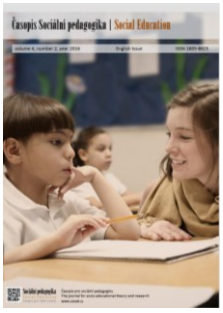
Tomas Bata University in Zlín
Faculty of Humanities



**Sociální pedagogika | Social Education**

ISSN 1805-8825
E: editorsoced@fhs.utb.cz
W: http://www.soced.cz

# Language learning strategies: The adaptation of the Czech-language version of the Strategy Inventory for Language Learning for secondary school students

Julie Junaštíková

**To cite this article:** Junaštíková, J. (2026). Language learning strategies: The adaptation of the Czech version of the Strategy Inventory for Language Learning for secondary school students. *Sociální pedagogika / Social Education, 14*(1), 1–17. https://doi.org/10.7441/soced.7437163

To link to this article: https://doi.org/10.7441/soced.7437163

Published online: 12 06 2026

Download at www.soced.cz in multiple formats (MOBI, HTML, EPUB)

CrossMark

Indexing: List of non-impact peer-reviewed journals published in the Czech Republic, ERIH PLUS, ERA, EBSCO, CEJSH, DOAJ, SSRN, ProQuest, ROAD, SHERPA/RoMEO, CEEOL, OAJI, ICI, SIS, Ulrich's Periodicals Directory, The Keepers Registry, Research Gate, Academia.edu, Academic Resource Index, Google Scholar and provides DOI, Similarity Check and CrossMark (CrossRef).

**Sociální pedagogika | Social Education**
volume 14, issue 1, pp. 1–17, 2026
https://doi.org/10.7441/soced.7437163
ISSN 1805-8825



# Language learning strategies: The adaptation of the Czech-language version of the Strategy Inventory for Language Learning for secondary school students

*Julie Junaštíková*

**Contact**

Tomas Bata University in Zlín
Faculty of Humanities
Štefánikova 5670
760 01 Zlín
Czech Republic

✉ Correspondence:
junastikova@utb.cz



**Abstract:** The Strategy Inventory for Language Learning (SILL) is a common tool for assessing language learning strategies. However, due to changes in learning environments, such as increased digital exposure and out-of-class language practice, the original structure may not fully capture current learner strategies. Thus, validation is still needed. This study details the adaptation process of the questionnaire for the Czech context. It involved 1306 secondary school students (706 female, 555 male, and 45 identifying differently). Both exploratory and confirmatory factor analyses were conducted, testing two-, three-, and four-factor models. The two-factor model (CFI = .918, TLI = .901, RMSEA = .066, CMIN/DF = 3.806) provided the best fit. The final version includes both direct and indirect strategies. The tool shows excellent internal consistency (Cronbach's α = .861; McDonald's ω = .853) and is useful for diagnostics and self-monitoring.

**Keywords:** Strategy Inventory for Language Learning, language learning strategies, adaptation, exploratory factor analysis, confirmatory factor analysis, reliability

## Strategie učení se jazykům: Adaptace české verze dotazníku Strategy Inventory for Language Learning pro žáky středních škol

**Abstrakt:** Strategy Inventory for Language Learning (SILL) je široce využívaný nástroj pro měření strategií učení se jazykům. V důsledku proměn podmínek jazykového učení, včetně rostoucí expozice digitálních technologií a mimoškolního kontaktu s jazykem, však původní struktura nástroje nemusí plně odrážet strategie využívané současnými žáky. Cílem této studie je popsat proces adaptace dotazníku pro českou populaci. Výzkumu se zúčastnilo 1306 středoškolských žáků (706 dívek, 555 chlapců a 45 žáků uvedlo jiné pohlaví). Pro účely adaptace byly použity explorační a konfirmační faktorová analýza. Testovány byly dvou-, tří- a čtyřfaktorové modely. Na základě porovnání ukazatelů shody (CFI = 0,918, TLI = 0,901, RMSEA = 0,066, CMIN/DF = 3,806) se jako nejvhodnější ukázal dvoufaktorový model SILL-CZ. Finální verze nástroje zahrnuje přímé a nepřímé strategie. Nástroj vykázal velmi dobrou vnitřní konzistenci (Cronbachovo α = 0,861; McDonaldovo ω = 0,853) a může sloužit jako praktický diagnostický nástroj i prostředek pro sebemonitorování učení.

**Klíčová slova**: strategický inventář pro výuku jazyků, strategie učení se jazykům, adaptace, explorační faktorová analýza, konfirmační faktorová analýza, spolehlivost

# 1 Introduction

The European Union Council (2018) highlights multilingualism as one of eight essential competencies for promoting a healthy, sustainable lifestyle, employability, civic engagement, and social inclusion. Proficiency in foreign languages is becoming more crucial for both work and social interactions (Council of the European Union, 2019). In the EU, foreign language instruction begins at early education levels (EACEA, 2023).

Language Learning Strategies (LLS) are essential in learning a foreign language, as they promote more effective, autonomous, and self-regulated learning. Studies link LLS to better outcomes, increased motivation, and greater learner independence. Students who use a broader range of strategies often achieve higher success (Sukying, 2021; Wong, 2011; Yoong & Hashim, 2023). Additionally, the rise of digital technologies and exposure to English outside the classroom has further expanded learning opportunities (Jahrani & Listia, 2023; Sundqvist, 2011; Viberg & Kukulska-Hulme, 2021). Effective strategies are beneficial not only for high-achieving students; less successful learners can also improve by adopting and developing them (Alfarisy, 2022). Since strategy use varies among learners, it is important to identify which strategies are favoured or neglected and how their use evolves over time and contexts (Chong et al., 2025; Papadopoulou et al., 2018; Yoong & Hashim, 2023). The Czech context might display specific patterns of strategy use due to cultural, educational, and curricular differences. Secondary education is a vital stage for fostering more effective learning habits, autonomy, and responsibility for learning (Weinstein & Acee, 2013). Therefore, a tool is needed to measure and assess the LLS used by Czech students. The most common instrument in this area is the Strategy Inventory for Language Learning (SILL) by R. Oxford (Domínguez & Juanías, 2024), and this study focuses on adapting it for the Czech context.

The SILL has been previously studied within the Czech context (Vlčková, 2007; Vlčková & Přikrylová, 2011). Past research has clarified the factor structure of language learning strategies and led to an adapted version suited to the Czech educational system. As language learning conditions continue to evolve and the demand for relevant instruments grows, ongoing validation of the SILL remains important.

Considering the points above, it is important to examine how language learning conditions are evolving today. Although Language Learning Strategies (LLS) are well documented in existing literature, the relevance of the SILL instrument remains given recent changes. These include the growing influence of digital technologies, increased extramural exposure to English, and shifts in upper secondary education, such as updates to the school-leaving exam format. From a social pedagogical standpoint, understanding how students handle classroom demands and approach their learning is vital, as these factors are closely linked to academic achievement and potential school failure. Consequently, learning strategies are seen not only as a didactic concept but also as a reflection of how students organise, regulate, and manage their learning processes.

The validated instrument is useful not only for teachers but also for school social pedagogues who assist students in at-risk situations. It helps identify learning gaps and promotes targeted development of effective strategies, thereby aiding the prevention of school failure through timely, individualised support.

## 2 Theoretical background

Research on Language Learning Strategies (LLS) has spanned over fifty years, evolving in both theoretical foundations and the key concepts involved (Pawlak, 2021). Since the 1960s, the focus has shifted from the teacher and teaching methods to the learner's learning process, reflecting a move from behaviourist to cognitivist paradigms (Vlčková, 2010), which laid the groundwork for LLS research. Numerous definitions and classifications of LLS have been proposed. Oxford (1989) described LLS as "behaviours or actions which learners use to make language learning more successful, self-directed and enjoyable". In 1990, she provided another definition, describing them as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed and more transferable to new situations" (Oxford, 1990). O'Malley and Chamot (1990) define LLS as "special thoughts or behaviours that individuals use to help them comprehend, learn, or retain new information" (p. 1). Despite differences, both highlight the learner's active participation in enhancing language learning. This perspective informs this study, especially in adapting the research instrument.

