Self-regulatory learning strategies involving the use of linguistic landscape: the case of undergraduate multilingual learners

Jakub Przybył – Danuta Wiśniewska

DOI: 10.18355/XL.2024.17.02.16

Abstract
Capitalising on research into self-regulated learning strategies (SRLS), the study reported in the present paper explored the use of SRLS by multilingual learners in the context of the linguistic landscape. We designed the Linguistic Landscape (LL) SRLS Inventory, used it for data collection and validated it. Insights were provided by 100 undergraduate students of English and German and concerned searching for opportunities to learn from LL, paying attention to LL, creating mental linkages with LL, and organising LL-based learning. Statistical analyses revealed that the use of LL SRLS was affected by reading comprehension skills and varied substantially across SR stages.
Key words: linguistic landscape (LL), self-regulation (SR), self-regulated language learning (SRLL), self-regulated learning strategies (SRLS), learning environment

Introduction

As posited by Teng and Zhang (2022), great potential rests in investigating foreign language learning (FLL) on the basis of self-regulation (SR) theories and measurements. Indeed, relying on SR frameworks makes the range of potential research areas virtually limitless because of the relevance of self-regulatory processes to every area of human existence and the inevitability of ego depletion (Baumeister, 2018). Thus, even though the concept of self-regulated learning (SRL) has only been present in the realm of FLL for a relatively short time (cf. Tseng, Dörnyei, Schmitt, 2006), numerous studies have already attempted to incorporate it in diverse investigations of, for instance, language teachers' self-efficacy (Ghonsooly, Ghanizadeh, 2013), or the limits of multilingual advantage (Przybył, Długosz, 2023). Importantly, the construct of SRL needs to be seen as integrative, allowing for insights from both the socio-cognitive SR tradition (Bandura, 1991; 2023) and the metacognitive perspective (Anderson, 2002; Zhang, Zhang, 2019) so as to fully embrace the critical role of learner development in FLL (cf. Teng and Zhang, 2022). Consequently, investigations of self-regulated language learning (SRLL) are entitled and, moreover, required to account for a variety of factors involved in FLL, including affective, cognitive, and contextual variables (cf. Schunk, Zimmerman, 1994). It is the final group of characteristics that the present paper targets by discussing how multilingual language learners make use of the linguistic landscape (LL) around them. Our aim is to explore the use of self-regulatory learning strategies (SRLS) involving linguistic landscape (henceforth: linguistic landscape self-regulatory learning strategies; LL SRLS). We focus on cognitive and metacognitive strategies. The latter, in spite of the firm presence of metacognition in educational psychology (Veenman, Van Hout-Wolters, Afflerbach, 2006) and FLL studies (Oxford, 2017), have only scarcely been investigated in the context of learners' environment, and mostly so in the case of distance learning (Andrade, Bunker, 2011). Since the learning environment constitutes one of the pillars of SRL (Andrade, Evans, 2015), we believe this gap needs to be bridged urgently. In line with recent recommendations for the use of the SRL paradigm in FLL studies (Teng, Zhang, 2022) as well as directions for research into language learning strategies (Pawlak, 2021), we narrow the scope of our

investigation to a specific context of multilingual learners with L2 English / L3 German and L2 German / L3 English.

The metacognitive and self-regulatory perspectives in FLL psychology

As aptly summarised by Panadero (2017), SRL is a psychological construct introduced at the end of the previous century by researchers willing to distinguish between SR and metacognition in learning (cf. Zimmerman, 1986; Pintrich, Marx, Boyle, 1993). One issue relevant to the distinction involves the measurement of cognitive and metacognitive self-regulatory strategies. Yet, much as it is impossible to split the self into two, that is, the thinker and the observer of the thinking (Comte's paradox or the homunculus problem; Veenman, Van Hout-Wolters, Afflerbach, 2006), trying to disentangle metacognitive strategies from cognitive strategies and SR from metacognition is a strenuous task, and perhaps not worth the effort as these constructs are acknowledged to be intertwined (Teng, Zhang, 2022). In this vein, according to a truly insightful metaphor by Winne (2011), the human mind may be compared to a knowledge storehouse to which individuals selectively choose from the stock available worldwide as countless opportunities to learn. After this most basic form of SR in learning is exercised, a whole range of cognitive strategies can be employed, such as searching for learning opportunities, paying attention to available information, monitoring the comprehension of information by comparing it to certain standards, assembling pieces of information into meaningful units by identifying their links to previously acquired information, rehearsing both the elements and the larger units in working memory, and, finally transforming or translating their representation (Winne, 2018). Yet, this is not where SRL comes to an end. On the contrary, operating as active agents, learners self-regulate not only in the choice of learning strategies but also in their aggregation into chains (Oxford, 2017) and in following learning cycles, which, according to Zimmerman (2008), expand from the forethought phase of task analysis, through the actual performance phase, to the self-reflection phase. Whether the learning actually becomes more effective and more efficient in subsequent cycles is strongly related to metacognition, which involves both metacognitive knowledge and metacognitive monitoring, control, and regulation of cognition (Pintrich, 2002). While relevant to the scope of the present paper, metacognitive knowledge is not its focal point. Instead, we are interested in a set of cognitive and metacognitive strategies which language learners employ as they progress and develop their learning skills. These include planning the order in which to learn or approach particular learning tasks, prioritizing assignments, preliminary vocabulary testing to check how much studying is necessary, controlling the efficiency of using a particular strategy, such as flashcards in learning new words or phrases, and checking the feasibility of using newly learnt lexical items or grammatical structures in sentences (Flavell, Miller, Miller, 2002).

In FLL, the above strategies have been labelled in various ways, but, importantly for the scope of the present paper, also recognized as a wide category of *cognitive self*-strategies (Oxford, 2017: 170). At the same time, concerns have been expressed about strict categorizations of language learning strategies (Cohen, 2014, Oxford, 2017, Pawlak, 2021). According to Cohen (2014) and Oxford (2017), it is often impossible to classify a strategy employed by a specific language learner as either *cognitive* or *metacognitive* – just to mention such strategies as summarising a text in a foreign language, reconceptualizing a word or phrase, or selecting examples to learn. This notwithstanding, the self-regulatory *cognitive self* strategies can be divided into subcategories, such as obtaining learning resources, paying attention, and planning, organizing, and evaluating the learning process (Winne, 2011). On the basis of Oxford's (1990, 2017) frameworks, several essential sets of *cognitive self* strategies may be distinguished whose use appears particularly relevant to LL:

(1) Seeking for learning opportunities, obtaining resources, and planning for cognition, e.g. through individualising learning plans or visiting environments distinguished by their LL (henceforth: SO);
(2) Paying attention to cognition (henceforth: PA), including paying attention to various sources of input, such as videos or pictures in public space;
(3) Creating mental linkages between new language items and those already being a part of one's competence (henceforth; ML), e.g. through associating them with each other, placing them into various contexts, or semantic mapping;
(4) Organizing further learning (henceforth: O), that is, finding ways to analyze, synthesize, and manage the language learning process, e.g. through the employment of wordlists or language learning apps.

While this list may not be exhaustive, we believe that it corresponds to such key assumptions in contemporary strategy research as the multidimensionalty of language learning (Oxford, 2017), language learner's proactiveness (Dörnyei, 2009), and the inclusion of metacognition as an element of SRL (Zimmerman, Moylan, 2009). Therefore, the research instrument we discuss in the methodological section of the present paper relies on the above framework.

