use indirectly and support the language learning process: metacognitive, affective and social strategies. (4) Metacognitive strategies aid learners in organising, managing, regulating and evaluating their own learning processes. They focus on goal setting, planning, maintaining concentration and revising students' own learning. (5) Affective strategies deal with controlling feelings, attitudes and motivation and recognising anxiety level or emotions. (6) The use of social strategies fosters interaction with others as language users request assistance or attempt to understand others' thoughts and feelings (Ehrman & Oxford, 1990).

Oxford (2011) later revised this taxonomy considerably to include self-regulated learning (SRL) and introduced the Strategic Self-Regulation S² R Model of L2 learning strategies, defined as "deliberate, goal-directed attempts to manage and control efforts to learn the L2" (p. 12). These strategies, which involve planning, evaluating, obtaining and using resources, foster the regulation and management of students' own learning, thus enabling them to improve their own proficiency

and self-efficacy. This model formed the basis for Oxford's new theoretical structure, which comprises four categories of strategy: cognitive (e.g., comparing, contrasting or analysing words in the target language), affective (e.g., thinking positively), sociocultural-interactive (e.g., practising the communication style of the target culture) and motivational (e.g., using positive self-talk) as well as the four master categories of "metastrategies". A metastrategy is referred to as an "orchestra conductor" guiding the various "sections of the orchestra", the cognitive, affective, sociocultural-interactive and motivational domains of the different phases of language learning (Oxford, 2017, p. 159). Metastrategies involve metacognitive (e.g., planning and organising learning), meta-affective (e.g., planning specific steps to increase the enjoyment of language learning) and meta-sociocultural-interactive (e.g., looking for tasks that encourage learners to interact with each other) and meta-motivational (e.g., planning the learning goals) strategies (Oxford, 2017) that aid the learner in controlling, managing and monitoring the associated domain.

The fundamental difference between Oxford's original taxonomy and the S² R model is that Oxford removed memory strategies from her original model and merged the social and compensation strategies into the sociocultural-interactive category. She also involved the motivational domain, as that was recently embedded in the affective domain. In addition, she introduced the category of metastrategies, which are more complex than the metacognitive strategies listed in the first classification. Oxford also called attention to the significance of self-regulation, which not only emphasised students' control over cognition, but also the regulation process of the affective and social factors of learning.

2.2. Research on Language Learning Strategies

Based on her theory, Oxford (1990) developed a measurement tool for analysing foreign language learners' strategy use, the Strategy Inventory for Language Learning (SILL). The SILL is a standardized measurement tool for LLS, and it is applicable to various languages, not only English (Appendix 1). The complex questionnaire contains 50 items clustered in six strategy fields: (1) memory strategies (9 items); (2) cognitive strategies (14 items); (3) compensation strategies (6 items); (4) metacognitive strategies (9 items); (5) affective strategies (6 items); and (6) social strategies (6 items). Learners can rate the statements on a five-point Likert-type scale, with the answers ranging from "1 = never or almost never true of me" to "5 = always or almost always true of me". The reported internal consistency reliabilities of the translated questionnaires ranged between .91 and .94 (Cronbach's alpha) (Ardasheva & Tretter, 2013).

In recent decades, a great deal of research has used this measurement tool on a large spectrum of age groups (Harish, 2014; Hong, 2006; Jabbari & Golkar, 2014; Khaldieh, 2000; Lan & Oxford, 2003; Platsidou & Kantaridou, 2014; Shang, 2010; Wu, 2008; Yang, 2007; Yin, 2008; Yu, 2007). The main objective of most of the studies was to map the most frequently used learning strategies. The studies resulted in different findings. Most of the research reported high-level use of the cognitive, metacognitive and social strategies of the samples (Habók & Magyar, 2018a; Oxford & Nyikos, 1989; Peacock, 2001; Radwan, 2011; Shang, 2010; Wu, 2008). Alhaysony (2017), Dawadi (2017), and Wu (2008) reported cognitive, metacognitive and compensation strategy use the highest. Charoento (2016) observed undergraduate students and found that the compensation strategy was the most frequently used strategy type.

Considerably fewer studies have focused on strategy use in connection with affective variables, such as motivational or affective factors; they seem to focus rather on individual characteristics. Jabbari and Golkar (2014) examined Iranian students' attitude and motivation as regards strategy use. They found a rather strong correlation between attitude and language learning strategy use. Students with positive attitudes displayed higher-level strategy use and used more cognitive, compensation, metacognitive and social strategies than learners with negative attitudes. Platsidou and Sipitanou (2014) also reported that attitudes toward second language learning greatly influence both direct and indirect strategy use, and the most frequently employed strategy type was the metacognitive and affective fields. Platsidou and Kantaridou (2014) results showed that attitudes can be a reliable predictor of certain types of strategies; it can therefore be a reliable tool in strategy research.

Relying on the results from these studies, we also investigated certain non-cognitive factors that can be associated with foreign language learning.

