

Digital Language Learning Strategies Subject to Change or Not – Post Pandemic Reflections



Elżbieta Gajek 

Abstract The strategic approach to language learning has gained recognition among both language teachers and learners since the early nineties. However, the use of such strategies in technology-enhanced environment has remained marginal, focusing interest of a small group of CALL (TELL, MALL) pioneers. The sudden outburst of the COVID-19 pandemic with its restrictions enhanced the need of learning languages in the digital environments. The change had a big impact on the teachers, who needed to learn quickly how to work online. However, it is interesting whether the change influenced the ways students learn. Reflection on the experience is necessary to incorporate it into development of the domain. In the text, the current digital strategy use among students is compared with the results of the previous study. Both datasets were collected with the use of similar questionnaires – three more answers were only added to let the respondents indicate the change in their use of digital strategies during the pandemic. The results show that the strategies remained the same as before the pandemic. Thus, the intensive use of digital tools may not have a substantial impact on students' learning habits.

Keywords Language learning strategies · CALL – computer assisted language learning · COVID-19 · Language learners' attitudes · Factor analysis

1 Introduction

Language learning strategies and strategies learner training have been discussed for nearly 50 years (Rubin, 1975). Extensive research confirms the importance of the topic. What is more, many studies (Chapelle, 2000; Gajek & Michońska-Stadnik, 2017; Pujolá, 2002; Ulitsky, 2000) examine the role of strategies in learning foreign

E. Gajek (✉)
University of Warsaw, Warsaw, Poland
e-mail: e.gajek@uw.edu.pl

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languages in digital environments. In the pandemic, learning took place outside of the class, even if it was partially supported by the teacher. Thus, it was more individualised. This chapter presents an overview of the key concepts and taxonomies related to strategies in the non-digital and digital environments. Various digital tools have learning strategies embedded in their functionalities available for learners (Ulitsky, 2000), who also have access to multilingual resources. Thus, students may creatively invent and shape the digital learning strategies for effective language learning (Yoon & Jo, 2014). In such an environment learner awareness of language learning strategies as part of their autonomy and responsibility for learning becomes crucial. This chapter is to present the comparison of digital learning strategy use by university students based on the data collected in 2013 and 2021 and the students' opinions on the change in the strategy use in the pandemic period.

2 Literature Review

2.1 The Origin of Language Learning Strategies Studies

Language learning strategies (LLS) have been discussed since Joan Rubin noticed in 1975 actions and behaviours which good learners perform to achieve a success in learning. Then Stern (1975), Naiman et al. (1996/1978), characterized the good learner's activities in more detail. Later the interest in language learning strategies grew (Bialystok, 1978; Michońska-Stadnik, 1996; O'Malley et al., 1985; O'Malley & Chamot, 1990; Oxford, 1989; Oxford, 1990a, b; Rubin, 1987; Wenden', 1986). The taxonomies have become more and more extended.

In the most widely known taxonomy (Oxford, 1990b) strategies are divided into Direct strategies and Indirect Strategies. Direct strategies cover Memory strategies, Cognitive strategies and Compensation strategies. While Indirect strategies cover Metacognitive strategies, Affective strategies and Social strategies.

Researchers emphasised the role of strategy training in the context of individual learners variables (Oxford & Scarcella, 1994). Then the interest in strategies decreased slightly. However, some new insights were introduced in the extended S²R Model which involves the role of learners' culture (Oxford, 2011). Finally, Griffiths (2013) concludes "Language learning strategies are activities consciously chosen by learners for the purpose of regulating their own language learning" (p. 15).