Linguistic landscape as a specific learning environment and learning opportunity

According to Dörnyei (2009), since the learner-environment interaction significantly affects the actual process of language acquisition, a vital part of the agent-based framework in FLL investigations consists in conceptualizing the language learning environment and its relationship with the agent. Yet, controversies exist with respect to the flexibility allowed in accounting for the learning environment or the context in which SRL takes place. While for some researchers (Fox, Riconscente, 2008), SRL is limited to academic contexts, others (Kaplan, 2008, Loyens, Magda, Rykers, 2008) adopt a more liberal perspective, which is also reflected in the present paper of how multilingual learners make use of LL. Several arguments support this stance. First, formal academic settings are constantly subject to change and differ across educational systems (Loyens, Magda, Rykers, 2008). Second, they also differ within these systems. For instance, critical for SRL, the degree of dialogue and structure in online language education under COVID-19 turned out to vary not just across countries, but also across faculties or departments of educational institutions (Przybył, Chudak, 2022). Third, as aptly pointed out by Kaplan (2008), in reality learning happens both in academic contexts and beyond – just to mention students' homes, cultural institutions, extracurricular settings, across settings or year abroad experiences unrelated to academic exchange. According to the assumptions of the agent-based framework (Dörnyei, 2009), rather than attempt to strive to perfect the variables, researchers should make the variation from one situation to another the focus of their investigations. Subscribing to this view, as well as the stance expressed by Kaplan (2008: 480) that "exclusionary boundaries seem to provide non-optimal conceptual distinctions since metacognition is clearly nested in and is affected by environments", we propose that it is worth analyzing the specific self-regulatory strategies employed by language learners in a specific linguistic landscape (LL SRLS).

In studies of the role of LL in language education, learning environment has gained recognition after the need to shift the boundaries of language classrooms was noticed, and language educators became aware of the necessity to create connections between the classroom and the world beyond its walls. Naturally, this involved an

almost unlimited wealth of linguistic and visual resources. Yet, much as the very availability of knowledge is insufficient to learn, as mentioned in the previous section, LL is not a resource which automatically allows individuals to benefit from the wealth of language. On the contrary, as aptly observed by van Lier (2012: 39), "one has to move around. An immobile perceiver is severely limited in terms of the diversity of what he or she can perceive. Linguistic environments require "rummaging around," picking up, nudging, fiddling, trying out, and so on, like the way you go around the marketplace." In a similar vein, Niedt and Seals (2022: 2) claim the attempt "to reconceptualize the streets and neighborhoods and other spaces that make up the LL as types of the classroom in their own right and as loci for learning of different kinds" and Shohamy and Waksman (2009: 327) consider LL as "textbooks".

Initially perceived as any language items located in the public space (Landry, Bourhis, 1997), LL has been researched within sociology, sociolinguistics, politics, applied linguistics, and even economics, to identify the relationships between language visible in public space and various spheres of public life. Subsequently, following the work on images and the grammar of visuals by Kress and van Leeuwen (2006), the concept of the LL has been broadened to include not only strictly linguistic but also visual resources, which resulted in the coinage of a new term – semiotic landscape (Jaworski, Thurlow 2010). As learning environment, LL may be seen as a web of relations between learners, teachers, places and multimodal resources, "cognitively engaging" and providing opportunities for meaningful language learning (Lozano, Jimenez-Caicedo, Abraham, 2020: 17). The concept of LL has attracted both teachers and researchers, resulting in the educational projects and theoretical considerations of the applicability of LL in FLL, which paved the way to explore its potential for the growth of learners' language awareness as well as pragmatic, multimodal and multilingual competence. Moreover, the advantage of the LL over other, more rigid environments, lies in the fact that it constitutes a great display of language input (Cenoz, Gorter, 2008). From that angle, LL corresponds very well with the definition of input, which, as put by Rast (2008: 4) "refers to the linguistic environment of the learner, that is, to that which is available to be taken in, or rather, to everything in the TL that the learner is exposed to and has the opportunity to either hear or read."

As input, the LL largely depends on geographical, social, historical, and political conditions that regulate its content, density, emplacement, and permanency. This pertains not only to linguistic items, but also to the occurrence of languages other than the official language of a particular nation or in a particular country. Also, the usefulness of LL as input in FLL is determined by the types of texts displayed, ranging from single letters through words, phrases, and sentences to longer texts, such as sophisticated poetry, or ordinary public announcements. An important feature of input originating from LL is its authenticity, in the sense that the texts are not written for language learning purposes but for real-life purposes, such as simply conveying information, warning, naming, expressing emotion, advertising, or showing directions, many of which create communication channels between the author and potential reader of the text (Cenoz, Gorter, 2008, Gorter, Cenoz, Warp, 2021, Quam, Hamilton, 2022). These features of LL input also make it a very rich resource for the development of pragmatic competence, language awareness (Cenoz, Gorter 2008), and cultural awareness (Shohamy, Waksman 2009; Janikova, 2018).

Learning opportunities provided by LL are, to a certain extent, created by teachers (Kumaravadivelu, 1994; Anderson, 2015). However, independent learners are able to efficiently manage learning opportunities without additional support through, among others, attendance to input, attention to form and meaning, and to the language system, as well as by initiating learning activities (Crabbe 2003, 2007). Importantly, here, learning opportunities are located in the learning environment, with its specific geographic and historic features (Malinowski, 2015), hence bridging the

world of institutional education with independent learning beyond the classroom, formal with informal, and, more broadly, explicit with implicit learning.

To profit from language exponents located in the environment, learners need to be willing to engage with the linguistic landscape environment as well as engage in private management of that environment for the purpose of learning (Crabbe, 2007), which at its core means applying at least some of SRL strategies. In formal FLL, students may receive support and instruction on approaching LL to profit from it. Without guidance, engagement with LL could pose problems. Firstly, certainly, not every student intentionally engages in the quest for linguistic or multimodal tokens in their environment in order to learn. Secondly, those who do, once unsupported, manifest a decrease in interest (Chestnut, Lee, Schulte, 2013; Aladjem, Jou, 2016). Therefore, without relevant strategic instruction, as rightly observed by Cenoz and Gorter (2008), we may only expect incidental learning to occur, which is determined by students' ability and willingness to notice and pay attention to LL exponents. Noticing, though, is selective and dependent on the features of objects and on the interests, knowledge, and needs of the student-observers (Dakowska, 2001). Chern and Dooley (2014: 114) definitively state that "students do not necessarily even notice the foreign language print that is ubiquitous to the point of banality in their linguistic landscapes (…)". A study on students' ability to interpret multimodal signs found in the LL confirms that the students do not pay attention to language and image exponents if they have no interest in the topic, if the same type of information reappears insistently, or if the visual aspect of the sign is unattractive. Signs with interesting content, catchy phrases, evoking emotions and visually attractive have a higher chance of being noticed (Wiśniewska, 2018). At the same time, whether paying attention to the input is the required condition to perceive its items remains an open question, as does the ever-lasting debate "whether there can be any conscious perception without attention" (Mack, Ero, Clarke, Bert, 2016: 8). Yet, we may presume that self-regulated learning involving LL happens to varying degrees and develops gradually, depending on variety of factors, proceeding from incidental learning (or even no learning at all) to seeking opportunities, from unattended (but probably perceived) input to attended and perceived input, from reactive focus on input to proactive focus, and from momentary to prolonged focus on input which results in organization of learning. To properly account for these developments, in our investigation of SRL involving LL, we rest on Teng and Zhang's (2022) firm assertion that the self-regulatory framework offers a relevant research perspective. Our aim is to provide answers to the following three research questions:

RQ1: How familiar are multilingual language learners with self-regulatory learning strategies involving the use of linguistic landscape (LL SRLS)?