2.3. The Role of Learning Approaches in the Language Learning Process

Research on students' approaches to learning focuses on their self-regulation through an analysis of learning strategies, motivational preferences and self-related beliefs. A comprehensive model of learning approaches was developed in the OECD PISA study (Artelt et al., 2003). It contains: learning strategies, such as memorisation, elaboration and control strategies; motivational preferences, including interests in reading and mathematics, instrumental motivation, and effort and persistence; self-related beliefs, comprising self-concept in reading and mathematics, academic self-concept and self-efficacy; and, finally, self-report of social competences, involving preference for cooperative or competitive learning (Artelt et al., 2003). In our research, we highlighted some of this structure to demonstrate structural relationships between them in association with language learning.

Numerous definitions of SRL have been formed in recent decades, and it has been approached from several perspectives. Generally, it can be stated that successful self-regulated learners are goal-oriented and are able to activate their cognitions, which deal with knowledge organisation and knowledge transmission. They behave such that they monitor, direct and regulate their actions to achieve their aims. They have the ability to keep their emotions in check and manage their feelings. They also competently select their skills and competences to achieve greater efficacy (Pintrich, 2000; Zimmerman & Schunk, 2008). Highly motivated students achieve more in academic situations and are more able to adapt their knowledge to new learning situations by maintaining attention and endurance during learning, recalling prior knowledge, organising, assimilating and accommodating to new information, practising knowledge and regulating their emotions in situations they perceive as complicated (Zimmerman & Schunk, 2008).

A number of researchers have confirmed that self-efficacy is a substantial component of successful self-regulation (Pintrich, 2000; Zimmerman & Schunk, 2008). Bandura (1994) defined self-efficacy as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (p. 2). Generally, high self-efficacy students have a higher level of motivation, are readier to employ self-regulated processes and achieve better in school (Zimmerman, 2000). The results of the PISA study (Artelt et al., 2003) highlighted a circular relationship between self-beliefs and performance, which influence each other.

Students who have the endurance, perseverance and resolve to work intensively are more successful in their learning. The PISA survey also confirmed that students who indicated that they work regularly under optimal conditions maintain interest by challenging themselves with problems and are able to achieve higher scores in mathematics than previously expected (OECD, 2013). Other researches have also demonstrated that failure and challenge can promote an increase of perseverance and endurance, which aid students in coping with emerging difficulties (Dweck & Master, 2009).

Ryan and Deci (2000) developed self-determination theory (SDT), in which they differentiated between different patterns of motivation based on an individual's driving forces to achieve their own goals. The two well-known patterns of driving forces are intrinsic and extrinsic motivation. Intrinsic motivation signifies "doing something because it is inherently interesting or enjoyable", while extrinsic motivation comprises "doing something because it leads to a separable outcome" (Ryan & Deci, 2000, p. 55).

Despite the inevitable role of intrinsic motivation, not every learning situation is related to interest or fun in school; hence, students need other factors that drive them to learn. SDT distinguishes certain groups of extrinsic motivation according to the level of control and self-direction.

Some research has investigated the effect of these motivational patterns in an educational context and concluded that autonomy supports learning tasks and fosters students' intrinsic motivation, while perceived autonomy enhances self-regulatory processes. Students with intrinsic motivation were found to be more creative and well-achieving (Niemiec & Ryan, 2009). Generally, it can be stated that intrinsic motivation shows a decreasing tendency from elementary school to higher education (Artelt et al., 2003); thus, facilitating the internalization and self-directedness of extrinsic motivation is significant overall in the learning process (Niemiec & Ryan, 2009). In this period, instrumental motivation becomes a key term in the language learning process because many students want to learn a language in order to fulfil their practical aims, e.g., to earn a good salary or find a good job.

Another component of learning approaches is students' preferences towards learning situations. It was established in the PISA survey (Artelt et al., 2003) that neither a preference for the cooperative learning situation nor that for the competitive kind is superior; indeed, the two types complement each other. Nevertheless, results can predict from students' approaches how effectively they will work once they enter the labour force. Nowadays, one of the most prescribed skills is cooperating with others in teams (Altun, 2015).

Some research has pointed out that cooperative learning has a significant impact on students' academic achievement (Arbab, 2003; Parveen & Batool, 2012), motivation (Kus et al., 2014; Wyk, 2012; Yoshida et al., 2014), learning approaches (Çolak, 2015; Fok & Watkins, 2007) and learning strategies (Wyk, 2012).

The PISA measurement showed that there was not a high correlation between students' preferences for competitive or cooperative learning and their performance; however, learning situation preferences can be important in different situations and motivating for some students. As regards the results in certain countries, it was found that low-achieving students were especially motivated by group work or other non-competitive learning situations; hence, this finding can be used to facilitate learning engagement in classroom practice (Artelt et al., 2003).