Numerous assessment tools for LLS have been developed over the years (Charoento, 2017; Cohen, 1990; Radwan 2011; Sánchez, 2019; Teng & Zhang, 2016; Tseng et al., 2006; Wang et al., 2013; Zhang & Seepjo, 2013). This classification also mirrors the development of research and understanding of LLS, which is not uniformly defined. It is important to recognise that experts from various disciplines work on this topic. Consequently, certain criteria might be integrated into the concept of strategies to inform research tools. Therefore, strategies can be categorised based on their environment or particular perspectives, such as self-regulation (Habók et al., 2022), speech skills and language resources (Cohen & Weaver, 2006; Oxford, 1990), stages of the learning process (Bimmel & Rampllion, 2000), and others.

Despite the variety, the SILL developed by R. L. Oxford has remained prominent in the field for decades (Domínguez & Juanías, 2024; Rose et al., 2018; Saks & Leijen, 2016). This tool was created in two versions: one with 80 items for native English speakers, and a 50-item version for learners for whom English is a foreign language. The 50-item version is mainly divided into direct and indirect strategies. Direct strategies include memory (9 items), cognitive (14 items), and compensatory strategies (6 items). Indirect strategies encompass metacognitive (9 items), affective (6 items), and social strategies (6 items). This classification has faced criticism. For example, Dörnyei (2005) argues that compensatory strategies relate more to language use than learning. He also suggests that memory strategies should be a subset of cognitive strategies. Dörnyei views strategy terminology sceptically and proposes replacing it with 'self-regulation,' which he believes covers a broader range of processes and skills. Other researchers have expanded on this view, emphasising the importance of self-regulation in language learning (Dörnyei, 2005; Habók et al., 2022). Conversely, some researchers continue to treat Language Learning Strategies as a distinct concept (Oxford, 1990; Vlčková, 2007). Oxford (2017) later incorporated self-regulation into her framework while reaffirming the ongoing relevance of LLS as a concept.

LLS has faced various criticisms and challenges, yet its ability to understand second language learning remains clear (Pawlak, 2021). A systematic review by Domínguez and Juanías (2024) highlights the ongoing prominence of the LLS concept, largely attributed to R. L. Oxford, the most-cited author in the field. Oxford's (1990) classification provided the theoretical foundation for this research for several reasons: it is detailed and comprehensive, including all known basic strategies; it can be practically applied in teaching for diagnosis and intervention; other researchers also utilize its extensive item bank for developing their own tools (Habók et al., 2022; Vlčková, 2010); and it employs fewer abstract or complex terms compared to other classifications based on linguistic and psychological theories.

The SILL is a widely used tool globally, as evidenced by its application across continents. Oxford (1996) noted that the use of LLS varies according to different educational and cultural backgrounds. Most research focuses on examining English learning strategies among various nations, including China (Deneme, 2008; Hu, 2010), South Korea (Park, 2011), Taiwan (Wu, 2008), Singapore (Gu et al., 2005; Wharton, 2000), Japan (Robson & Midorikawa, 2001), Turkey (Yesilbursa & Ipek, 2013), Greece

(Petrogiannis & Gavriilidou, 2015), and Peru (Saez-Zevallos et al., 2025). Other studies have explored intercultural differences in language learning strategies (Banasiak-Ryba, 2010; Deneme, 2010; Habók et al., 2021; Hong-Nam & Leavell, 2007; Jiang & Wu, 2016; Oxford, 1996). Since its development, the SILL has been adapted in numerous cultural contexts, but results have varied (Park, 2011). Some researchers validated the original six-factor structure (Demirel, 2009; Wu & Chang, 2018), while others did not (Park, 2011; Yesilbursa & Ipek, 2013). Park (2011) highlighted that educational and cultural contexts influence how SILL items group into factors, arguing that the original six-factor model is not universally applicable. Although he tested the original structure, his analysis ultimately suggested a simpler model with fewer factors. Conversely, Petrogiannis and Gavriilidou (2015) tested both six- and two-factor models (reducing the instrument to 29 items), both showing good internal consistency. Robson and Midorikawa (2001), through Exploratory Factor Analysis (EFA), identified 15 new strategic areas from the SILL, but these factors had weak internal consistency, leading them to regard the SILL as a general measure of language learning strategies rather than a tool for six specific types. Past research has also examined connections between individual language skills and learning strategies, especially the links between reading, writing, and speaking (Ansarey, 2016; Esmaeili, 2002; Jia, 2023; Namanziandost et al., 2018), including how reading and writing support oral language development (Ergün Öcel, 2023). Additionally, media exposure has been considered influential in language development (Ennemoser & Schneider, 2007). These findings suggest learning strategies are closely tied to broader language use and skill acquisition. Recently, the context of language learning has shifted significantly, particularly due to increased exposure to digital media and multimodal communication, which may influence strategy use and raise questions about the ongoing relevance of instruments such as the SILL.

This study aims to adapt the SILL version of the "questionnaire for speakers of other languages learning English" for Czech secondary school students. Because of this, revalidating the instrument in the Czech context under current educational conditions is necessary. This is especially important in upper secondary education, where students must pass the State Matura Examination. In its general part, students are required to pass Czech language and literature and choose between a foreign language and mathematics. Since the 2021/2022 school year, this choice has been mandatory, with about 80% of students opting for English as their second Matura subject in 2024. Meanwhile, the preference for mathematics has been steadily decreasing over the past decade (43.9% in 2012; CERMAT, 2025).

# 3 Research design

## 3.1 Participants

The survey included 1,306 students from 17 randomly selected vocational secondary schools and grammar schools across the Czech Republic. Of these, 706 were female, 555 male, and 45 identified with another gender. The average age was approximately 17 years (range: 15–20). The sample represents the entire Czech Republic. An online questionnaire, distributed via Google Forms, was sent to school principals after they agreed to participate. Participants saw an informed consent form arranged by the schools. The principals informed students about voluntary participation, the study's purpose, understanding of the information, and how to complete the questionnaire. No questionnaires were excluded. In designing the survey, each item was mandatory, preventing submission unless all items were answered. Data collection occurred during lessons, in accordance with each school's preference. The study aimed to minimise any risk to participants. Data were collected through standardised questionnaires completed online without researchers present. The study's potential benefits are significant: adapting the instrument may help measure Language Learning Strategies in the Czech population, aiding research and teaching. Data collection took place from autumn 2022 to spring 2023. The research was conducted ethically and received approval from the University's Ethics Committee.

### 3.2 Research instrument

The study used the SILL Version for Speakers of Other Languages Learning English (Oxford, 1989) as its primary tool. This inventory contains 50 items, mainly categorised into direct and indirect strategies. Direct strategies comprise memory (9 items), cognitive (14 items), and compensatory strategies (6 items). Indirect strategies include metacognitive (9 items), affective (6 items), and social strategies (6 items). Participants responded on a five-point Likert scale, from 1 ("always or almost always false") to 5 ("always or almost always true").

### 3.3 Research procedure

The adaptation of the SILL-CZ questionnaire consisted of three phases. Initially, the original SILL version for speakers of other languages learning English (Oxford, 1989), which contains 50 items and was used in this study, was translated into Czech. Two independent translators performed the translation, which was then evaluated by two experts through semantic editing to ensure the content standards were preserved. After this revision, the questionnaire was prepared for subsequent stages of adaptation. The second phase involved a pilot study with secondary school students to assess the clarity of the questions and overall usability, including the statements and rating scale. Data were collected from 102 students across one of the fourteen Czech regions; these students were excluded from later phases. No significant changes were made during this stage, and all items were deemed clearly understandable. The third phase focused on further adapting the instrument using the analytical procedures described below.