RQ2: How does LL SRLS use differ across specific strategy categories?

RQ 3:How do language attainment and the languages learnt affect the reported strategy use?

We are aware that the interaction between language learners and linguistic landscape is affected not only by learners' language attainment but also by several other factors, such as a specific educational context (e.g., formal/informal language learning, studying at home/abroad, or the target language itself), individual motivations and goals in language learning, or the complexity of linguistic landscape structure (cf. Hatoss, 2023). In this study, however, our primary focus is on self-regulatory learning strategies available to and employed by language learners interacting with the linguistic landscape.

Methodology

Participants

The study was advertised to undergraduate students taking part in linguistic courses in English and German at a university in western Poland. Participation was voluntary, yet encouraged by means of gratification, including extra points/credits in the courses as well as educational gadgets. Our informants received a link to an online version of the LL SRLS Inventory (LL SRSI; see the following section and Appendix 1). Ultimately, we managed to collect insights from N = 100 learners, mostly women (86%), aged 17-22 (M = 19; SD = 0.9), of whom 53 were learners of L2 English/L3 German, and 47 were learners of L2 German/L3 English[1]. They were also proficient speakers of Polish, either native speakers or B2 speakers of Polish as a foreign language (admission requirement). With respect to the languages studied as majors, we supplied the measurement of language attainment based on participants' admission tests with detailed self-reports of their speaking (S), listening comprehension (L), reading comprehension (R) skills as well as self-reports of their overall language proficiency (O) in both English and German. Detailed information can be found in Tables 1 (L2 English/ L3 German) and 2 (L2 German/ L3 English), which, since the distribution of some of the datasets differed significantly from the normal distribution, as shown by the Shapiro-Wilk tests ($p < 0.05$), contains median (Md) and range (R) values.

Table 1. Language attainment in the L2E L3G cohort

	Self-reported proficiency in the L2EL3G cohort								**CEFR**	
	S_E	S_G	L_E	L_G	R_E	R_G	O_E	O_G	E	G
Md	8	2	9	2	9	3	8	2	B2	A1+
R	5	3	4	6	3	6	4	4		

Table 2. Language attainment in the L2G L3E cohort

	Self-reported proficiency in the L2GL2G cohort								**CEFR**	
	S_E	S_G	L_E	L_G	R_E	R_G	O_E	O_G	E	G
Md	8	5	9	7	9	7	8	6	B1+	B1
R	6	8	5	9	6	9	5	8		

The LL SRLSI

Having reviewed relevant literature (see the third section of the present paper for the summary), we created the LL SRLSI (see Appendix 1 for its English version). The inventory consists of 30 Likert-scale items (1 – not at all like me; 5 – very much like me), and measures reported LL SRLS use in a foreign language. We relied on it twice, for the measurement of English and German LL SRLS, each time the language of the inventory being Polish. The items of the LL SRLSI are organized into four subscales corresponding to the stages of SR in language learners' use of LL SRLS discussed in the second section of this paper: SO (8; sample items: *I visit places where I expect to find interesting content in English*, *I look for English words or phrases in my surroundings*), PA (7; sample items: *I focus on the spelling of English words in my surroundings*, *English advertisements attract my interest*), ML (8; sample items: *I try to imagine the author of the English texts in my surroundings*, *I try to link the grammar of the English texts in my surroundings to my knowledge of English grammar*), and O (7; sample items: *I enter new English vocabulary into my English learning app(s)*, *I use GoogleMaps, StreetView or similar apps to remember/access*

[1] By L2 we mean languages studied as majors yet, as can be seen in Tables 1 and 2, not necessarily matched by longer learning experience, earlier age of onset, or higher level of attainment.

English words or phrases encountered in my surroundings). In terms of the goodness criteria for psychometric tests, the inventory can be considered standardized and normalized (see the following section).

Cronbach's alpha reliability coefficients for the four subscales are presented in Table 3 for both English (E) and German (G). As can be seen, each of the values exceeds the 0.7 value, considered to be the threshold for psychometric measures, but at the same time, none of them exceeds the value of .95, which could be an indication of redundancy (cf. Urbina, 2014). With respect to construct validity, bivariate item-total Spearman correlations, calculated in order to verify content validity of each item of the inventory, are presented in Appendix 2 (Table 10). As can be seen, all item-total correlations are statistically significant ($p < 0.05$ adjusted by the Bonferroni correction) and exceed the critical value of the Spearman's coefficient of $\rho = 0.285$ (cf. Ramsey, 1989), which inclines us to consider all items of the LL SRLSI to be valid.

Table 3. Cronbach's alpha (α) coefficients for LL SRLS subscales

	SO_E	SO_G	PA_E	PA_G	ML_E	ML_G	O_E	O_G
α	.84	.94	.87	.91	.81	.88	.79	.85

While a complete validation of the inventory would require a sample larger than 100 participants, on the basis of our above calculations, we believe that it has considerable potential as a research instrument dedicated to the measurement of LL SRLS.

Analytical procedures

In order to provide answers to the research questions (*RQs*) at the end of the third section of this paper, statistical analyses were conducted in Jamovi and SPSS 28 (Gallucci, 2019). Regarding RQ 1, descriptive statistics were computed to account for the reported use of LL by the participants in the study. Since the distribution of some of the datasets differed significantly from the normal distribution, as indicated by the Shapiro-Wilk test results ($p < 0.05$), median (*Md*) and range (*R*) values were provided along with mean (*M*) and standard deviation (*SD*) values. In addition, overall self-regulation levels (LL SRL) were calculated for L2 and L3 by adding the mean results for the strategy categories of Searching for Opportunities (SO), Paying Attention (PA), Creating Mental Linkages (ML), and Organising Further Learning (O). This procedure was based on calculating SR levels as sums of scores (cf. Gaumer-Erickson, Noonan, 2018), but at the same time allowed us to handle scales of different lengths. Since, among strategy inventories, the SILL (Oxford, 1990) can be used as a point of reference (Amerstorfer, 2018), we relied on the norms suggested by Oxford (1990) in her SILL Profile of Results, that is, assumed that mean values between 1 and 2.4 indicated low strategy use, mean values between 2.5 and 3.4 corresponded to medium strategy use, and mean values of 3.5 and higher marked high strategy use.

In order to answer RQ2, related samples Friedman's two-way analysis of variance by ranks was run. In this way we checked whether the investigated learners differed in Searching for Opportunities (SO), Paying Attention (PA), Creating Mental Linkages (ML), and Organising Further Learning (O). Analyses were run separately for L2 and L3, and separately for the two groups of learners under investigation (L2L3G and L3GL2E). Third, two generalized linear models (GLMs) were created in order to account for participants' overall reported use of LL SRLS in English and German (Gallucci, 2019). Both models were based on the identity link function and involved the group (L2EL3G/L2GL3E) as a factor and participants' self-reported level of reading comprehension proficiency (R_E or R_G respectively) as a covariate. Each time, the interaction group × proficiency was included in the analysis.

Results

Concerning RQ 1, that is, multilingual learners' use of LL SRLS, Tables 4 and 5 contain the values of descriptive statistics calculated for the four categories of SO, P, ML and O, as well as the values of LL SRL, for both English (L2E) and German (L3G) in the L2EL3G and L2GL3E groups respectively. The shading corresponds to rare (transparent), average (light grey) and frequent (dark grey) strategy use according to the interpretation proposed by Oxford (1990: 300). Regarding learners' overall use of LL SRLS in English and German, the values need to be referred to the maximum value of 20.