2.2 Language Learning Strategies in Digital Environment – Overview

Although LLS have become a core in teacher training courses, their use in a digital environment is not so well-known. Joan Rubin (1988, 1996) was an author of a popular digital video disk for language learning. This technology got outdated soon,

and the strategic approach it had introduced was abandoned. Although many researchers (Ellis, 1994; Mitchell & Myles, 1998; Wenden, 1986; O'Malley & Chamot, 1990; Oxford, 1993; Shorrocks, 1991) emphasized the need for the use of strategies out-of-class, the language teachers in the eighties and nineties of the previous century rarely recognized digital environment as a place where strategies could be utilized. But research on LLS in CALL (Computer Assisted Language Learning) has continued (Chapelle, 2000; Chapelle & Mizuno, 1989; Hagen, 1994; Harris, 2003; Hauck & Hampel, 2008; Huang et al., 2009; Li, 2009; Pujolá, 2002; Ulitsky, 2000). Recent approaches discuss the role of strategies embedded in the digital tools (Ulitsky, 2000), strategic creativity of learners (Yoon & Jo, 2014) as well as the influence of context on learners' behaviour (Huang & Sheng Yi, 2016). The application of strategies in using online dictionaries and corpus based learning is widely investigated (Charles, 2007; Gaskell & Cobb, 2004; Gilmore, 2009; Kennedy & Miceli, 2001; Lee & Chen, 2009; Lee & Swales, 2006; O'Sullivan & Chambers, 2006; Sun, 2007; Yoon, 2008; Yoon & Hirvela, 2004). Also the selection of digital tools available for the learners in the light of their strategic use has been discussed. Learners have access to the internet in their computers or phones in various places, not always at home, but for example in the library or cafés (Bekleyen & Yilmaz, 2012; Gajek & Michońska-Stadnik, 2017). This confirms Kukulska-Hulme (2009) statement that access to the internet has a decisive impact on their learning strategies.

2.3 Strategies as Means to Develop Autonomy and Responsibility for Learning

The use of LLS and strategy training are very often associated with individualised learning, learner autonomy and responsibility for own learning as strategies refer to personal behaviour and actions. Strategies are to regulate own learning processes (Griffiths, 2013, p. 15). While monitoring their own language production learners notice the mistakes (Rubin, 1981) or refer to their own previous knowledge (Oxford, 1990b). Affective strategies require observation of their own bodily reactions to stress. Autonomy, by definition, refers to the control of one's own learning (Holec, 1981, p. 3), which leads to responsibility for own learning and progress (Benson & Voller, 1997). Students organise their learning independently when they use technology (Sharma & Barret, 2007, p. 11). Some methodology solutions suggested for learning with technology, such as webquests, allow for autonomy and the learner's own initiative in learning (Smith & Baber, 2005). In many studies learners are encouraged to use various digital tools: the internet, dictionaries, editing software to improve their own texts (Marlyna & Noor Saazai, 2016). In the TESOL Technology Standards (Healey et al., 2011) Standard 5 within the Goal 3 strictly refers to own thinking, cooperation and to the use of technology to achieve own linguistic and communicative aims. In the Strategy Inventory for Language Learning (SILL) the reference to own actions is evident (Oxford, 1990b).

2.4 Research Instruments for Strategic Learning

Language learning strategies have been mainly investigated via the questionnaires (Cohen et al., 1998; Olivares-Cuhat, 2002; Oxford, 1990b; 1996; Oxford & Burry-Stock, 1995; Wharton, 2000). The tool used most often is SILL (Oxford, 1990a). Data from this inventory have also been used to study correlations between strategies and other variables such as learning styles, language proficiency, cultural factors and type of tasks (Bedell & Oxford, 1996; Bruen, 2001; Green & Oxford, 1995; Nyikos & Oxford, 1993; Oxford et al., 2004; Oxford & Burry-Stock, 1995; Wharton, 2000). Adapted SILL was used in the study referred to below (Gajek & Michońska-Stadnik, 2017).

2.5 Studies on Language Learning Strategies during COVID-19 Pandemic

Although there are numerous reports of studies on language learning undertaken during the COVID-19 pandemic, they are diverse in terms of understanding the term LLS, theoretical background applied, methodology, cultural contexts and localisation. For example, the analysis of 11 (out of 105 considered) studies on language learning strategies applied in Middle East and Saudi Arabia universities published from 2019 to 2021 in renown journals is focused on the use of zoom and its functionalities, collaborative learning, flipped classroom without any reference to Oxford's taxonomy (Khreisat, 2022). Another study, done among 50 students in Peru shows that strategy training based on Oxford's taxonomy improves students' learning as it has been demonstrated in many studies mentioned above (Fernandez-Malapartida, 2021). This may suggest that the impact on online educational environment is not as essential as it could be expected.