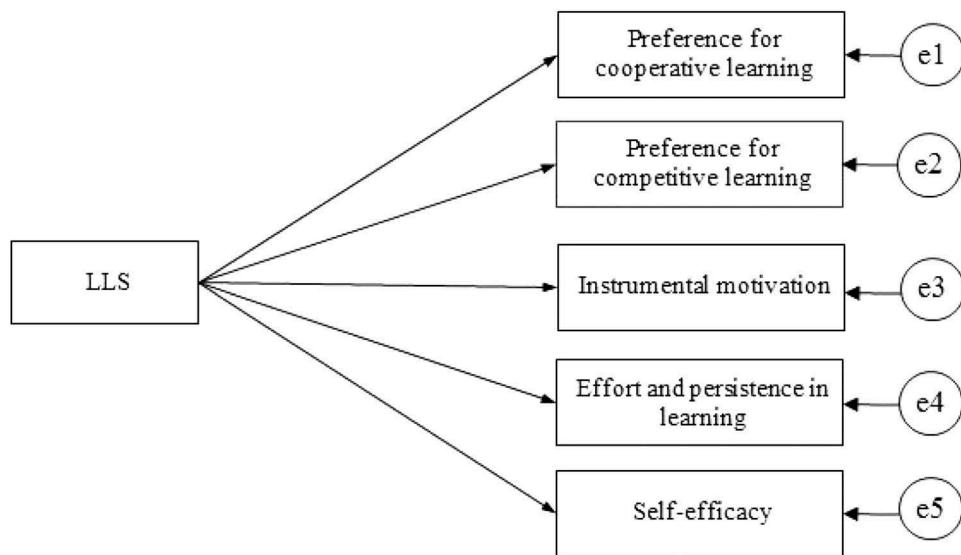
Language learning strategies and learning approaches, highlighted in the theoretical part, specify various aspects of the learning process; moreover, they can influence each other. In recent years, numerous studies have analysed learning strategies and learning approaches from different perspectives, but these projects have mainly focused on particular cognitive and non-cognitive factors separately. The main conclusion of these findings is that learning approaches have a positive impact on students' cognitive and non-cognitive factors. Highly motivated students regulate their own learning process more effectively, they are able to set goals which can be fulfilled, the goals are more realistic, and they find the strategies that are most appropriate for them to achieve better (Artelt et al., 2003). The main relevance of the present study is to provide a comprehensive view of the ties between language learning strategies and learning self-related factors and build a hypothesized model of the effects among the variables of language use strategies and learning approaches (Figure 1). According to our model, there are close links between the fields, and language learning strategies strongly determine certain non-cognitive factors among learners.

3. Research Questions

The present research aims to analyse lower secondary school students' language learning strategy use. Moreover, it investigates it in relation to certain components of learning approaches, such as self-efficacy, instrumental motivation, effort and perseverance, and preferences for cooperative or competitive learning.

Our hypothesis is that a close relationship exists between strategy use and learning approaches; furthermore, strategy use significantly affects the different factors of language learning. Learners who willingly apply metacognitive, cognitive, memory, social, compensation or affective strategies

Figure 1. The hypothesized model for the LLS and SCL questionnaire fields.



set their learning aims more confidently, design their learning process more consciously and possess more self-efficacy and motivation towards language learning (Figure 1).

4. Methods

4.1. Participants

Our participants were Hungarian lower secondary school students aged 10–14 ($N = 1600$). This age group covers Years 5–8 ($N_{Year5} = 387$, $N_{Year6} = 417$, $N_{Year7} = 410$, $N_{Year8} = 386$). Among the participants, 772 were girls and 816 were boys, with missing gender data for 12. Learning one foreign language is compulsory in the participating schools, with students attending three foreign language lessons per week.

The students were drawn from 23 schools. School and student participation in the study was voluntary. The IRB at the Doctoral School (blind for review) specifically approved this study. Written informed consent was also obtained from the participants. Our reasons to do the investigation in this age group were twofold. First, lower secondary school lasts from Years 5 to 8 in Hungary and ends at the age of 14. This year is a turning point for the students, when they have to choose between different forms of secondary education. They are at the end of compulsory education and they have to be able to cope with the expectations of adult life. Second, it is during the lower secondary school years when students have to learn how to learn on their own and to develop their learning styles and learning strategies, which can aid them in managing their studies at college or university. As regards foreign language learning, students begin learning foreign languages at age 9, so the students in the sample had at least 1 year of experience; however, they are young learners, and they are at the beginning of their language acquisition, which can determine their later learning success.

4.2. Instruments

Two questionnaires were implemented during data collection: the “Strategy Inventory for Language Learning” (SILL) and “Student Characteristics as Learners” (SCL) questionnaires (Appendix 1). The SILL, developed by Rebecca Oxford (1990), was administered to investigate language strategy use. It is a standardized questionnaire for language learning and is often used to measure students’ language strategy use at different ages. Until now, it has provided the basis in several studies not only for EFL learners but also for learners of other foreign languages. Habók and Magyar (2018a) and Doró and Habók (2013) confirmed the SILL as a reliable tool for

a Hungarian lower secondary school sample. Six strategy fields are included in the original questionnaire: memory (items 1–9) (e.g., “I think of relationships between what I already know and new things I learn in English”); cognitive (items 10–23) (e.g., “I use the English words I know in different ways”); compensation (items 24–29) (e.g., “To understand unfamiliar English words, I make guesses”); metacognitive (items 30–38) (e.g., “I think about my progress in learning English”); affective (items 39–44) (e.g., “I try to relax whenever I feel afraid of using English”); and social (items 45–50) (e.g., “I ask for help from English speakers”) strategies. The learners indicated their responses on a five-point Likert scale (1 = never or almost never true of me—5 = always or almost always true of me).