Table 4. Descriptive statistics for LL SRLS and SRL in the L2EL3G group

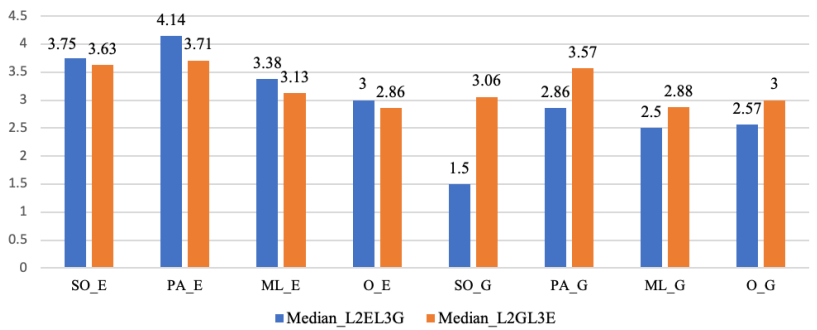
	LL SRLS categories (min = 1; max = 5)								overall LL SRLS	
	SO_E	PA_E	ML_E	O_E	SO_G	PA_G	ML_G	O_G	L2E	L3G
M	3.7	4.1	3.3	2.9	1.7	2.9	2.6	2.7	14.0	9.9
Md	3.7	4.1	3.4	3	1.5	2.9	2.5	2.6	14.2	9.5
SD	0.7	0. 6	0.6	0.8	0.6	0.9	0.8	0.9	1.9	2.7
R	3.2	2.9	2.7	3.6	3.0	3.3	3.7	3.3	8.6	11.1

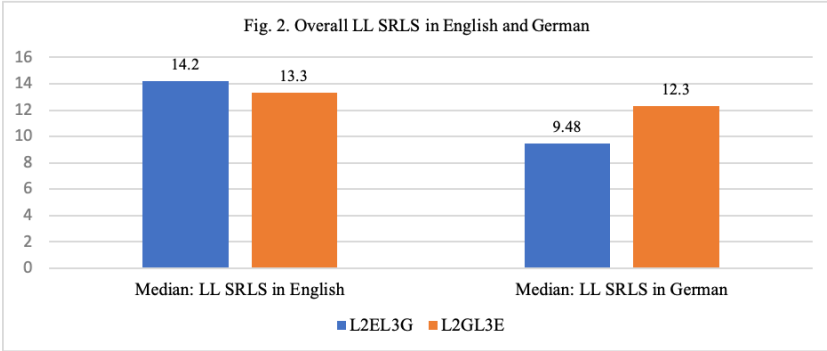
Table 5. Descriptive statistics for LL SRLS and SRL in the L2GL3E group

	LL SRLS								overall LL SRLS	
	SO_E	PA_E	ML_E	O_E	SO_G	PA_G	ML_G	O_G	L2G	L3E
M	3.5	3.7	3.1	2.8	3.1	3.5	3.0	2.9	12.5	13.0
Md	3.6	3.7	3.1	2.9	3.2	3.6	2.9	3.0	12.3	13.3
SD	1.1	1.0	0.9	1.0	1.3	1.2	1.1	1.1	4.3	3.4
R	4.0	4.0	4.0	3.7	4.0	4.0	4.0	4.0	12.0	15.3

Mean values of all each of the strategy scales: SO, PA, ML, and O are illustrated for both English and German in Figure 1, while the levels of overall LL SRLS are presented in Figure 2 for each cohort, L2EL3G and L2GL3E.

Fig. 1. LL SRLS in English and German across self-regulation stages





With respect to RQ2, that is, differences in the reported use of LL SRLS across strategy categories, the results of Friedman's Two-Way Analysis of Variance indicated that both of the investigated groups: L2EL3G and L2GL3E showed preferences for specific strategy categories for both L2 and L3. Tables 6 and 7 contain detailed information for the two cohorts of participants.

Table 6. Results of Friedman's Two-Way Analysis of Variance in L2EL3G

	χ^2	df	p		χ^2	df	p
L2 (E)	72.396	3	< 0.01	*L3 (G)*	70.576	3	< 0.01

Table 7. Results of Friedman's Two-Way Analysis of Variance in L2EL3G

	χ^2	df	p		χ^2	df	p
L2 (G)	24.457	3	< 0.01	*L3 (E)*	43.055	3	< 0.01

The Wilcoxon signed-rank tests were run as post-hocs for pairwise comparisons across LL SRLS categories for English and German. Their results are presented in Tables 8 and 9 for L2EL3G and L2GL3E, respectively. Statistically significant differences are listed in bold. P values have all been adjusted by the Bonferroni correction for multiple comparisons. In summary, these results point to an overall decline in self-regulation in subsequent stages of SRL involving LL, from seeking opportunities and paying attention to creating mental linkages and organizing the learning. The trend is illustrated in Figures 3 and 4, separately for the L2EL3G and L2GL3E groups.

Table 8. Pairwise comparisons between LL SRLS categories in L2EL3G

L2 (English)	*W*	*p*	L3 (German)	*W*	*p*
$O_E - ML_E$	0.519	0.231	$SO_G - ML_G$	-1.434	**< 0.01**
$O_E - SO_E$	1.226	**< 0.01**	$SO_G - O_G$	-1.528	**< 0.01**
$O_E - PA_E$	1.991	**< 0.01**	$SO_G - PA_G$	-1.943	**< 0.01**
$ML_E - SO_E$	0.708	**0.029**	$ML_G - O_G$	-0.094	> 0.99
$ML_E - PA_E$	1.472	**< 0.01**	$ML_G - PA_G$	0.509	0.253
$SO_E - PA_E$	-0.764	**0.014**	$O_G - PA_G$	0.415	0.587

Table 9. Pairwise comparisons between LL SRLS categories in L2GL3E

L2 (German)	*W*	*p*	L3 (English)	*W*	*p*
$O_G - ML_G$	0.191	> 0.99	$O_E - ML_E$	0.436	0.609
$O_G - SO_G$	0.309	> 0.99	$O_E - SO_E$	1.16	**< 0.01**
$O_G - PA_G$	1.16	**< 0.01**	$O_E - PA_E$	1.553	**< 0.01**
$ML_G - SO_G$	0.117	> 0.99	$ML_E - SO_E$	0.723	**0.04**
$ML_G - PA_G$	0.968	**0.002**	$ML_E - PA_E$	1.117	**< 0.01**
$SO_G - PA_G$	-0.851	**0.008**	$SO_E - PA_E$	-0.394	0.836

Fig. 3. LL SRLS - median values across SR stages: L2EL3G

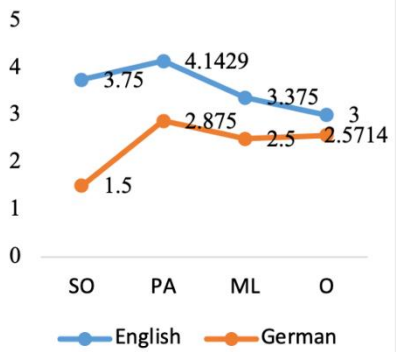
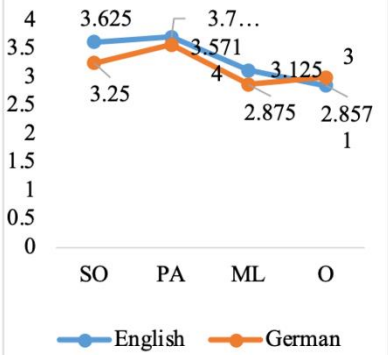
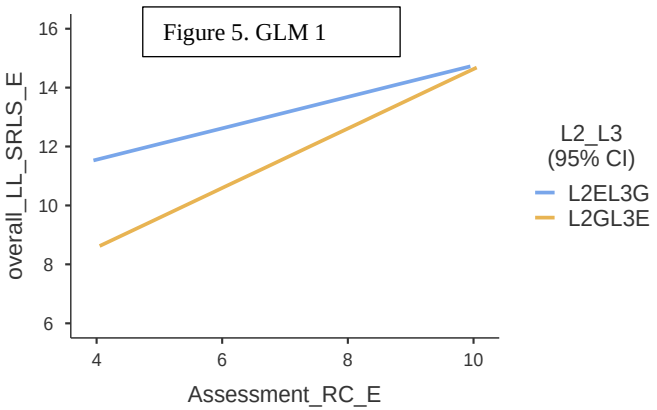