3 Aims of the Study

The aim of the current research is (1) to examine a change, if any, in the use of digital language learning strategies (DLLS) due to the COVID-19 pandemic; (2) to compare the recent results with the results collected in 2013 and published earlier (Gajek & Michońska-Stadnik, 2017). The first hypothesis is that the developments in technology have changed the distribution of digital strategies among university students over the eight years between the previous and current studies. The second hypothesis is that the remote learning and lockdowns experienced during the pandemic increased the use of (DLLS) among students.

The research questions are the following: (1) What DLLS do university students bring from secondary education? (2) Have DLLS changed over the 8 years? (3) What is the COVID-19 lockdown impact on DLLS used by students?

4 Methodology

As a research tool a large part of the same questionnaire is applied in the present study and the study conducted in 2013 (Gajek & Michońska-Stadnik, 2017). In the recent study three options (e–g) were added to each question. For example, the question with four options (a–d) was used in the previous study:

I use the internet to learn grammar.

- a) *often.*
- b) *sometimes.*
- c) *rarely.*
- d) *never.*

In the recent version the following options were added:

- e) *more often than before the pandemic.*
- f) *less often than before the pandemic.*
- g) *without any change due to the pandemic.*

In the previous study the respondents ticked one option out of four (a–d). In the recent study students were asked to tick two answers: one from the first section (a–d) and one from the second section (e–g).

In the pre-pandemic time, for the purpose of the research presented in Gajek and Michońska-Stadnik (2017) two questionnaires were used. One was based on SILL. The other, based on the TESOL Technology Standards (Healey et al., 2011), was applied to identify what DLLS learners use when they learn a foreign language out-of-class in the digital environment. The essential statements applied in the questionnaire are presented in Table 2, column A. Some final questions about the role of a language teacher in the process of enhancing strategic use of digital tools were added in the first study. Two hundred and three answers collected among secondary school learners and 37 answers collected among university students were taken for analysis in Gajek, Michońska-Stadnik (2017, pp. 67–103). Whereas, 22 students responded to the questionnaire in the second study. The questions about the role of the teachers were removed to focus the respondents' attention on their own practice, which allows the comparison of the two periods – pandemic and pre-pandemic one in terms of the use of DLLS.

4.1 Data Analysis of the Results – Factor Analysis

To answer the first research question and to provide a clear background to the current study it is worth presenting a specific analysis of the data collected in the first study. Factor analysis (FA) allows to extract components that contribute to general overview of the use of strategies. It demonstrates the complexity of internal processes which encourage learners to undertake actions that lead to effective learning. It demonstrates interrelations among the strategies used by learners. Although statistical analysis is based on quantitative data, the results reflect the distribution of

Table 1 Components extracted among digital learning strategies from the data collected among secondary school learners

Component	Eigenvalue
Using the internet for learning grammar	.822
Using the internet for learning pronunciation	.791
Using the internet for learning vocabulary	.773
Using the internet to improve writing	.691
Using the internet to improve speaking	.79
Listening to recordings on the internet	.524
First language teacher uses digital materials	.19
Second language teacher uses ICT	.58
First language teacher encourages the use of digital materials	.89
Second language teacher encourages the use of digital materials	.39

individual choices, which could be shaped by teachers and trainers. The FA based on the data collected among secondary school learners presented earlier (Gajek & Michońska-Stadnik, 2017) is calculated (Gajek, 2018). For digital learning strategies 10 components extracted by FA (with Kaiser Meyer Olkin .861) are presented in Table 1. The core strategies reflect the practical approach to learning language elements and skills and the response to the teachers' actions. This illustrates what kind of strategic preparation the university students might get from their experience at secondary school level.

The FA shows that learning language systems: grammar, pronunciation and vocabulary, followed by writing and listening, prevail speaking. All in all, the analysis supports the following claims: (1) the learners used the Internet mainly for learning grammar, pronunciation and vocabulary; (2) they tried to improve writing, and listening skills while using the Internet resources; (3) Although the eigenvalues related to the role of the teachers as strategy trainers, it was still crucial for the development of individual approach to language learning and actions taken by students. The results illustrate the language learning strategies learners elaborate at secondary level.