### 3.4 Data analysis

The adaptation of the SILL-CZ research tool was conducted in two stages. Initially, Exploratory Factor Analysis (EFA) was used, followed by Confirmatory Factor Analysis (CFA). EFA is usually applied when developing a new instrument, aiming to identify unknown latent factors that best fit the data's correlation structure (Field, 2024). Conversely, CFA tests a predefined model of expected relationships to confirm or refute it based on the data (Brown, 2006; Field, 2024; Finch, 2020; Soukup, 2022). Oxford and Amerstorfer (2018) highlight that although SILL is significant in Language Learning Strategies (LLS), it should be adapted to specific research needs. Both EFA and CFA were utilized here because adapting an instrument for use across different countries and cultures necessitates employing both analytical methods.

The data were analysed using IBM SPSS Statistics for descriptive statistics, EFA, and reliability tests, and IBM SPSS Amos for CFA. The dataset from 1,306 participants was divided into two subsets with the Random Sample of Cases procedure to avoid using the same data for both EFA and CFA, as this would violate standard psychometric practices (Brown, 2006; Soukup, 2021). EFA was performed on 635 cases, while CFA was conducted on 671. The adaptation questionnaire comprised 50 items rated on a five-point scale (1 - always/almost always false; 5 - always/almost always true). Because the scale is longer and ordinal, Pearson correlations were used in EFA instead of polychoric correlations (Soukup, 2021). Both EFA and CFA tested three models: two-, three-, and four-factor solutions. The best-fitting model, according to validity and reliability criteria, proceeded to further analysis. Internal consistency was assessed with both Cronbach's α and McDonald's ω.

## 4 Results

### 4.1 Exploratory factor analysis

Before conducting the EFA, it was necessary to verify whether the data were suitable for factor analysis. For this purpose, the Kaiser–Meyer–Olkin (KMO) measure, Bartlett's test, and the Measure of Sampling Adequacy (MSA) were used. The Kaiser–Meyer–Olkin (KMO) statistic is a commonly used measure in EFA to assess whether the data are suitable for factor analysis. It quantifies the sampling

adequacy of each observed variable in the model, as well as the overall model. The KMO ranges from 0 to 1. The closer the value is to 1, the more suitable the data are for EFA. The Measure of Sampling Adequacy (MSA) evaluates the appropriateness of each variable for inclusion in factor analysis. The overall KMO statistic represents the average of all individual MSA values (Kaiser, 1974). Bartlett's test examines whether the correlation matrix among variables differs significantly from the identity matrix. If the correlation matrix were an identity matrix, the variables would be uncorrelated, and factor analysis would not be appropriate (Dyer & Keating, 1980). This test evaluates the null hypothesis that the correlation matrix is an identity matrix. If $p < .05$, the null hypothesis is rejected, indicating that the data are suitable for factor analysis.

All three-factor solutions—two-, three-, and four-factor—met the criteria for factorability, with values within acceptable ranges (Mareš et al., 2015). Bartlett's test p-value was <.001, the KMO was .939, and MSA values remained above .70 for all items. Communalities (h2) were checked prior to factor extraction, representing the proportion of each item's variance explained by the common factors (Tavakol & Wetzel, 2020). The Fixed Number of Factors method was employed because the scree plot indicated several factors with only two items each, which is inadequate for factor development (MacCallum et al., 1999; Raubenheimer, 2004). Additionally, an Absolute Value Below .10 was used to identify factor loadings across multiple factors, facilitating the CFA process. Principal Axis Analysis (PA), suitable for non-normal data, was used in EFA to uncover latent factors that explain shared variance among variables (Finch, 2020). Oblimin rotation, which allows for correlated factors (Field, 2024), was applied. The analysis followed the .40-.30-.20 rule, as described by Howard (2016, p. 59), stating: "This rule recommends that only variables that (a) load above .40 on their primary factor, (b) cross-load below .30 on other factors, and (c) show a difference of at least .20 between their main and other loadings are interpreted." Applying this rule reduced the number of items in the EFA, resulting in the different item counts for the two-, three-, and four-factor solutions (see Supplementary Tables 1 and 2). The full EFA results for the two-factor solution are shown in Table 1.

All three models underwent exploratory factor analysis (EFA) and internal consistency testing using appropriate coefficients. They all satisfied the conditions for EFA, including KMO, Bartlett's test, and MSA. However, examining the factor loadings revealed differences across models. The first factor of the two-factor model showed very satisfactory loadings (maximum = .802, minimum = .443). The second factor also had satisfactory loadings (maximum = .625, minimum = .441), despite containing only six items. The three-factor model generally did not exhibit low factor loadings, except for the third factor, where most items failed to reach the .40 threshold. The four-factor model performed as well as the two-factor model but demonstrated lower internal consistency for its last two factors. Despite having 21 items, the two-factor model displayed the highest overall internal consistency ($\alpha = .899$, $\omega = .899$) and in its individual factors (model F1: $\alpha = .919$, $\omega = .709$; model F2: $\alpha = .921$, $\omega = .710$).

### 4.2 Confirmatory factor analysis

EFA was conducted on the first half of the dataset, while the second half was used for CFA. Basic descriptive statistics, including minimum, maximum, mean, standard deviation, skewness, and kurtosis, were computed. The multivariate normality test indicated a non-normal data distribution. Several methods exist for estimating the common factor model; among them, Maximum Likelihood (ML) is common (Brown, 2006). In this study, the ML estimation with the Bollen-Stine Bootstrap correction was selected. Although ML is optimal for larger samples and assumes normality, the data's non-normality necessitated the use of the Bollen-Stine Bootstrap to address outliers and distributional issues (Ward & Ahlquist, 2018). CFA was first performed on each factor independently, providing insights into the instrument's internal structure and covariances, including errors. Items with standardised factor loadings below .40 were removed (Stevens, 2009). The final model retained items with loadings between .46 and .76. Examination of Standardised Residual Covariances confirmed all models were adequately reduced in item number.

Table 1
*Factor loadings and communalities for the two-factor solution in the EFA of the SILL.*

| | | Factor | | |
|---|---|---|---|---|
| Item | | 1 | 2 | $h^2$ |
| I1 | I try to find as many ways as I can to use my English. | .802 | | .644 |
| I2 | I try to talk like a native English speaker. | .772 | | .597 |
| I3 | I ask questions in English. | .748 | | .559 |
| I4 | I start conversations in English. | .746 | | .563 |
| I5 | I write notes, messages, letters, or reports in English. | .711 | | .534 |
| I6 | I read English for pleasure. | .709 | | .564 |
| I7 | I look for opportunities to read as much as possible in English. | .687 | | .473 |
| I8 | I watch English-language TV shows or go to English-language movies. | .679 | | .505 |
| I9 | If I can't think of an English word, I use a word or phrase that means the same thing. | .674 | | .463 |
| I10 | I read English without looking up every new word. | .650 | | .496 |
| I11 | I encourage myself to speak English even when I am afraid of making a mistake. | .618 | | .388 |
| I12 | I try to learn about the culture of English speakers. | .582 | | .342 |
| I13 | I try not to translate word for word. | .497 | | .248 |
| I14 | To understand unfamiliar English words, I make guesses. | .464 | | .224 |
| I15 | I try to guess what the other person will say next in English. | .443 | | .199 |
| I16 | I plan my schedule so that I have enough time to study English. | | .625 | .398 |
| I17 | I try to find out how to be a better learner of English. | | .610 | .405 |
| I18 | I review English lessons regularly. | | .594 | .354 |
| I19 | I look for words in my own language that are similar to new English words. | | .510 | .264 |
| I20 | I give myself a reward or treat when I do well in English. | | .442 | .204 |
| I21 | I say or write new English words several times. | | .441 | .195 |
| | | | | Total |
| Cronbach's α | | .919 | .709 | .899 |
| McDonald's ω | | .921 | .710 | .899 |

*Note.* Extraction method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalisation. I = item; $h^2$ = communalities.

In CFA, the model was modified to include covariances among item error terms, as previously mentioned. The low covariance of some items with the factor might be because these items share something in common that others with high loadings do not (Soukup, 2022). There were six pairs of linked items: five related to the first factor and one to the second factor. The weakest correlation was between items 14 and 17 (r = .176). Table 2 presents all covariances between the error terms of the items.