Fig. 4. LL SRLS - median values across SR stages: L2GL3E



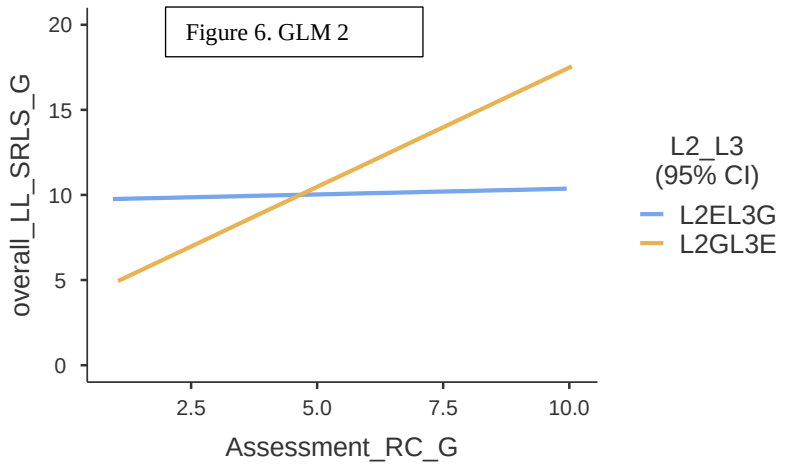
Concerning RQ3, that is, the impact of language attainment and the languages learnt on the use of LL SRLS, GLM 1 revealed that English LL SRLS use was linked to the investigated learners' self-reported reading proficiency ($\chi^2 = 11.73$, $p < .01$), but not to the L2/L3 combination ($\chi^2 = 1.54$, $p = .215$). Also, the group × proficiency interaction turned out to be statistically insignificant ($\chi^2 = 1.12$, $p = .289$). Figure 5 illustrates the findings of GLM 1.

Figure 5. GLM 1



At the same time, GLM 2 unveiled more complex relationships with respect to participants' German LL SRLS. Whereas—LL SRLS use was also linked to

participants' self-reported reading proficiency, in German, (χ^2 = 20.76, p < .01), and not to the L2/L3 combination (χ^2 = 0.12, p = .731), the group × proficiency interaction was statistically significant (χ^2 = 17.12, p < .01). In other words, as can be seen in Figure 6, participants whose first major was German (L2GL3E) reported higher use of LL SRLS in German only if their self-reported reading comprehension skills were relatively high, too.



Discussion

The present paper addressed three questions concerning LL SRLS use by learners of English and German. Concerning RQ 1, that is the use self-regulatory strategies involving linguistic landscape, the most popular categories of English LL SRLS included *seeking opportunities to learn* and *paying attention to cognition*. This finding was true for both cohorts, L2EL3G and L2GL3E, for English and German studied as the major. Interestingly, the only German LL SRLS used frequently, according to the interpretation offered by Oxford (1990) turned out to be paying attention to cognition – and the finding was only true for the L2GL3E cohort. At the same time, only one LL SRLS category, that is, seeking opportunities to learn German, could be classified as rarely used – and this finding only related to the L2EL3G cohort. The use of all the other strategy categories in both groups could be classified as medium.

With regard to RQ2, that is, the differences in the use of specific LL SRLS categories, interesting patterns could be observed in both investigated cohorts. In the L2EL3G group, with regard to English LL SRLS, our participants reported paying attention to cognition based on LL more often than seeking opportunities, creating mental linkages, or organizing the learning content. They also sought landscape-based learning opportunities more often than created relevant mental linkages or organized landscape-based input, and relied more often on creating mental linkages involving the use of LL than engaged in organizing LL-based learning in English. In the same cohort of learners, the tendency observed in L3German was considerably different because significant differences only related to seeking opportunities to engage in LL-based learning. SRLS in this category were less frequently employed than paying attention, creating mental linkages, and even organizing the German LL-based learning content. In the L2GL3E cohort, with respect to learning English, participants relied more significantly more frequently on seeking opportunities and paying attention to LL-based cognition than creating mental linkages and organizing the LL-

based English learning content, and they showed a significant preference for paying attention to cognition in German in comparison to all other three LL SRLS categories.

Finally, when it comes to RQ3, in terms of the relationships between self-reported proficiency levels, L2L3 combinations, and LL SRLS use, the finding which was consistent in both investigated cohorts of learners pertained to the relationship between participants' self-assessment of their reading comprehension skills in English and German and overall English and German LL-based strategy use. While the language combination as such was turned out not to be a significant determinant of strategy use, the interaction between the language combination and participants' reading comprehension in German was statistically significant, and, as can be seen in Figure 6, L2GL3E participants only self-regulated better in learning English based on LL than those from the L2EL3G cohort if the self-assessment of their reading comprehension skills in German was relatively high.

Whereas, as already pointed out in the LL literature review, virtually no research has been conducted into LL SRLS so far, the findings of the present study may be referred to those from earlier studies of language learning strategies as well as studies conducted in the broad domain of FLL psychology. To start with, the high reported use of English SRLS in the PA category in both cohorts and German PA SRLS in the L2GL3E cohort is a result which echoes the findings of studies investigating good language learners (GLL). As posited by Rubin (1975) and confirmed in numerous empirical investigations (e.g., Reiss, 1985, Schmidt, 2012), GLL pay attention to different aspects of both form and function in FLL. We believe that it is likely that a number of our participants belong to the GLL category as students of applied linguistics simultaneously learning multiple languages. In particular, our results correspond to the outcomes reported in a study of perceptions of Korean LL by 41 international beginner Korean students (Qi, Zhang, Sorokina, 2020) who showed a preference for English LL over Korean and Romanised Korean LL. At the same time, a qualitative study of three Korean students (Chestnut, Lee, Schulte, 2013) revealed that even though the investigated learners majored in English, they did not pay attention to English. Regarding the high score for German PA LL SRLS in L2GL3E cohort, it may be explained firstly by students' relatively high proficiency level (German L2), and secondly by students' interest in German. Although the influence of interest on attention has not been determined unequivocally, it is expected that interest affects attention as well as learning strategies (Silvia, 2006).

When it comes to the search for LL-based learning opportunities, the use of English LL SRLS falls into the frequent category in both cohorts, whereas the search for German learning LL-based opportunities does not, in any. This might be accounted for from three different angles. First, given the established strategy–attainment relationship (Oxford, 2017; Pawlak, 2021), the lower use of SO LL SRLS might be linked to the relatively lower level of participants' attainment in German, even in the L2 German group, in comparison to their attainment in English. Second, language learners at the tertiary level in Poland are known to vary in terms of strategy use and autonomy, possibly due to different language teaching methodologies at stake (Chudak, 2007; Janachowska-Budych, 2014; Pawlak, Kiermasz, 2018). Third, given the predominance of English as a lingua franca these days, the overall amount of German input may, in fact, make SO in German LL more challenging than in English – perhaps with the exception of border regions (cf. Jańczak, 2018).