4.2 The Use of Digital Strategies in the Perception of the Learners

The data in Table 2 show two things. In columns B-E the percentage of the respondents who used the strategies is presented in simple font. This illustrates the frequency of the use of DLLS. The numbers in italics show the data collected in 2013 (Gajek & Michońska-Stadnik, 2017, pp. 92–96). Columns F-H show the percentage of the respondents who noticed the increase, the decrease or no change in the frequency of the use of the strategies in the pandemic time.

Table 2 Frequency of the use of selected strategies and comparison of the actions before and during the pandemic

	A	B	C	D	E	F	G	H
	Strategy	Often (in %)	Sometimes (in %)	Rarely (in %)	Never (in %)	More often (in %)		Without any change (in %)
1	I use internet bilingual dictionaries e.g. EN-PL, DE-PL	90.9 (86.8)	4.5 (7.9)	4.5 (5.3)			4.5	86.4
2	I use internet bilingual dictionaries e.g. EN-DE, EN-FR	50.0 (52.6)	40.9 (36.4)	4.5 (7.9)	0.0 (2.6)	9.1		81.8
3	I use monolingual internet dictionaries EN-EN, DE-DE	63.6 (68.4)	31.8 (31.6)	9.1 (0.0)		18.2		72.7
4	I use machine translators, e.g. translate.Google, DeepL	27.3 (2.6)	50.0 (18.4)	22.7 (63.2)	0.0 (15.8)	18.2		68.2
5	I use speech-to-text systems		9.1 (5.3)	22.7 (21.1)	72.7 (73.7)			72.7
6	I use graphic search engines to find the meaning of words	18.2 (34.2)	40.9 (36.8)	31.8 (21.1)	9.1 (7.9)	13.6		68.2
7	I use spell-checkers	31.8 (21.1)	45.5 (18.2)	18.2 (23.7)	4.5 (36.8)	31.8	4.5	54.5
8	I use the internet for learning vocabulary	81.8 (57.9)	18.2 (21.1)	0.0 (15.9)	0.0 (5.3)	27.3		63.6
9	I use the internet for learning grammar	36.4 (31.6)	54.5 (42.1)	4.5 (21.1)	4.5 (5.3)	27.3		63.6
10	I use the internet for learning pronunciation	54.5 (50.0)	40.9 (29.0)	4.5 (18.4)	0.0 (2.6)	45.5		45.5
11	I read texts on the internet	63.6 (79.0)	36.4 (15.9)	0.0 (5.3)		22.7		68.2
12	I listen to recordings on the internet	54.5 (60.5)	36.4 (31.6)	4.5 (7.9)	4.5 (0.0)	13.6		77.3
13	I use the internet to improve writing	9.1 (5.3)	36.4 (29.0)	31.8 (36.8)	22.7 (29.0)	18.2		68.2
14	I use the internet to improve speaking	13.6 (13.2)	31.8 (39.5)	40.9 (13.2)	13.6 (34.2)	18.2	4.5	54.5
15	I initiate written communication in a foreign language	27.3 (34.2)	45.5 (26.3)	22.7 (29.0)	4.5 (10.5)	18.2		72.7
16	I initiate spoken communication in a foreign language	4.5 (10.5)	22.7 (5.3)	50.0 (44.7)	22.7 (34.5)	13.6		68.2
17	I use Wikipedia for learning languages	9.1 (47.4)	36.4 (31.6)	27.3 (18.4)	27.3 (2.6)	9.1		77.3

(continued)

Table 2 (continued)