CFA was used to assess the values in the Standardised Residual Covariances section. 4 items did not meet the criteria and were therefore excluded from the next stage of the analysis. The recommended threshold is 2.58 (Jöreskog & Sörbom, 1993). Factor 1 (Direct Strategies) comprised 11 items, and Factor 2 (Indirect Strategies) comprised 6 items.

Various analyses were conducted during the CFA to assess whether the factors identified after the EFA matched the expected structure. Table 3 compares the two-factor model with alternative models and presents the results. In SEM, multiple fit indices are available, but researchers have not reached a consensus on which to prioritise (Bhale & Bedi, 2023). This study employed the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA), following Xia and Yang (2019), to evaluate model fit. The CFI measures how well the model fits the observed data.

The TLI compares the proposed model to a null model that assumes no relationships among variables, while adjusting for model complexity. The RMSEA assesses how closely the model approximates the data per degree of freedom, while also accounting for complexity. Bentler (1990) recommends a CFI above .90, while Bentler and Bonnet (1980) suggest a TLI above .90. Browne and Cudeck (1993) set an RMSEA threshold at less than .08. Wheaton et al. (1977) mention that a CMIN/DF ratio of ≤ 5 indicates a reasonable fit, where CMIN is the chi-square discrepancy, and df is degrees of freedom.

Table 2
*Covariances between item error terms in the two-factor CFA model of the SILL.*

| Factor | Item |
|---|---|
| F1 | I5: I write notes, messages, letters, or reports in English. |
| | I6: I read English for pleasure. |
| F1 | I5: I write notes, messages, letters, or reports in English. |
| | I9: I encourage myself to speak English even when I am afraid of making a mistake. |
| F1 | I6: I read English for pleasure. |
| | I7: I look for opportunities to read as much as possible in English. |
| F1 | I6: I read English for pleasure. |
| | I9: I encourage myself to speak English even when I am afraid of making a mistake. |
| F1 | I6: I read English for pleasure. |
| | I8: I watch English-language TV shows or go to English-language movies. |
| F2 | I14: I review English lessons regularly. |
| | I17: I say or write new English words several times. |

*Note.* I = item; F1 = Factor 1; F2 = Factor 2.

The results indicated that the two-factor model of the 17-item questionnaire is the most suitable for the data, as it fits significantly better than the three- and four-factor models. This is supported by the indices, which show the best values for the two-factor model (CFI = .918, TLI = .901, RMSEA = .066, CMIN/DF = 3.806).

Table 3
*Comparative fit indices for two-, three-, and four-factor CFA models*

| Model | No. of items | CMIN/DF | CFI | TLI | RMSEA |
|---|---|---|---|---|---|
| Two-factor | 17 | 3.806 | .918 | .901 | .066 |
| Three-factor | 16 | 3.972 | .910 | .888 | .068 |
| Four-factor | 24 | 4.369 | .881 | .861 | .067 |

*Note.* No. = number of items; CMIN/DF = Minimum variance of CFA/degrees of freedom; CFI = The comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation.

### 4.3 Two-factor model of SILL-CZ

Supplementary Table 3 displays descriptive statistics for all items in the instrument. The mean scores for the final 17 items ranged from 1.95 to 3.81 on a 1-5 scale, with standard deviations (SD) between 1.110 and 1.515. None of the items showed skewness or kurtosis exceeding ±2 (Trochim & Donnelly, 2006). The next step involved calculating correlations to assess the validity of the two-factor model. A moderate correlation of r = .344 was found between Factor F1 (Direct Strategies) and Factor F2 (Indirect Strategies). As Cohen (1988) classifies, low correlation is around r = .10, medium around r = .30, and high around r = .50. Supplementary Figure 1 illustrates the two-factor solution model.

### 4.4 Final internal consistency of the SILL-CZ

The final stage of data analysis focused on determining the instrument's internal consistency. Comparisons were again made between the predicted and alternative models, with results shown in

Table 5. It is evident that only the two-factor model met the internal consistency criterion for coefficient alpha, exceeding the .70 threshold, indicating that the items are internally reliable (Mareš et al., 2015). Specifically, for factor 1, α = .885 and ω = .887 were observed, whereas for factor 2, α = .748 and ω = .748. In the three-factor model, only the first factor exceeded the threshold, and in the four-factor model, the first two factors met the criteria.

Table 5
*Final internal consistency for the two-, three-, and four-factor model of the SILL-CZ.*

| | Cronbach's α | | | | | McDonald's ω | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | F1 | F2 | F3 | F4 | Total | F1 | F2 | F3 | F4 | Total |
| Two-factor | .885 | .748 | | | .861 | .887 | .748 | | | .853 |
| Three-factor | .898 | .601 | .546 | | .804 | .848 | .591 | .543 | | .780 |
| Four-factor | .929 | .819 | .526 | .586 | .879 | .930 | .823 | .546 | .593 | .868 |

*Note.* F1 = Factor 1; F2 = Factor 2; F3 = Factor 3; F4 = Factor 4.

## 5 Discussion

Some scholars argue that the concept of LLS is outdated and that the field should focus more on self-regulation (Dörney, 2005; Habók et al., 2022). However, Pawlak (2021) finds that research on LLS remains vibrant and continues to shed light on how learners acquire additional languages. There has been a noticeable improvement in students' language learning when LLS are applied. Using different LLS and tailoring them to individual preferences can enhance learning outcomes (Yoong & Hashim, 2023). In a rapidly globalising society, students must stay flexible and adopt new strategies, which may include technological tools (James et al., 2019). The skills gained through these innovative methods have helped students manage challenges effectively.

This study aimed to adapt the SILL questionnaire for secondary school students in the Czech Republic. The final model identified two factors: direct (11 items) and indirect strategies (6 items). This indicates that the original six-factor structure by Oxford (1989) was not maintained. Hsiao and Oxford (2003), in their follow-up research using CFA, suggested that either a two-factor or a six-factor model would be suitable, aligning with our findings of a two-factor solution. While the SILL has been adapted in various studies over time, results have varied significantly (Park, 2011). Some research validated the original six-factor structure (Demirel, 2009; Wu & Chang, 2018), whereas others did not (Park, 2011; Yesilbursa & Ipek, 2013). Both EFA and CFA were used in these studies, but the inconsistency prompted us to employ both methods to assess construct validity.

In the two-factor model, items associated with the first factor (direct strategies) mainly reflect the cognitive aspects of LLS. Cognitive strategies involve how learners process and transform language. Vlčková (2005) found that cognitive strategies were the most effective among those identified by R. Oxford. This study also confirmed that cognitive strategies predominate, supporting Dörnyei's (2005) critique that Oxford's classification incorrectly separates memory strategies from cognitive ones. Cognitive functions encompass attention, judgment, evaluation, problem-solving, understanding, and language production, with memory being a key component (Wood & Rutterford, 2006). Prior research with high school and college students showed that cognitive strategies are used more frequently than metacognitive strategies, indicating their dominant role (Chamot et al., 1987; O'Malley et al., 1985).

Within EFA, the .40–.30–20 rule established by Howard (2016) was strictly followed. This rule states that factor loadings demonstrate whether items are suitable indicators of their respective scales. All 17 items in the two-factor model had factor loadings above .40, but this was not true for the three-factor model. Generally, higher (stronger) factor loadings make it easier to interpret the factor's direction (Field, 2024). The first items (I1 to I4) of the first factor in the two-factor model displayed the highest loadings (.746 to .802), emphasising communication skills. This aligns with language teaching, especially English. Although students knew grammatical rules and had extensive vocabularies, they still

lacked communication skills (Saks & Leijen, 2016). Research on English as a lingua franca (ELF) addresses this gap by focusing on communicative functions rather than linguistic forms to promote mutual understanding (Chan, 2021).