It is worth emphasizing that the reported use of SO and PA LL SRLS was significantly higher than ML and O in both L2EL3G and L2GL3E for English and in L2GL3E for German. In other words, except for the use of German LL-based SRLS in the L2EL3G cohort, SR in learning both languages gradually declined in subsequent stages of LL SRLS use, which indicates that our participants were relatively less familiar with LL strategies involving creating mental linkages and organizing the learning content. In our study, participants did not receive any prior

instruction regarding LL or SR. Hence, they could only rely on their own competence as language learners. Hence, the outcome provides empirical support for the assumption that "[S]elf-regulation does not develop automatically with maturation, nor is it acquired passively from the environment". (Schunk, Zimmerman 2003: 72). It is also in line with the findings within the field of LL (Roos, Nicholas 2020, Chern, Dooley, 2014), according to which explicit instruction is required so that language learners can rely on LL as a source of input and language awareness as well as those from investigations of self-regulated language learning (Przybył, Chudak, 2022), according to which SR deteriorates in subsequent stages from planning to reflection.

Whereas our final findings related to the relationships between participants' self-assessed reading comprehension proficiency and their levels of self-regulation (both cohorts, both English and German) are not really surprising and can be related to earlier findings confirming the correlational links between self-regulated strategy use and attainment in FLL (cf. Pawlak, 2021). At the same time, the results when it comes to the lack of the direct effect of the language combination (L2EL3G vs. L2GL3E) and the significant interaction between the language combination and reading comprehension self-assessment in German are intriguing. In general, we believe that while our final result suggests that multilingual advantage, concerning the level of SR in FLL, does exist, it only appears after multilingual learners reach a certain threshold in the development of their competence, both regarding language attainment and language learning competence. While to a certain extent, this may be related to reports of thresholds in second and third-language acquisition (Gabryś-Barker, Otwinowska-Kasztelanic, 2012; Lechner, Siemund, 2014; Długosz, 2023), the issue requires further research in the field of foreign language learning psychology.

Conclusions, limitations of the study and directions for future research

To the best of our knowledge, our study is the first investigation attempting to measure the use of self-regulated strategies involving linguistic landscape. As shown by its outcomes, LL SRLS use is affected by the level of language attainment, in our case operationalized as language learners' self-reported reading comprehension skills, and varies across languages learnt and stages of self-regulation, with English LL SRLS exceeding the level of German LL SRLS use, and more frequent reliance on paying attention than creating mental linkages and organizing the landscape-based learning content. While we are fully aware that employing the cross-sectional and quantitative perspective, we present but a snapshot reflecting LL SRLS use by multilingual learners of English and German, we would like our study to be considered as a starting point for other, perhaps qualitative or mixed-method studies into LL-based SRLS (see Pawlak, 2021, for guidelines for strategy research). Such investigations could likely explain the reasons for the trends we observed, such as the relatively lower reliance on German SO LL SRLS strategies compared to English SO LL SRLS. One immediate implication resulting from this finding is that while language learning strategies are largely transferable (Oxford, 1990, 2017), the transfer is not automatic. In the specific case of landscape-based strategies, does not happen with respect to the metacognitive category of searching for opportunities for LL-based learning. From a different angle, we believe that in the era of learner-centredness, we should be open to extra-linguistic explanations of language learners' strategic choices, such as those which link strategy use to personality and, more generally, affect, and study the links between LL-based strategy use and internal language learner characteristics. Furthermore, research into self-regulated language learning through exploring LL must not overlook the interplay between the ever-changing complexity of linguistic landscapes and the diversity of educational and linguistic contexts.

Appendix 1. Linguistic landscape self-regulated strategy inventory (LL SRLSI) ver. 1.0. © Jakub Przybył, Danuta Wiśniewska

On a scale 1 – 5, please rate how much these statements are true about you.
(1 = not at all like me; 5 – very much like me)

Scale: Searching for Opportunities (SO)
1. I visit places where I expect to find interesting content in [English].
2. I look for [English] words or phrases in my surroundings.
3. When I am abroad, I look for [English] words or phrases.
4. I choose the [English] language version of tourist information.
5. I look for examples of creative use of [English] in my surroundings.
6. I choose the leaflets which are in [English].
7. I browse websites with descriptions of places in [English].
8. In mass events (e.g. concerts, protests), I look for information in [English].

Scale: Paying Attention (PA)
1. I pay attention to [English] words and phrases in my surroundings.
2. I focus on the spelling of [English] words and phrases in my surroundings.
3. Advertisements in [English] attract my attention.
4. I am interested in various aspects of [English] words or phrases in my surroundings (e.g. pronunciation, spelling, grammar).
5. I pay attention to [English] content at university (e.g. on notice boards /walls).
6. I am able to concentrate on English in my surroundings even if a lot is happening.
7. I pay attention to [English] translations of Polish texts in my surroundings.

Scale: Creating Mental Linkages (ML)
1. I associate [English] words or phrases with places where they occur.
2. I try to link the [English] new words or phrases from my surroundings with those I already know.
3. I try to remember not just [English] words, but whole phrases or expressions from my surroundings.
4. I try to imagine the author of the [English] words or phrases from my surroundings.
5. I wonder who the [English] texts in my surroundings are meant for.
6. I try to use the typography (colour/font/size, etc.) of the [English] words or phrases from my surroundings to remember them.
7. I try to use the [English] words or phrases from my surroundings in my [English] classes.
8. I try to link the grammar of the [English] texts from my surroundings to my knowledge of [English] grammar rules and structures.

Scale: Organising the learning content
1. I enter the newly encountered [English] vocabulary to my learning app(s).
2. I keep a list of the [English] words or phrases from my surroundings.
3. I repeat the [English] words and phrases encountered in my surroundings.
4. I keep written track of the [English] words of phrases encountered in my surroundings to check their meaning when it is convenient for me.
5. I use GoogleMaps, StreetView, or similar apps to remember [English] words or phrases from my surroundings.
6. I try to remember [English] words or phrases seen in my surroundings.
7. I create examples of use with [English] words and phrases from my surroundings.

Appendix 2.

Table 10. Spearman bivariate item-total correlations

SO_E			SO_G		
item	ρ	*p*	Item	ρ	*p*
1	0.69	<.001	1	0.82	<.001
2	0.72	<.001	2	0.81	<.001
3	0.59	<.001	3	0.87	<.001
4	0.57	<.001	4	0.81	<.001
5	0.53	<.001	5	0.76	<.001
6	0.65	<.001	6	0.79	<.001
7	0.60	<.001	7	0.82	<.001
8	0.75	<.001	8	0.73	<.001
PA_E			PA_G		
item	ρ	*p*	Item	ρ	*p*
9	0.66	<.001	9	0.83	<.001
10	0.66	<.001	10	0.80	<.001
11	0.69	<.001	11	0.81	<.001
12	0.75	<.001	12	0.82	<.001
13	0.75	<.001	13	0.82	<.001
14	0.72	<.001	14	0.81	<.001
15	0.73	<.001	15	0.81	<.001
ML_E			ML_G		
item	ρ	*p*	Item	ρ	*p*
16	0.71	<.001	16	0.81	<.001
17	0.72	<.001	17	0.78	<.001
18	0.68	<.001	18	0.83	<.001
19	0.66	<.001	19	0.69	<.001
20	0.59	<.001	20	0.68	<.001
21	0.66	<.001	21	0.56	<.001
22	0.67	<.001	22	0.72	<.001
23	0.60	<.001	23	0.80	<.001
O_E			O_G		
item	ρ	*p*	Item	ρ	*p*
24	0.55	<.001	24	0.64	<.001
25	0.77	<.001	25	0.81	<.001
26	0.74	<.001	26	0.86	<.001
27	0.55	<.001	27	0.67	<.001
28	0.51	<.001	28	0.53	<.001
29	0.67	<.001	29	0.68	<.001
30	0.80	<.001	30	0.83	<.001