First applied in the PISA study in 2000, the SCL was administered to measure learning approaches. The questionnaire has undergone several changes in recent years, but its frame has remained. Previous research projects have demonstrated that the SCL is a reliable tool for both international (Cronbach’s alpha = .76–.82) and Hungarian samples (see e.g., Artelt et al., 2003; Németh & Habók, 2006). Németh and Habók (2006) confirmed its reliability for a Hungarian upper secondary school sample (Cronbach’s alpha = .75–.84). The following fields in the questionnaire were involved in the study: instrumental motivation (items 1–3), effort and persistence in learning (items 4–7), self-efficacy (items 8–11) and preference for cooperative (items 12–16) or competitive learning (items 17–20) (Appendix 1). Students provided their responses on a four-point Likert scale (1 = almost never—4 = almost always; 1 = disagree—4 = agree).

4.3. Design and Procedure

Data collection was implemented through the eDia online testing platform, which was established by the Centre for Research on Learning and Instruction at the University of Szeged (Csapó & Molnár, 2019). The platform was launched in 2009 and has been constantly developed since then according to researchers’ needs. It has been used to test thousands of students. In the present research, students completed the questionnaires during two school lessons determined by the school management. Students were able to work individually, since all instructions were included in the online questionnaire. The teachers who conducted the data collection had the opportunity to collect students’ questions and remarks to report them to the researchers.

As for the data analysis, classical test analysis was used by SPSS for Microsoft Windows 20.0, which included an estimation of reliabilities: internal consistency reliability (CRB, Cronbach’s alpha) and composite reliability (CR, McDonald’s Omega). Both the α and the CR values were considered satisfactory when they equalled or exceeded 0.7025 (Helms et al., 2006). We also regarded the means and standard deviations of the variables. Correlational analysis was used to discover the links between the LLS variables. Collinearity was detected with the absolute value of correlation coefficients ($|r|$), calculating the tolerance and its inverse, the variance inflation factor (VIF) values, and using the condition indices (CI). As regards correlation coefficients, if pairwise correlations exceed a threshold, collinearity is high. We considered 0.7 the suggested value for thresholds. Tolerance was estimated “as the amount of variability of the selected independent variable not explained by the other independent variables” (Hair et al., 2014, p. 197). The variance inflation factor (VIF) was regarded as the reciprocal of the tolerance value (Hair et al., 2014).

Next, we conducted a path analysis with the SPSS AMOS v20 software package to demonstrate the effect of language strategy use on the variables under observation (Arbuckle, 2008). The model fit was indicated with a Chi-squared test, the Tucker-Lewis index (TLI), the normed fit index (NFI), the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) (Byrne, 2010; Kline, 2015). Chi-square statistics are used to determine the appropriate structural model among the hypothesized models. The difference in chi-square as a ratio of the difference in df was investigated with the significance of the p-value. As the chi-square test statistic is rather sensitive to the size of the sample, significant chi-square values are systematically found in case of large samples (Kline, 2015; Schermelleh-Engel et al., 2003; Vandenberg, 2006). We thus also regarded CFI values that are not so sensitive to sample size. The CFI, TLI and NFI values range from 0 to 1, with higher values indicating

a better fit. Value larger than .90 indicates an acceptable model fit (Hu & Bentler, 1999). The RMSEA value is also crucial, because it calculates the model fit while also concerning with the complexity of the model structure. A value of .08 or less generally specifies a good model fit (MacCallum et al., 1996).

5. Results

Descriptive statistics for the LLS and SCL questionnaires are listed in Table 1. Internal consistency reliability (CRB, Cronbach's alpha) and composite reliability (CR, McDonald's Omega) at item level were used for each questionnaire field. The CRB values ranged between .74 and .92 for the LLS and between .85 and .98 for the SCL. The CR values varied between .79 and .83 for the LLS and between .81 and .88 for the SCL. The mean and standard deviation values were counted in percentage points for better comparability of the different Likert scales (four-point for SCL and five-point for LLS). The results showed that the participants in our sample employ all the language learning strategies, with the use of metacognitive strategy being the highest. The use of the compensation strategy was the lowest.

With regard to students' approaches to learning, the following results can be found. The role of instrumental motivation is the highest, while preferences for cooperative or competitive learning fall behind these. These types of learning are almost similarly preferred. The results for effort and persistence in learning and self-efficacy are the lowest in this sample.