Within the CFA, several items were linked, chiefly the English reading and writing domains of I5 and I6 (such as writing notes, messages, letters, or reports in English, and reading English for pleasure). Esmaeili's (2002) study demonstrated that thematic connections between reading and writing improved both the processes and outcomes of students' writing.

The second connection was between I5 and I9 (I write notes, messages, letters, or reports in English; I encourage myself to speak English even when I am afraid of making a mistake). Ergün Öcel (2023) suggests that educators should focus on developing skills that enhance oral communication. A good starting point is to support this through English writing. Namanziandost et al. (2018) highlight how writing can significantly help deepen and improve spoken language. Their study showed that, in an oral post-test, students made notable gains in grammar usage, vocabulary breadth, and syntactic structure production.

The third link focused on items I6 and I9 (I read English for pleasure; I encourage myself to speak English even when I am afraid of making a mistake). Jia's (2023) research found a strong correlation between reading and speaking in English. Reading in English affects pronunciation, vocabulary, and comprehension of the language.

The second-to-last link for the first factor included items I6 and I7 (I read English for pleasure; I look for opportunities to read as much as possible in English). Reading is an essential part of learning English. Through reading, students gain new vocabulary, develop a sense of coherent speech, and understand logical structuring in writing. Ansarey's (2016) study shows that 80% of respondents felt that reading English texts enhanced their speaking skills.

The final fifth link was for items I6 and I8 (I read for pleasure in English; I watch English-language TV shows or go to English-language movies). Ennemoser and Schneider (2007) found in their longitudinal study that watching educational programs was positively correlated with reading performance, whereas entertainment programs were negatively correlated. Individuals who spent an average of 117 minutes per day watching television showed lower reading progress than individuals who spent an average of 35-69 minutes per day watching programs.

The second factor (indirect strategies) comprises supportive activities in the learning process (Oxford, 1990). Indirect strategies encompass metacognitive strategies, which involve understanding one's own cognitive processes (knowledge of cognition) and the ability to control them (regulation of cognition). Thus, cognitive and metacognitive strategies cannot be strictly separated (Hrbáčková, 2011). In the second factor, only one link emerged between items I14 and I17 (I review English lessons regularly; I say or write new English words several times). These items may be closely related because of their predominantly cognitive character. Nevertheless, the analysis in this study placed them in the second factor. This placement can be interpreted as reflecting metacognitive knowledge. Metacognitive knowledge comprises contextual knowledge, which enables learners to select appropriate strategies and adapt their learning to the changing demands of tasks. This outcome may be interpreted as reflecting metacognitive knowledge. For example, a student knows how and which information to revise to achieve success in an exam (Švec, 2005).

To further evaluate the validity of the two-factor model, a correlation analysis was performed. A moderately strong relationship emerged between the factors, supporting the earlier observation of the connection between cognitive and metacognitive strategies. Flavell (1979) supports this perspective, suggesting that cognitive and metacognitive strategies are complementary rather than entirely distinct. Metacognition helps students manage their cognitive processes more effectively, such as analysing problems, planning, and monitoring the success of their strategies. Consequently, this enhances learning and problem-solving abilities. From a broader standpoint, these results can also be viewed through the lens of social pedagogy. Learning strategies can be seen as indicators of how

students handle school demands and regulate their learning, strongly linked to both academic achievement and the risk of failure. The validated SILL-CZ instrument thus functions not only as a research tool but also as a practical diagnostic resource for teachers and school social pedagogues, aiding early detection of learning difficulties and guiding targeted interventions to prevent academic failure.

### 5.1 Limitations and future directions

The SILL-CZ questionnaire is designed for secondary school students, so its applicability is limited to that age group. The findings might not generalise to other age groups. Additionally, because the data rely on students' self-assessments, they could be biased. The questionnaire might also fail to fully capture the evolving and context-dependent nature of learning strategies in real-world settings.

Future research should place greater emphasis on integrating questionnaires with qualitative methods such as learner diaries, classroom observations, and introspective techniques to more effectively capture the complexity of strategy use. Pawlak (2021) emphasises that strategies are context-dependent and constantly evolving, influenced by factors such as task type, motivation, and emotional states. Consequently, students may employ different strategies when preparing for regular lessons versus secondary school leaving exams.

## 5 Conclusion

The aim of this study was to describe the adaptation process of the SILL, Version for Speakers of Other Languages Learning English questionnaire for the Czech population of secondary school students. Factor analysis revealed that the original six-factor model (Oxford, 1989) was not confirmed in the Czech context. Instead, a two-factor structure, consisting of direct and indirect strategies, proved to be a better fit. The results also highlighted the predominant role of direct strategies, which are primarily associated with the cognitive domain.

Utilising a two-factor model that includes both direct and indirect learning strategies enhances English language acquisition, self-regulation, and academic achievement among Czech secondary school students.

The study, from a theoretical standpoint, advances the discussion on the validity of the SILL and the nature of language learning strategies, which are recognised as situation-dependent and dynamic (see Pawlak, 2021). Additionally, it contributes to the broader debate on the appropriate classification of strategies in the Czech context.

In practice, the findings can help teachers and curriculum designers enhance their work on language learning strategies, especially given recent changes to the national secondary school leaving exam. A key practical contribution is a simple two-factor inventory that offers educators a quick diagnostic tool and provides students with a clear guide for self-monitoring their use of strategy. This improves its usefulness in classroom settings, particularly in secondary education and exam preparation, where supporting students involves both language acquisition and the development of self-regulation skills. Additionally, from a social pedagogical perspective, these findings can aid in early identification of students at risk of school failure and enable targeted interventions to promote better learning regulation.

#### Generative AI disclosure

No Generative AI was involved in preparing this manuscript.

**References**

Alfarisy, F. (2022). The use of SILL Oxford on understanding the speaking learning strategies. *International Journal of Linguistics, Literature and Translation*, *5*(6), 91–99. https://doi.org/10.32996/ijllt.2022.5.6.11

Ansarey, D. (2016). Reading improves English speaking skills: An empirical examination of tertiary level students in Bangladesh. *World Vision, 10*(1), 77–92.

Banasiak-Ryba, I. (2010). Cultural background and the use of vocabulary learning strategies. *Linguistics in Application*, *2*(3), 200–213. http://repozytorium.ukw.edu.pl/handle/item/5123

Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin*, *107*, 238–246. https://doi.org/10.1037/0033-2909.107.2.238

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*(3), 588–606. https://doi.org/10.1037/0033-2909.88.3.588

Bhale, U., & Bedi, H. S. (2023). *Sem model fit indicates meaning and acceptance of model literature support,* 1–20. http://dx.doi.org/10.2139/ssrn.4659352

Bimmel, P., & Rampillon, U. (2000). *Lernerautonomie und lernstrategien.* Langenscheidt.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research.* The Guilford Press.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen, J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Sage. https://doi.org/10.1177/0049124192021002

CERMAT. (2025, August 15). *Přihlášky k jarnímu zkušebnímu období maturitní zkoušky 2024*. Centrum pro zjišťování výsledků vzdělávání. https://maturita.cermat.cz/aktuality/aktualita/501-prihlasky-k-mz-2024-jarni-zkusebni-obdobi

Chamot, A. U., O'Malley, J. M., Küpper, L., & Impink-Hernandez, M. V. (1987). *A Study of learning strategies in foreign language instruction: First year report.* Interstate Research Associates.

Chan, J. Y. H. (2021). Bridging the gap between ELF and L2 learners' use of communication strategies: Rethinking current L2 assessment and teaching practices. *System, 101,* 102609. https://doi.org/10.1016/j.system.2021.102609

Charoento, M. (2017). Individual learner differences and language learning strategies. *Contemporary Educational Researches Journal, 7*(2), 57–72. https://doi.org/10.18844/cerj.v7i2.875

Chong, P. Q., Ayisha, Z. H., Neo, Y. F., Chan, J. Y., Nguyen, D. A., & Noor, H. R. (2025). Influence of environment on language learning strategies among university students in Thailand and Vietnam. *International Journal of Research and Innovation in Social Science*, *9*(4), 986–1001. https://dx.doi.org/10.47772/IJRISS.2025.90400076

Cohen, A. D. (1990). *Language learning: Insight for learners, teachers and researchers.* Newbury House/Harper Row.