Critical value of the coefficient: $\rho = 0.285$ (cf. Ramsey, 1989)
Required significance level adjusted by the Bonferroni correction:
$p = 0.0062$ for the SO and ML subscales; $p = 0.0071$ for the PA and O subscales

Bibliographic references

Aladjem, R., & Jou, B. (2016). The Linguistic Landscape as a Learning Space for Contextual Language Learning. Journal of Language Learning Spaces 5(2), 66-70. ISSN 21586195.

Amerstorfer, C. M. (2018). Past its expiry date? The SILL in modern mixed-methods strategy research. Studies in Second Language Learning and Teaching 8(2), 497-523. ISSN 2083-5205.

Anderson, J. (2015). Affordance, learning opportunities, and the lesson plan pro forma. ELT Journal 69(3), 228-238. DOI: 10.1093/elt/ccv008

Anderson, N. J. (2002). The role of metacognition in second language teaching and learning. Washington, DC: ERIC Clearinghouse on Languages and Linguistics.

Andrade, M. S., & Bunker, E. L. (2011). The role of SRL and TELEs in distance education: Narrowing the gap. In: Fostering self-regulated learning through ICT (105-121). Hershey: IGI Global. DOI: 10.4018/978-1-61692-901-5.ch007

Andrade, M. S., & Evans, N. W. (2015). Developing self-regulated learners: Helping students meet challenges. In: ESL Readers and Writers in Higher Education: Understanding Challenges, Providing Support. New York: Routledge. 127-143. ISBN 9781315762654.

Bandura, A. (1991). Social cognitive theory of self-regulation. Organizational Behavior and Human Decision Processes 50 (2), 248-287. ISSN0749-5978

Bandura, A. (2023). Social cognitive theory: An agentic perspective on human nature. Hoboken: John Wiley & Sons. ISBN 9781394161454.

Baumeister, R. (2018). Self-regulation and self-control: Selected works of Roy F. Baumeister. New York: Routledge. ISBN 9781351707749

Cenoz, J. & Gorter, D. (2008). The linguistic landscape as an additional source of input in second language acquisition. IRAL 46, 267-287. ISSN 0019-042X.

Chern, Ch., & Dooley, K. (2014). Learning English by walking down the street. ELT Journal 68(2), 113-123. ISSN 0951-0893.

Chestnut, M., Lee, V, & Schulte, J. (2013). The language lessons around us: Undergraduate English pedagogy and linguistic landscape research. English Teaching – Practice and Critique 12(2), 102-120. ISSN : 1175-8708.

Chudak, S. (2007). Lernerautonomie fördernde Inhalte in ausgewählten Lehrwerken DaF für Erwachsene. *Frankfurt am Main:Peter Lang*. ISBN 9783631557556.

Cohen, A. D. (2014). Strategies in learning and using a second language. London: Routledge. ISBN 9780582305885.

Crabbe, D. (2003). The quality of language learning opportunities. TESOL Quarterly 37(1), 9-34. ISSN 0039-8322.

Crabbe, D. (2007). Learning opportunities: Adding learning value to tasks. ELT Journal 61(2), 117-125. ISSN 0951-0893.

Dakowska, M. (2001).Psycholingwistyczne podstawy nauki języków obcych. [Psycholinguistic basis of language learning]. PWN. ISBN 9788301136925

Długosz, K. (2023). Cross-linguistic influence in the comprehension of reflexive possessive pronouns in L3 and L4 Swedish. International Journal of Bilingualism, 13670069231194341. ISSN1367-0050

Dörnyei, Z. (2009). Individual differences: Interplay of learner characteristics and learning environment. Language Learning 59, 230-248. ISSN 0023-8333.

Flavell, J. H., Miller, P. H., & Miller, S. A. (2002). Cognitive Development (4th ed.). Upper Saddle River: Prentice Hall. ISBN 9780137915750.

Fox, E., & Riconscente, M. (2008). Metacognition and self-regulation in James, Piaget, and Vygotsky. Educational Psychology Review 20, 373-389. ISSN1040-726X.

Gabryś-Barker, D., & Otwinowska, A. (2012). Multilingual learning stories: threshold, stability and change. International Journal of Multilingualism 9(4), 367-384. ISSN 1479-0718.

Gallucci, M. (2019). GAMLj: General analyses for linear models. [jamovi module]. Retrieved from https://gamlj.github.io/.
Gaumer Erickson, A. S., & Noonan, P. M. (2018). Self-regulation formative questionnaire. The skills that matter: Teaching interpersonal and intrapersonal competencies in any classroom, 177-178. ISBN
Ghonsooly, B., & Ghanizadeh, A. (2013). Self-efficacy and self-regulation and their relationship: a study of Iranian EFL teachers. The Language Learning Journal 41(1), 68-84. ISSN 0957-1736.
Gorter, D., Cenoz, J., & Warp, K. (2021). The linguistic landscape as a resource for language learning and raising language awareness. Journal of Spanish Language Teaching 8(4), 1-21. ISSN 2324-7797.
Hatoss, A. (2023). Everyday multilingualism: Linguistc landscapes as practice and pedagogy. New York: Routledge.
Janachowska-Budych, M. (2014). Intercultural teaching and developing autonomy in the foreign language classroom. Konińskie Studia Językowe 4, 403-411. ISSN : 2353-5148.
Janikova, V. (2018). Linguistic landscapes aus fremdsprachenddidaktischer Perspektive. In: Linguistic landscape und Fremdsprachendidaktik Berlin: Peter Lang. 137-172. ISBN 978-3-631-77028-3.
Jańczak, B. A. (2018). German-Polish transborder learning: Symmetries and asymmetries in language acquisition and bilingual education. Slavia Iaponica 21, 7-26. ISSN 2188-0573.
Jaworski, A., & Thurlow, C., (eds). (2010). Semiotic Landscapes. Language, Image, Space. Continuum International Publishing Group. ISBN 9781441145727.
Kaplan, A. (2008). Clarifying metacognition, self-regulation, and self-regulated learning: What's the purpose?. Educational Psychology Review, 477-484. ISSN1040-726X.
Kress, G., & van Leeuwen, T. (2006). Reading Images. The grammar of visual design. Routledge. ISBN 9780415319157
Kumeravadivelu, B. (1994). The post-method condition: Emerging strategies for second/foreign language teaching. TESOL Quarterly 28(1), 27-48. ISSN 0039-8322.
Landry, R., & Bourhis, R. Y. (1997). Linguistic landscape and ethnolinguistic vitality: An empirical study. Journal of Language and Social Psychology 16(1), 23-49. https://doi.org/10.1177/0261927X970161002
Lechner, S., & Siemund, P. (2014). Double threshold in bi-and multilingual contexts: preconditions for higher academic attainment in English as an additional language. Frontiers in Psychology, 5, 546. ISSN 1664-1078.
Loyens, S. M., Magda, J., & Rikers, R. M. (2008). Self-directed learning in problem-based learning and its relationships with self-regulated learning. Educational Psychology Review, 20, 411-427. ISSN1040-726X.
Lozano, M.E., Jimenez-Caicedo, J.P., & Abraham, L.B. (2020). Linguistic Landscape Projects in Language Teaching: Opportunities for Critical Language Learning Beyond the Classroom. In: Language Teaching in the Linguistic Landscape. Mobilizing Pedagogy in Public Space. Cham: Springer. 17-42. ISBN ISBN-13: 978-3030557607.
Mack, A., Erol, M., Clarke,J., & Bert, J. (2016). No iconic memory without attention. Consciousness and Cognition 40, 1-8. ISSN 1090-2376.
Malinowski, D. (2015). Opening spaces of learning in the linguistic landscape. Linguistic Landscape 1(1/2), 95-113. ISSN 2214-9961.
Niedt, G., & Seals, C.A. (2022). Introduction. In: Linguistic Landscape beyond the language classroom (1-9). Bloomsbury Academic. ISBN 9781350125360.
Oxford, R. L. (1990). Language learning strategies: What every teacher should know. Boston: Heinle and Heinle Publishers.