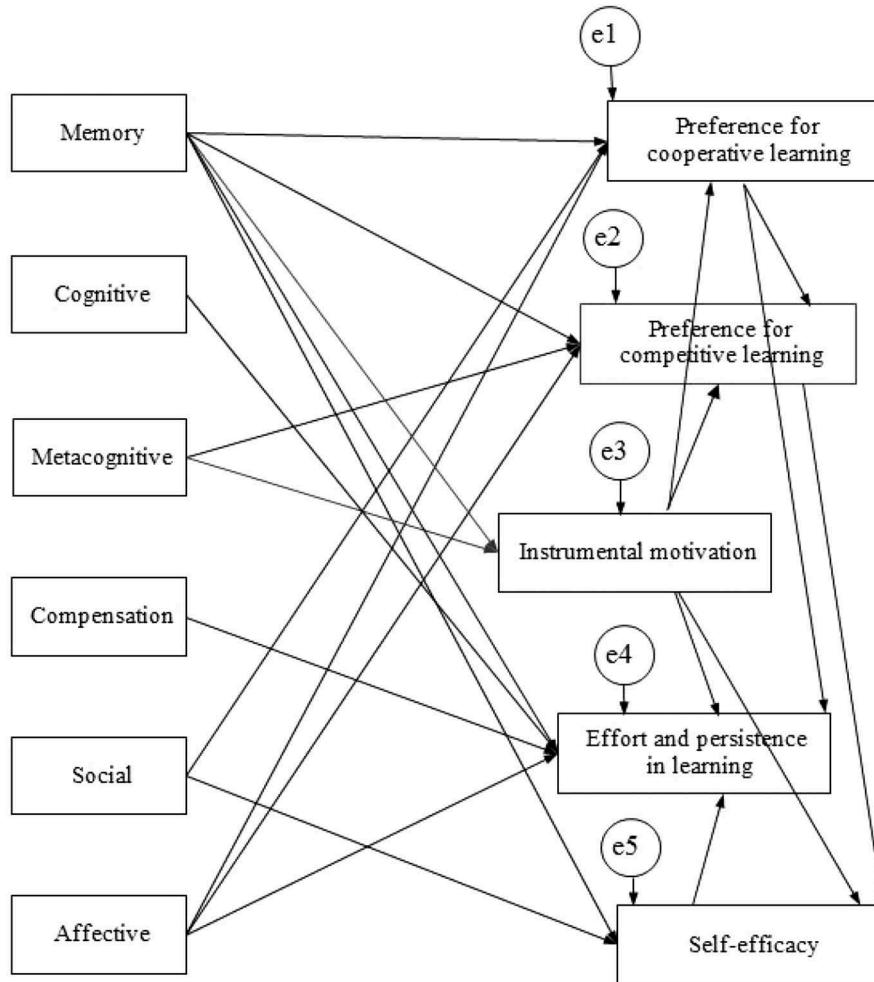
The correlation between the various fields of LLS were significant and high. No collinearity effect was detected (Appendix 12). The highest correlational coefficients were found between cognitive and memory ($r = .77$), metacognitive and cognitive ($r = .83$), and social and metacognitive strategies ($r = .79$). The lowest but significant estimates were determined between affective and compensation ($r = .56$), as well as between social and compensation strategies ($r = .56$).

Table 1. Descriptive statistics for the LLS and approaches to learning

Learning Approaches	Variables	CRB	CR	Mean (%p)	SD (%p)
LLS	Memory strategy	.83	.95	45.39	20.37
	Cognitive strategy	.90	.98	45.60	21.33
	Metacognitive strategy	.74	.86	51.94	24.29
	Compensation strategy	.92	.98	42.09	21.52
	Affective strategy	.77	.85	44.48	23.88
	Social strategy	.86	.93	46.89	25.51
SCL	Effort and persistence in learning	.81	.85	64.30	22.55
	Self-efficacy	.79	.83	62.08	21.15
	Instrumental motivation	.83	.81	83.31	21.55
	Preference for cooperative learning	.81	.88	68.06	21.43
	Preference for competitive learning	.79	.83	68.25	21.53

Figure 2. The path model for the LLS and SCL questionnaire fields.

All paths are significant ($p < .01$).



We analysed the effect of the different learning strategies on approaches and used a path analysis. It can be stated that the model fitted the data well [$\chi^2 (6) = 64.808$, $df = 18$, $p = .000$]; the path model we hypothesized resulted in an appropriate comparative fit index (CFI) of .995. The RMSEA (root mean squared error of approximation) estimate was an acceptable .040. The Tucker-Lewis index (TLI = .982) and the normed fit index (NFI = .993) confirmed that this was a well fitted model (Figure 2).

Table 2 provides an overview of the language strategies and learning approaches with a significant effect on the variables under examination. The correlation coefficients between the variables listed indicated significant relations. The strongest correlational coefficients were found between: self-efficacy and effort and persistence; preferences for competitive learning and self-efficacy; cognitive learning strategies and effort and persistence; and effort and persistence and instrumental motivation.

As regards the explained variance, we found that seven variables had the most effects (cognitive, memory, affective and compensation strategy, self-efficacy, instrumental motivation and preferences for cooperative learning) on effort and persistence in learning. Hence, the regression model accounts for 45% of the variance in responses to effort and persistence-related questions.