Cohen, A. D., & Weaver, S. J. (2006). *Styles and strategies-based instruction. A teachers' guide*. Center for University of Minnesota Center for Advanced Research on Language Acquisition.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd ed.).* Routledge. https://doi.org/10.4324/9780203771587

Council of the European Union. (2018). *Doporučení Rady ze dne 22. května 2018 o klíčových kompetencích pro celoživotní učení (Text s významem pro EHP)* [Council Recommendation of 22 May 2018 on key competences for lifelong learning]. https://eur-lex.europa.eu/legal-content/CS/TXT/PDF/?uri=CELEX:32018H0604(01)

Council of the European Union. (2019). *Doporučení Rady ze dne 22. května 2019 o vysoce kvalitních systémech předškolního vzdělávání a péče* [Council Recommendation of 22 May 2019 on a comprehensive approach to language teaching and learning]. https://eur-lex.europa.eu/legal-content/CS/TXT/PDF/?uri=CELEX:32019H0605(01)&from=EN

Deneme, S. (2008). Language learning strategies preference of Turkish students. *Journal of Language and Linguistic Studies*, *4*(2), 83–93.

Deneme, S. (2010). Cross-cultural differences in language learning strategy preferences: A comparative study. *The International Journal – Language Society and Culture*, *38*, 81–89. https://www.researchgate.net/profile/Selma-Deneme/publication/266057582_Cross-Cultural_Differences_in_Language_Learning_Strategy_Preferences_A_Comparative_Study/links/5ac310e80f7e9bfc045f3dc3/Cross-Cultural-Differences-in-Language-Learning-Strategy-Preferences-A-Comparative-Study.pdf

Domínguez, J. M. M., & Juanías, J. M. (2024). Language learning strategies research in English as a foreign language contexts: A systematic literature review. *Journal of Education and Learning*, *18*(2), 471–479. https://doi.org/10.11591/edulearn.v18i2.21144

Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition.* Lawrence Erlbaum Associates.

Dyer, D. D., & Keating, J. P. (1980). On the determination of critical values for Barttle's test. *Journal of the American Statistical Association*, *75*(370), 313–319. https://doi.org/10.1080/01621459.1980.10477468

EACEA. (2023). *Key data on teaching languages at school in Europe - 2023*. EACEA.

Ennemoser, M., & Schneider, W. (2007). Relations of television viewing and reading: Findings from a 4-year longitudinal study. *Journal of Educational Psychology, 99*(2), 349–368. https://doi.org/10.1037/0022-0663.99.2.349

Ergün Öcel, G. (2023). The impact of speaking activities on writing skills in English as a foreign language (EFL). *Journal of English Language, 1*(1), 14–24.

Esmaeili, H. (2002). Integrated reading and writing tasks and ESL students' reading and writing performance in an English language test. *The Canadian Modern Language Review, 58*(4), 599–622. https://doi.org/10.3138/cmlr.58.4.599

Field, A. (2024). *Discovering statistics using IBM SPSS statistics (6th ed.).* SAGE Publications.

Finch, W. (2020). *Exploratory factor analysis.* SAGE Publications, Inc. https://doi.org/10.4135/9781544339900

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American Psychologist*, *34*(10), 906–911. https://doi.org/10.1037/0003-066X.34.10.906

Gu, Y. Q., Hu, G. W., & Zhang, L. J. (2005). Investigating language learner strategies among lower primary school pupils in Singapore. *Language and Education*, *19*(4), 281–303. https://doi.org/10.1080/09500780508668682

Habók, A., Kong, Y., Ragchaa, J., & Magyar, A. (2021). Cross-cultural differences in foreign language learning strategy preferences among Hungarian, Chinese and Mongolian university students. *Heliyon*, *7*(3). https://doi.org/10.1016/j.heliyon.2021.e06505

Habók, A., Magyar, A., & Molnár, G. (2022). Investigating the relationship among English language learning strategies, language achievement, and attitude. *Frontiers in Psychology*, *13*, 867714. https://doi.org/10.3389/fpsyg.2022.867714

Hong-Nam, K., & Leavell, A. G. (2007). A comparative study of language learning strategy use in an EFL context: Monolingual Korean and bilingual Korean-Chinese university students. *Asia Pacific Education Review*, *8*(1), 71–88. https://doi.org/10.1007/BF03025834

Howard, M. C. (2016). A review of exploratory factor analysis decisions and overview of current practices: What are we doing and how can we improve? *International Journal of Human-Computer Interaction, 32*(1), 51–62. https://doi.org/10.1080/10447318.2015.1087664

Hrbáčková, K. (2011). *Developing students' self-regulation of learning.* The R Movement.

Hsiao, T-Y., & Oxford, R. L. (2003). Comparing theories of language learning strategies: A confirmatory factor analysis. *The Modern Language Journal, 86*(3), 368–383. https://doi.org/10.1111/1540-4781.00155

Hu, G. (2010). English language teaching in China: Regional differences and contributing factors. *Journal of Multilingual and Multicultural Development*, *24*(4), 290–318. https://doi.org/10.1080/01434630308666503

Jahrani, S. E., & Listia, R. (2023). The impact of exposure on second language acquisition: A meta-analysis. *IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature, 11*(1), 416–424. https://doi.org/10.24256/ideas.v11i1.3581

James, P. R. A. P., Yong, K. L., & Yunus, M. M. (2019). Hear Me Out! Digital storytelling to enhance speaking skills. *International Journal of Academic Research in Business and Social Sciences, 9*(2), 190–202. https://doi.org/10.6007/IJARBSS/v9-i2/5533

Jia, Y. (2023). The influence of reading on English speaking. In W. Striełkowski, J. M. Black, S. A. Butterfield, Ch-Ch. Chang, J. Cheng, F. P. Dumanig, R. Al-Mabuk, M. Urban, & S. Webb (Eds.), *Proceedings of the 2023 7th International Seminar on Education, Management and Social Sciences (ISEMSS 2023)* (pp. 147–152). Atlantis Press. https://www.atlantis-press.com/proceedings/isemss-23/articles?q=The+Iinfluence+of+reading+on+English+speaking

Jiang, W., & Wu, Q. (2016). A comparative study on learning strategies used by Australian CFL and Chinese EFL learners. *Chinese as a Second Language Research*, *5*(2), 213–239. https://doi.org/10.1515/caslar-2016-0009

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language.* Scientific Software International.

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, *39*(1), 31–36. https://doi.org/10.1007/BF02291575

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, *4*(1), 84–99. https://doi.org/10.1037/1082-989X.4.1.84

Mareš, P., Rabušic, L., & Soukup P. (2015). *Analysis of social science data (not only) in SPSS*. Masaryk University.

Namanziandost, E., Saray, A. A., & Esfahani, F. R. (2018). The effect of writing practice on improving speaking skill among pre-intermediate EFL learners. *Theory and Practice in Language Studies, 8*(12), 1690–1697. http://dx.doi.org/10.17507/tpls.0812.16

O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge University Press.

O'Malley, J. M., Chamot, A. U., Stewner-Manzanares, G., Küpper, L., & Russo, R. (1985). Learning strategies used by beginning and intermediate ESL students. *Language Learning, 35*(1), 21–46. https://doi.org/10.1111/j.1467-1770.1985.tb01013.x

Oxford, R. L. (1989). Use of language learning strategies: A synthesis of studies with implications for strategy training. *System*, *17*(2), 235–247. https://doi.org/10.1016/0346-251X(89)90036-5

Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. Heinle & Heinle Publishers.

Oxford, R. L. (2017). *Teaching and researching language learning strategies: Self-regulation in context*. Routledge.

Oxford, R. L. (Ed.). (1996). *Language learning strategies around the world: Cross-cultural perspectives.* University of Hawaii Press.