Oxford, R. L. (2017). Teaching and researching language learning strategies: Self-regulation in context (2nd ed). New York: Routledge. ISBN 9781317515111.
Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research. Frontiers in Psychology 8, 422. ISSN 1664-1078.
Pawlak, M. (2021). Investigating language learning strategies: Prospects, pitfalls and challenges. Language Teaching Research 25(5), 817-835. ISSN 1477-0954
Pawlak, M., & Kiermasz, Z. (2018). The use of language learning strategies in a second and third language: The case of foreign language majors. Studies in Second Language Learning and Teaching 8(2), 427-443. ISSN 2083-5205.
Pintrich, P. R. (2002). The role of metacognitive knowledge in learning, teaching, and assessing. Theory into Practice 41(4), 219-225. ISSN 1543-0421.
Pintrich, P. R., Marx, R. W., & Boyle, R. A. (1993). Beyond cold conceptual change: The role of motivational beliefs and classroom contextual factors in the process of conceptual change. Review of Educational Research 63(2), 167-199. ISSN 0034-6543.
Przybył, J., & Chudak, S. (2022). University students' self-regulation in standard and enforced online language learning. Moderna Språk 116(1), 47-66. ISSN 0026-8577.
Przybył, J., & Długosz, K. (2024). Self-regulation in multilingual learners: The role of foreign language curricular status and its implications for foreign language instruction. In: Multilingualism, Multiculturalism and Inclusive Education. Leiden/Boston: BRILL. In press.
Ramsey, P. H. (1989). Critical values for Spearman's rank order correlation. Journal of Educational Statistics 14(3), 245-253.
Rubin, J. (1975). What the "good language learner" can teach us. TESOL Quarterly, 41-51. ISSN 0039-8322.
Qi, W., Zhang, H., & Sorokina, N. (2020). Linguistic Landscape for Korean Learning: A Survey of Perception, Attitude, and Practice of Korean Beginners at Korean University. Journal of Language Teaching and Research 11(6), 956-961. DOI: http://dx.doi.org/10.17507/jltr.1106.12
Quam, J., & Hamilton, H.E. (2022). From Part of the Scenary to Curriculum Resources: Authentic Signs as Portals to Cultural Practices within a Residential German Language Immersion Program. In: Linguistic landscape beyond the language classroom. London: Bloomsbury Academic. 13-36. ISBN: 9781350125360.
Rast, R. (2008). Foreign Language Input. Initial processing. Multilingual Matters. ISBN 1847690416
Reiss, M. A. (1985). The good language learner, another look. Canadian Modern Language Review 41(3), 511-523. ISSN 0008-4506.
Roos, J., & Nicholas, H. (2020). Linguistic Landscapes and Additional Language Development. In The Handbook of Informal Language Learning, Wiley Blackwell. 243-255. INBN9781119472445.
Schunk, D. H., & Zimmerman, B. J. (1994). Self-regulation in education: Retrospect and prospect. In: Self-regulation of learning and performance. New York: Routledge. Ebok. 305-314. ISBN 9780203763353
Schunk, D.H., Zimmerman, B.J. (2003). Self-regulation and learning. In: Handbook of Psychology, Educational Psychology. New York: John Wiley & Sons. 59-78. ISBN-10 0471384062.
Schmidt, R. (2012). Attention, awareness, and individual differences in language learning. In: Perspectives on Individual Characteristics and Foreign Language Education. Singapore: National University of Singapore, Centre for Language Studies. 27-50. ISBN 9781614510932.
Shohamy, E., & Waksman, S. (2009). Linguistic Landscape as an Ecological Arena: Modalities, Meanings, Negotiations, Education. In: Linguistic landscape: Expanding the scenery. London: Routledge. 313-331. ISBN 9780415988735.

Silvia, P. (2006). Exploring the Psychology of Interest. Oxford University Press. ISBN 13978-0-19-515855-7.
Teng, L. S., & Zhang, L. J. (2022). Can self-regulation be transferred to second/foreign language learning and teaching? Current status, controversies, and future directions. Applied Linguistics 43(3), 587-595. ISSN 0142-6001.
Tseng, W. T., 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. ISSN 0142-6001.
Urbina, S. (2014). Essentials of psychological testing. New York: John Wiley & Sons. ISBN-13 978-0471419785.
Van Lier, L. (2012). Classrooms and 'Real' Worlds: Boundaries, Roadblocks, and Connections. In: Critical and intercultural theory and language pedagogy. Boston: Heinle Cengage Learning. ISBN 9780495800071.
Veenman, M. V., Van Hout-Wolters, B. H., Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. Metacognition and Learning 1, 3-14. ISSN 1556-1631.
Winne, P. H. (2011). A cognitive and metacognitive analysis of self-regulated learning. In: Handbook of self-regulation of learning and performance. New York: Routledge. 15-32. ISBN 1136881662.
Winne, P. H. (2018). Theorizing and researching levels of processing in self-regulated learning. British Journal of Educational Psychology 88(1), 9-20. ISBN 9781138903197
Wiśniewska, D. (2018). Reading signs in the Linguistic Landscape. In: Linguistic landscape und Fremdsprachendidaktik. Berlin: Peter Lang. 115-136. ISBN-10 3631770286
Zhang, D., & Zhang, L. J. (2019). Metacognition and self-regulated learning (SRL) in second/foreign language teaching. In: Second handbook of English language teaching (883-897). Cham: Springer. ISBN 9783030028978.
Zimmerman, B. J. (1986). Becoming a self-regulated learner: which are the key subprocesses? Contemporary Educational Psychology 11(4), 307-313. ISSN 1090-2384.
Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. American Educational Research Journal 45(1), 166-183. ISSN 0002-8312.
Zimmerman, B. J., & Moylan, A. R. (2009). Self-regulation: Where metacognition and motivation intersect. In: Handbook of Metacognition in Education. New York: Routledge. 299-315. ISBN 9780203876428.

Words: 8272
Characters: 55 954 (31,1 standard pages)

Jakub Przybył, PhD
Adam Mickiewicz University, Poznan, Poland Ul. Wieniawskiego 1
61-712 Poznań
Poland
jakub.przybyl@amu.edu.pl

Prof. Danuta Wiśniewska
Adam Mickiewicz University, Poznan, Poland Ul. Wieniawskiego 1
61-712 Poznań
Poland
wis@amu.edu.pl