Self-efficacy was influenced by memory and social strategies, competitive learning and instrumental motivation. The regression model accounts for 31% of the variance in responses to self-

Table 2. Regression analysis with LLS and SCL questionnaire fields as predictors of effort and persistence in learning, self-efficacy, instrumental motivation and preferences for cooperative or competitive learning

Flow of structural path			r	β	$r\beta * 100 (\%)$
Cognitive strategy	→	Effort and persistence in learning	.43	.14	45
Memory strategy			.42	.10	
Affective strategy			.36	.09	
Compensation strategy			.24	-.13	
Self-efficacy			.57	.38	
Instrumental motivation			.43	.22	
Preference for cooperative learning			.31	.11	
Memory strategy	→	Self-efficacy	.41	.17	31
Social strategy			.37	.13	
Preference for competitive learning			.44	.26	
Instrumental motivation			.36	.21	
Metacognitive strategy	→	Instrumental motivation	.26	.17	8
memory strategy			.25	.13	
Social strategy	→	Preference for cooperative learning	.30	.16	13
Affective strategy			.27	.07	
Memory strategy			.20	.12	
Instrumental motivation			.30	.12	
Affective strategy	→	Preference for competitive learning	.37	.16	24
Memory strategy			.38	.14	
Metacognitive strategy			.36	.08	
Instrumental motivation			.32	.21	
Preference for cooperative learning			.26	.11	

Correlation is significant at the .001 level.

efficacy-related questions. Preferences for competitive learning are due to affective, memory and metacognitive strategies as well as to instrumental motivation and cooperative learning. Finally, we were able to explain 24% of competitive learning. The variables which have a significant effect on cooperative learning showed a low effect, only 13%. Instrumental motivation was determined by metacognitive and memory strategies, but their effect is also low. All in all, we found a significant effect on all fields of learning approach.

6. Discussion

This research focused on how second language learning is supported by foreign language learning strategies and various learning approaches. Our study confirms our hypothesis that there is a close link between language learning strategy use and learning approaches; furthermore, strategy use significantly affects the different factors of foreign language learning. More specifically, students' language learning strategy use has a strong effect on students' learning approaches.

First, our results showed that the students in the sample employed language learning strategies moderately. Among the strategies, the metacognitive strategy was the most frequently used field. These findings demonstrated for us that students mostly prefer to find out how to be better learners of English, like to pay attention when someone is speaking a foreign language and willingly notice their mistakes and use that information to become better language learners. Our findings are in line with Habók and Magyar's (2018a), Peacock's (2001), Radwan's (2011), and Shang's (2010) research, which also demonstrated the relatively high use of metacognitive strategies. Among the various learning approaches, similarly to Németh and Habók (2006), we also identified instrumental motivation as playing the most dominant role. Students' main motivating factor in studying languages is to enhance their job opportunities and to be financially secure. Niemiec and Ryan (2009) also pointed out the significance of external motivators, such as obtaining a reward for language learning or receiving a good foreign language grade, but also warned that these motivators have a short-term effect on students' achievement than the effect of intrinsic motivators. Our results showed quite low preferences for effort and persistence in learning and for self-efficacy. Students did not give a high rating to studying a language when the material is difficult for them. They are not so confident that they can learn the foreign language or do excellently on a language test. These findings are also in line with Yoshida et al. (2014), who also showed that students who have high intrinsic motivation toward language learning display more effort and persistence and are more engaged in their own learning. We could not find any significant difference between preference for cooperative or competitive learning in any kind of learning situation. Students willingly cooperate with each other and put together everyone's ideas when working on a project. However, in competitive learning situations, they would like to be the best. In 2000, the PISA results showed that Hungarian students employed competitive learning above average and preferred cooperation far below average (Artelt et al., 2003). Since that time, the scores for competitive and cooperative learning preference have been consistently the same. The reason for this feature may be the more frequent use of activity-based language learning and inquiry-based language teaching methods and communication-based foreign language teaching.

Second, we used path analysis to investigate the effect of LLS on SCL questionnaire fields. The model we constructed indicated a good fit to the data, and significant relationships were found between the strategy fields on the questionnaires. As regards self-efficacy, it was explained with memory and social strategies, as well as with preference for competitive learning and instrumental motivation. 45% of effort and persistence was understood in terms of cognitive, memory, affective and compensation strategies as well as self-efficacy, instrumental motivation and preference for cooperative learning. On the whole, we managed to describe most of this field with strategy use and learning approaches. In terms of the variables, we were able to explain 13% of preference for cooperative learning with the social, affective and memory strategies and with instrumental motivation, while affective, memory and metacognitive strategies, instrumental motivation and cooperative learning preference lay behind 24% of preference for competitive learning. Instrumental motivation was explained with metacognitive and memory strategies.