Oxford, R. L., & Amerstorfer, C. M. (2018). *Language learning strategies and individual learner characteristics: Situating strategy use in diverse contexts.* Bloomsbury Publishing.

Papadopoulou, I., Kantaridou, Z., Platsidou, M., & Gavriilidou, Z. (2018). The SILL revisited in light of the $S^2R$ model of language learning. *The Language Learning Journal*, *46*(5), 544–556. https://doi.org/10.1080/09571736.2018.1502739

Park, G. (2011). The validation process of the SILL: A confirmatory factor analysis. *English Language Teaching*, *4*(4), 21–28. http://dx.doi.org/10.5539/elt.v4n4p21

Pawlak, M. (2021). Investigating language learning strategies: Prospects, pitfalls and challenges. *Language Teaching Research*, *25*(5), 817–835. https://doi.org/10.1177/1362168819876156

Petrogiannis, K., & Gavriilidou, Z. (2015). Strategy Inventory for Language Learning: Findings of a validation study in Greece. In M. de Carmo (Ed.), *Education Applications & Developments* (pp. 223–236). Science Press.

Radwan, A. A. (2011). Effects of L2 proficiency and gender on choice of language learning strategies by university students majoring in English. *Asian EFL Journal, 13*, 114–162.

Raubenheimer, J. (2004). An item selection procedure to maximise scale reliability and validity. *SA Journal of Industrial Psychology*, *30*(4), 59–64. https://doi.org/10.4102/sajip.v30i4.168

Robson, G., & Midorikawa, H. (2001). How reliable and valid is the Japanese version of the Strategy Inventory for Language Learning (SILL)? *JALT Journal*, *23*(2), 202–226. https://doi.org/10.37546/JALTJJ23.2-2

Rose, H., Briggs, J. G., Boggs, J. A., Sergio, L., & Ivanova-Slavianskaia, N. (2018). A systematic review of language learner strategy research in the face of self-regulation. *System*, *72*, 151–163. https://doi.org/10.1016/j.system.2017.12.002

Saez-Zevallos, N. S., Cunza-Aranzábal, D. F., Abanto-Ramírez, C. D., & Montalvo-Apolín, D. E. (2025). Psychometric properties of the strategy inventory for language learning in Peruvian university students. *Frontiers in Education*, 10, 1562101. https://doi.org/10.3389/feduc.2025.1562101

Saks, K., & Leijen, Ä. (2016). Adapting the SILL to measure Estonian learners' language learning strategies: the development of an alternative model. *The Language Learning Journal*, *46*(5), 634–646. https://doi.org/10.1080/09571736.2016.1191169

Sánchez, N. S. (2019). Are low achievers low strategy users? *Lenguas Modernas*, *53,* 107–126. https://lenguasmodernas.uchile.cl/index.php/LM/article/view/55450

Soukup, P. (2021). Factor analysis as a known unknown (or principal components method and varimax are not always ideal procedures). *Sociologický časopis / Czech Sociological Review*, *57*(4), 455–484. https://doi.org/10.13060/csr.2021.021

Soukup, P. (2022). *Advanced data analysis in SPSS and AMOS.* Masaryk University.

Stevens, J. P. (2009). *Applied multivariate statistics for the social science* (5th ed.). Taylor & Francis.

Sukying, A. (2021). Choices of language learning strategies and English proficiency of EFL university learners. *LEARN Journal: Language Education and Acquisition Research Network*, *14*(2), 59–87. https://files.eric.ed.gov/fulltext/EJ1310896.pdf

Sundqvist, P. (2011). A possible path to progress: Out-of-school English language learners in Sweden. In P. Benson & H. Reinders (Eds.), *Beyond the language classroom* (pp. 106–118). Palgrave Macmillan. https://doi.org/10.1057/9780230306790_9

Švec, V. (2005). *Teacher's pedagogical knowledge: Theory and practice*. ASPI.

Tavakol, M., & Wetzel, A. (2020). Factor analysis: a means for theory and instrument development in support of construct validity. *International Journal Medical Education*, *11*, 245–247. https://doi.org/10.5116/ijme.5f96.0f4a

Teng, L. S., & Zhang, L. J. (2016). A questionnaire-based validation of multidimensional models of self-regulated learning strategies. *The Modern Language Journal*, *100*(3), 674–701. https://doi.org/10.1111/modl.12339

Trochim, W. M., & Donnelly, J. P. (2006). *The research methods knowledge base (3rd ed.)*. Atomic Dog.

Tseng, W., Dörnyei, Z., & Schmitt, N. (2006). A new approach to assessing strategic learning: the case of self-regulation in vocabulary acquisition. *Applied Linguistics*, *27*(1), 78–102. https://doi.org/10.1093/applin/ami046

Viberg, O., & Kukulska-Hulme, A. (2021). Fostering learners' self-regulation and collaboration skills and strategies for mobile language learning beyond the classroom [Preprint]. In H. Reinders, C. Lai, P. Sundqvist (Eds.), *Handbook of Language Teaching and Learning beyond the Classroom*. Routledge. https://doi.org/10.48550/arXiv.2104.12486

Vlčková, K. (2005). Strategies of learning a foreign language [Dissertation, Masaryk University]. MUNI Thesis Archive. https://is.muni.cz/th/renmc/disertace_vlckova_strategie_uceni_cj_2005.pdf

Vlčková, K. (2007). *Strategies of learning a foreign language. Results of research on the use and effectiveness of strategies in grammar schools.* Paido.

Vlčková, K. (2010). *Pupils' strategies for learning a foreign language in general education (cross-sectional research*). *Strategies of learning a foreign language* [Habilitation thesis, Masaryk University]. MUNI Thesis Archive. https://is.muni.cz/do/rect/habilitace/1441/Vlckova/habilitace/HABILITACNI_PRACE_2010.pdf

Vlčková, K., & Přikrylová, J. (2011). *Strategie učení se cizímu jazyku: Dotazník pro žáky.* Národní ústav odborného vzdělávání.

Wang, C., Schwab, G., Fenn, P., & Chang, M. (2013). Self-efficacy and self-regulated learning strategies for English language learners: a comparison between Chinese and German college students. *Journal of Educational and Developmental Psychology*, *3*(1), 173–191. https://doi.org/10.5539/jedp.v3n1p173

Ward, M. D., & Ahlquist, J. S. (2018). *Maximum likelihood for social science. Strategies for analysis. Cambridge* University Press. https://doi.org/10.1017/9781316888544

Weinstein, C. E., & Acee, T. W. (2013). Helping college students become more strategic and self-regulated learners. In H. Bembenutty, T. J. Cleary, & A. Kitsantas (Eds.), *Applications of self-regulated learning across diverse disciplines: A tribute to Barry J. Zimmerman* (pp. 197–236). Charlotte, NC: Information Age Publishing.

Wharton, G. (2000). Language learning strategy use of bilingual foreign language learners in Singapore. *Language Learning*, *50*(2), 203–243. https://doi.org/10.1111/0023-8333.00117

Wheaton, B., Muthén, B., Alwin, D. F., & Summers, G. F. (1977). Assessing reliability and stability in panel models. *Sociological Methodology*, *8*, 84–136. https://doi.org/10.2307/270754

Wong, M. S.-L. (2011). *Language learning strategy use: a study of pre-service teachers in Malaysia.* https://eric.ed.gov/?id=ED521415

Wood, R. L., & Rutterford, N. A. (2006). *Demographic and cognitive predictors of long-term psychosocial outcome following traumatic brain injury. International Neuropsychological Society*, *12*(3), 350–358. https://doi.org/10.1017/s1355617706060498

Wu, Y. L. (2008). Language learning strategies used by students at different proficiency levels. *Asian EFL Journal*, *10*(4), 75–95. https://www.ijirmf.com/wp-content/uploads/IJIRMF202011002.pdf

Xia, Y., & Yang Y. (2019). RMSEA, CFI, and TLI in structural equation modeling with ordered categorical data: The story they tell depends on the estimation methods. *Behavior Research Methods*, *51*, 409–428. https://doi.org/10.3758/s13428-018-1055-2

Yesilbursa, A., & Ipek, Ö. F. (2013). Why it is necessary to validate SILL? *Procedia - Social and Behavioral Sciences, 70*, 887–893. https://doi.org/10.1016/j.sbspro.2013.01.135

Yoong, W. F., & Hashim, H. (2023). A Systematic review on language learning strategies for English speaking skills in today's learning conditions*. International Journal of Academic Research in Business & Social Sciences*, *13*(12), 127–140. http://dx.doi.org/10.6007/IJARBSS/v13-i12/19727

Zhang, L., & Seepho, S. (2013). Metacognitive strategy use and academic reading achievement: Insights from a Chinese context. *Electronic Journal of Foreign Language Teaching*, *10*(1), 54–69. https://e-flt.nus.edu.sg/wp-content/uploads/docroot/v10n12013/zhang.pdf

---

Mgr. Julie Junaštíková focuses on self-regulated learning in relation to secondary and tertiary education. Another area of her research involves the study strategies of upper-secondary and university students, including the social factors that influence their learning. She examines study strategies in both the general population and students with special educational needs. She also deals with issues of penitentiary and post-penitentiary care.

Supplementary Table 1

*Factor loadings and communalities for the three-factor solution in the EFA of the SILL.*

| Item | | Factor 1 | Factor 2 | Factor 3 | $h^2$ |
|---|---|---|---|---|---|
| I1 | I try to find as many ways as I can to use my English. | .822 | | | .677 |
| I2 | I start conversations in English. | .785 | | | .630 |
| I3 | I write notes, messages, letters, or reports in English. | .754 | | | .592 |
| I4 | I read English for pleasure. | .745 | | | .594 |
| I5 | I look for opportunities to read as much as possible in English. | .729 | | | .568 |
| I6 | I watch English-language TV shows or go to movies in English. | .667 | | | .509 |
| I7 | I read English without looking up every new word. | .640 | | | .505 |
| I8 | I try to learn about the culture of English speakers. | .583 | | | .348 |
| I9 | I plan my schedule so I will have enough time to study English. | | .653 | | .468 |
| I10 | I write down my feelings in a language learning diary. | | .509 | | .277 |
| I11 | I use rhymes to remember new English words. | | .399 | | .165 |
| I12 | I talk to someone else about how I feel while learning English. | | .389 | | .193 |
| I13 | I use flashcards to remember new English words. | | .370 | | .157 |
| I14 | I physically act out new English words. | | .355 | | .130 |
| I15 | I find the meaning of an English word by dividing it into parts that I understand. | | | .559 | .336 |
| I16 | I notice when I am tense or nervous while studying or using English. | | | .525 | .288 |
| I17 | If I do not understand something in English, I ask the other person to slow down or say it again. | | | .449 | .316 |
| I18 | I remember new English words or phrases by remembering their location on the page, on the board, or on a street sign. | | | .433 | .207 |
| | | | | | Total |
| Cronbach's α | | .898 | .601 | .546 | .802 |
| McDonald's ω | | .900 | .591 | .543 | .802 |

*Note.* Extraction method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalisation. I = item; $h^2$ = communalities. F1 = Factor 1; F2 = Factor 2; F3 = Factor 3; F4 = Factor 4.

Supplementary Table 2

*Factor loadings and communalities for the four-factor solution in the EFA of the SILL*.

| | | Factor | | | | $h^2$ |
|---|---|---|---|---|---|---|
| Item | | 1 | 2 | 3 | 4 | |
| I1 | I try to find as many ways as I can to use my English. | .818 | | | | .678 |
| I2 | I start conversations in English. | .789 | | | | .641 |
| I3 | I write notes, messages, letters, or reports in English. | .764 | | | | .615 |
| I4 | I try to talk like a native English speaker. | .757 | | | | .595 |
| I5 | I read English for pleasure. | .755 | | | | .597 |
| I6 | I ask questions in English. | .746 | | | | .568 |
| I7 | I look for opportunities to read as much as possible in English. | .723 | | | | .567 |
| I8 | I watch English-language TV shows or go to movies in English. | .672 | | | | .508 |
| I9 | I look for people I can talk to in English. | .665 | | | | .582 |
| I10 | I read English without looking up every new word. | .655 | | | | .536 |
| I11 | I pay attention when someone is speaking English. | .655 | | | | .533 |
| I12 | I use the English words I know in different ways. | .630 | | | | .506 |
| I13 | I try to learn about the culture of English speakers. | .576 | | | | .348 |
| I14 | I try to find out how to be a better learner of English. | | .734 | | | .566 |
| I15 | I have clear goals for improving my English skills. | | .734 | | | .592 |
| I16 | I plan my schedule so I will have enough time to study English. | | .652 | | | .490 |
| I17 | I think about my progress in learning English. | | .647 | | | .468 |
| I18 | I review English lessons regularly. | | .572 | | | .361 |
| I19 | I notice when I am tense or nervous while studying or using English. | | | .502 | | .286 |
| I20 | I make up new words if I do not know the right ones in English. | | | .473 | | .240 |
| I21 | When I can't think of a word during an English conversation, I use gestures. | | | .425 | | .187 |
| I22 | I write down my feelings in a language learning diary | | | | .574 | .341 |
| I23 | I use rhymes to remember new English words. | | | | .523 | .278 |
| I24 | I physically act out new English words. | | | | .475 | .239 |
| | | | | | | Total |
| Cronbach's α | | .929 | .819 | .526 | .586 | .903 |
| McDonald's ω | | .930 | .823 | .546 | .583 | .905 |

*Note.* Extraction method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalisation. I = item; $h^2$ = communalities. F1 = Factor 1; F2 = Factor 2; F3 = Factor 3; F4 = Factor 4.

Supplementary Table 3

*Descriptive statistics for the 17 final items of the two-factor SILL-CZ solution.*

| Factor | Item | | M | SD | Skew. | Kurt. |
|---|---|---|---|---|---|---|
| Direct Strategies | I1 | I try to find as many ways as I can to use my English. | 3.21 | 1.323 | .140 | -1.079 |
| | I2 | I try to talk like a native English speaker. | 3.27 | 1.408 | .240 | -1.199 |
| | I3 | I ask questions in English. | 3.16 | 1.406 | .138 | -1.230 |
| | I4 | I start conversations in English. | 2.97 | 1.471 | .048 | -1.357 |
| | I5 | I write notes, messages, letters, or reports in English. | 2.84 | 1.515 | .218 | -1.398 |
| | I6 | I read English for pleasure. | 3.14 | 1.464 | .119 | -1.345 |
| | I7 | I look for opportunities to read as much as possible in English. | 2.63 | 1.387 | .355 | -1.107 |
| | I8 | I watch English-language TV shows or go to English-language movies. | 3.81 | 1.376 | .783 | -.757 |
| | I9 | I encourage myself to speak English even when I am afraid of making a mistake. | 3.40 | 1.343 | .435 | -.950 |
| | I10 | I try to learn about the culture of English speakers. | 3.03 | 1.453 | .015 | -1.337 |
| | I11 | I try not to translate word-for-word. | 3.39 | 1.297 | .312 | -.992 |
| Indirect Strategies | I12 | I plan my schedule so I will have enough time to study English. | 1.95 | 1.110 | 1.065 | -.375 |
| | I13 | I try to find out how to be a better learner of English. | 2.96 | 1.335 | .014 | -1.106 |
| | I14 | I review English lessons often. | 2.16 | 1.093 | .590 | -.537 |
| | I15 | I look for words in my own language that are similar to new English words. | 2.39 | 1.307 | .549 | -.829 |
| | I16 | I give myself a reward or treat when I do well in English. | 2.47 | 1.394 | .495 | -1.044 |
| | I17 | I say or write new English words several times. | 2.64 | 1.392 | .303 | -1.187 |

*Note.* I = Item; M = mean; SD = standard deviation; Skew. = skewness; Kurt. = kurtosis.

Supplementary Figure 1
*Two-factor CFA model of the SILL-CZ.*