6.1. Language Learning Strategies and Self-Efficacy; Effort and Persistence Preferences

Among our participants, students who use memory and social language learning strategies to a higher degree have high self-beliefs and self-efficacy. The model we constructed also indicated that high self-efficacy was accompanied by a competitive attitude and instrumental motivation. Students who desire a better job, higher position or language certificate display a higher self-motivation level and higher self-belief. As Zimmerman (2000) and the PISA results (OECD, 2013) also emphasised, the self-efficacy of these students drives them to perform better in language lessons and to set higher but realistic goals, such as obtaining a language certificate or entering university. An intermediate language certificate is a criterion for receiving a university degree in Hungary. This feature is very significant in school nowadays, since students with higher self-efficacy can more easily handle difficulties. For that reason, teachers ought to place emphasis on facilitating students' self-efficacy and positive self-beliefs in language teaching.

6.2. Language Learning Strategies and Instrumental Motivation

Nowadays, instrumental motivation plays an increasingly significant role in students' lives. Students who recognise the significance of a well-paid job or a future career are more inspired to learn languages (Németh & Habók, 2006; Oroujou & Vahedi, 2011). This type of motivation drives students to learn languages more successfully. Our findings are in line with other studies that also demonstrated that language learning strategies, specifically metacognitive and memory strategies, mostly support these aims (Alhaysony, 2017; Dawadi, 2017; Habók & Magyar, 2017a; Wu, 2008).

6.3. Language Learning Strategies and Learning Situation Preferences

The effect of social, affective and memory language learning strategies on the preference for cooperative learning was significant. Among these, social and affective strategies were essential for effective teamwork. Students who do not understand something in English and willingly ask another person to slow down or repeat what they have said or who can better encourage themselves to speak English engage in teamwork more effectively. In their preference for cooperative learning, students' memory-related strategies were also significant. Students who enjoyed teamwork and took an active part in the learning process were more ready to use their prior knowledge of foreign language, more willing to recall foreign language words and use new English words in sentences, and able to motivate their classmates during foreign language learning. Students who recognised the significance and advantage of foreign language learning also preferred working in groups, since group learning offers a new type of success, one in which they can share with their classmates. These results are in line with Wyk's (2012) and Kus et al.'s (2014) findings that students performed better when they participated in cooperation-based instruction.

With regard to competitive learning preferences, the effect of memory and the metacognitive and affective fields was detected. Students who organise their language learning materials more effectively, monitor their language learning processes or encourage themselves to speak English well also endeavoured to be better than others. The memory, metacognitive and affective strategies can aid students in becoming effective in competitive learning situations, such as tests, competitions and language exams. Affective strategies also contribute to developing a positive attitude towards foreign language learning.

Our findings confirmed that the two types of learning situation preferences, cooperative and competitive, did not exclude each other. They rather complemented one another. Students who preferred cooperative learning also found motivation for competition, which can encourage them to improve continuously. They can endeavour to be the most successful learner in the group or they can assist in making their group the best performing group in the class. Students that prefer competitive situations can also find opportunities to compete with other teams as they learn.

7. Conclusions

The results of our research provide a brief overview of the structure of certain important aspects of language learning strategy use and its effect on learning approaches. Our findings have confirmed our hypothesis that strategy use significantly influences several learning approaches. Students who willingly apply metacognitive, cognitive, memory, social, compensation or affective strategies are able to set their learning goals more confidently, plan their learning process more consciously as they learn, and develop more self-efficacy and motivation towards language learning.

Our results also showed that although our students use several types of LLS, they use them to a moderate degree. For teaching practice, it is important to recognise the significance that teaching these strategies holds for students in particular. Integrating these strategies into language courses or focusing on them in dedicated courses would be highly recommended. Our findings confirm Oxford's S2 R taxonomy as we have proved that the extension of SILL with the different learning approaches comprises similar constructs as Oxford's newly developed model.

Our research offers a valuable contribution to the practical field of foreign language learning and explores further aspects of language acquisition. It also draws attention to the various non-cognitive factors that can greatly aid students in becoming self-directed, effective and successful language learners.

8. Limitations

The study has some limitations. First, we applied self-report questionnaires to evaluate lower-secondary school students' opinions, which reflect student's self-perceived "learner characteristics". The use of qualitative methods, such as think-aloud procedures and interviews would help us to obtain a more comprehensive picture of the language learning methods and strategies of the students in the sample.

Secondly, the sample for the research was drawn from lower-secondary school children; therefore, a generalisation of the findings is rather limited to this age group.

Thirdly, socio-economic status, language learning circumstances and individual measures (IQ and working memory) can also influence strategy use and learning approaches. In schools, numerous language course books and other teaching resources are used, which can also influence teaching and learning processes and results.

Finally, we did not use methods to obtain a direct measure of performance, which would have enabled us to obtain a more comprehensive view of the sample.

Our intention is to involve some of these fields in a future research project to provide a more informative interpretation.

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Cover Image

Source: Author

Ethics statement

Both authors declare that the study adhered to the usual standards of research ethics as approved by the IRB of the Doctoral School of Education, University of Szeged, Hungary. Written informed consent was organized by participating schools and obtained from the participating children's parents. The written informed consent has been stored in schools.

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Appendix 1

Adapted version of Strategy Inventory for Language Learning (SILL) Version 7.0 (ESL/EFL) © R. Oxford. 1989

Statements

1. I think of relationships between what I already know and new things I learn in English.
2. I use new English words in a sentence so I can remember them.
3. I connect the sound of a new English word and an image or picture of the word to help remember the word.
4. I remember a new English word by making a mental picture of a situation in which the word might be used.
5. I use rhymes to remember new English words.
6. I use flashcards to remember new English words.
7. I physically act out new English words.

(Continued)

(Continued)

Statements

8. I review English lessons often.
9. I remember new English words or phrases by remembering their location on the page, on the board, or on a street sign.
10. I say or write new English words several times.
11. I try to talk like native English speakers.
12. I practice the sounds of English.
13. I use the English words I know in different ways.
14. I start conversations in English.
15. I watch English-language TV shows spoken in English or go to movies spoken in English.
16. I read for pleasure in English.
17. I write notes, messages, letters, or reports in English.
18. I first skim an English passage (read over the passage quickly) then go back and read carefully.
19. I look for words in my own language that are similar to new words in English.
20. I try to find patterns in English.
21. I find the meaning of an English word by dividing it into parts that I understand.
22. I try not to translate word-for-word.
23. I make summaries of information that I hear or read in English.
24. To understand unfamiliar English words, I make guesses.
25. When I can't think of a word during a conversation in English, I use gestures.
26. I make up new words if I do not know the right ones in English.
27. I read English without looking up every new word.
28. I try to guess what the other person will say next in English.
29. If I can't think of an English word, I use a word or phrase that means the same thing.
30. I try to find as many ways as I can to use my English.
31. I notice my English mistakes and use that information to help me do better.
32. I pay attention when someone is speaking English.
33. I try to find out how to be a better learner of English.
34. I plan my schedule so I will have enough time to study English.
35. I look for people I can talk to in English.
36. I look for opportunities to read as much as possible in English.
37. I have clear goals for improving my English skills.
38. I think about my progress in learning English.
39. I try to relax whenever I feel afraid of using English.
40. I encourage myself to speak English even when I am afraid of making a mistake.
41. I give myself a reward or treat when I do well in English.
42. I notice if I am tense or nervous when I am studying or using English.
43. I write down my feelings in a language learning diary.
44. I talk to someone else about how I feel when I am learning English.
45. If I do not understand something in English, I ask the other person to slow down or say it again.
46. I ask English speakers to correct me when I talk.
47. I practice English with other students.
48. I ask for help from English speakers.
49. I ask questions in English.
50. I try to learn about the culture of English speakers.

PISA questionnaire items we applied to analyse student characteristics as learners (Artelt, Baumert, Julius-McElvany & Peschar, 2002, 80–82)

Statements

1. I study to increase my job opportunities.
 2. I study to ensure that my future will be financially secure.
 3. I study to get a good job.
 4. When studying, I work as hard as possible.
 5. When studying, I keep working even if the material is difficult.
 6. When studying, I try to do my best to acquire the knowledge and skills taught.
 7. When studying, I put forth my best effort.
 8. I'm certain I can understand the most difficult material presented in readings.
 9. I'm confident I can understand the most complex material presented by the teacher.
 10. I'm confident I can do an excellent job on assignments and tests.
 11. I'm certain I can master the skills being taught.
 12. I like to work with other students.
 13. I learn the most when I work with other students.
 14. I do my best work when I work with other students.
 15. I like to help other people do well in a group.
 16. It is helpful to put together everyone's ideas when working on a project.
 17. I like to try to be better than other students.
 18. Trying to be better than others makes me work well.
 19. I would like to be the best at something.
 20. I learn faster if I'm trying to do better than the others.
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Appendix 2. Collinearity diagnostics

		Flow of structural path		Collinearity Statistics		Collinearity Diagnostics	
		Tolerance	VIF	Eigen-value	Condition Index		
Cognitive strategy	→	.32	3.13	.23	5.63		
Memory strategy		.36	2.79	.10	8.75		
Affective strategy		.54	1.87	.09	9.24		
Compensation strategy		.53	1.89	.07	10.03		
Self-efficacy		.73	1.37	.05	11.87		
Instrumental motivation		.85	1.18	.04	14.08		
Preference for cooperative learning		.88	1.14	.03	15.96		
Memory strategy	→	.53	1.90	.18	5.09		
Social strategy		.55	1.82	.06	8.62		
Preference for competitive learning		.79	1.27	.05	9.26		
Instrumental motivation		.88	1.14	.03	12.21		
Metacognitive strategy	→	.52	1.94	.10	5.24		
Memory strategy		.52	1.94	.05	7.35		
Social strategy	→	.47	2.13	.19	4.89		
Affective strategy		.49	2.04	.08	7.51		
Memory strategy		.52	1.92	.06	8.60		
Instrumental motivation		.97	1.07	.03	12.01		
Affective strategy	→	.54	1.87	.20	5.29		
Memory strategy		.46	2.20	.08	8.33		
Metacognitive strategy		.44	2.28	.06	9.37		
Instrumental motivation		.91	1.00	.05	10.38		
Preference for cooperative learning		.89	1.13	.03	13.80		



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