	A	B	C	D	E	F	G	H
	Strategy	Often (in %)	Sometimes (in %)	Rarely (in %)	Never (in %)	More often (in %)		Without any change (in %)
18	I watch films with original sound track	68.2 (79.0)	27.3 (15.8)	4.5 (2.6)	0.0 (2.6)	13.6		72.7
19	I watch films with polish subtitles	9.1 (34.2)	36.4 (52.6)	45.5 (13.2)	9.1 (0.0)	4.5		81.8
20	I watch films with voice over in polish	9.1 (7.9)	18.2 (26.3)	63.6 (52.6)	13.6 (13.2)		13.6	72.7
21	I search for lyrics of my favourite songs	72.7 (73.7)	13.6 (15.8)	13.6 (10.5)		9.1		77.3
22	I translate fragments of films to merge interests and language learning	9.1 (15.8)	27.3 (29.0)	45.5 (34.2)	18.2 (21.1)	13.6		72.7
23	I translate texts of my favourite songs	22.7 (26.3)	31.8 (29.0)	31.8 (31.6)	13.6 (13.2)	9.1		77.3
24	I participate in spoken communication on the internet	9.1 (13.2)	36.4 (5.3)	45.5 (42.1)	9.1 (39.5)	40.9		50.0
25	I send messages (mails, sms, social media) in a foreign language	40.9 (39.5)	45.5 (44.7)	9.1 (15.8)	4.5 (0.0)	40.9		45.5
26	I check spelling before sending a message in a foreign language	77.3 (73.7)	13.6 (15.8)	9.1 (10.5)	4.5 (0.0)	13.6		72.7
27	I use smileys and abbreviations in messages in a foreign language	59.1 (57.9)	27.3 (34.2)	9.1 (7.9)	4.5 (0.0)	13.6		72.7

Table 3 shows the comparison of the students' approach to the incidental language learning when they make use of websites in a foreign language. As above, the numbers in simple font represent the currently collected data and the numbers in italics show the data collected in 2013 (Gajek & Michońska-Stadnik, 2017, pp. 92–96).

Table 4 shows the students' willingness to learn foreign languages during the pandemic, when the Internet became the main source of learning materials in 2020.

Four respondents shared their opinions in the open questions. Students emphasised the possibility of mixing languages for learning that is: searching audio visual materials in English for learning Italian or materials in Spanish for learning German. This extends the use of strategies in the multilingual online learning environment. Another student emphasised the possibility of talking with native speakers of the languages he or she learns. They also indicated the importance of listening to the foreign language in the background while doing other things at home. These findings illustrate the students' creativity and initiative taken in the area of strategic use of available online resources.

Table 3 Language learning strategies in the use of websites and comparison of the actions before and during the pandemic

A	B	C	D	E	F	G	H	J
	I do not think about language learning while having fun	I repeat words used in the site	I memorize characteristic phrases	I search unknown words in a dictionary	I imitate the way of speaking it is a spoken text	More often	Less often	Without change
While using a website in a foreign language for fun I mind the language	27.3 (15.8)	9.1 (29.0)	45.5 (71.1)	45.5 (52.6)	18.2 (34.2)	13.6		86.4

Table 4 Learning languages during the pandemic

	I started learning a new language (in %)	I intensively learnt the languages I know (in %)	I spent less time on learning languages than before the pandemic (in %)
During the pandemic	50.0	59.1	13.6

4.3 Analysis of the Use of Digital Learning Strategies

Comparison of the Frequency of the Use of the Digital Strategies over the Years

As the numbers in italics represent the frequency of the use of the strategies by the students in 2013, we can observe some change in the use of DLLS over the years. The use of the Internet dictionaries has not changed much. They are used as often by the students as they were used 8 years ago (Table 2, rows 1–3, columns B-D). A big change is observed in the use of machine translators. Over 70% of the respondents use them often or sometimes now, but 78% of the respondents did not use them at all or used them rarely 8 years ago (Table 2, row 4, columns B-D). Speech-to-text systems have not changed their position as they were not used by the students now and in the past (Table 2, row 5, columns B-D). The use of graphic search engines has decreased slightly over the years (Table 2, row 6, columns B-D). However, the use of spell-checkers has increased much (Table 2, row 7, columns B-D). The use of the Internet for learning language systems, that is vocabulary, grammar and pronunciation has increased over the years (Table 2, rows 8–10, columns B-D). The strategies related to reading and listening have remained generally

at the same level with a slight decrease in frequency of reading (Table 2, rows 11–12, columns B-D). More people try to improve their writing with the use of the Internet materials (Table 2, row 13, columns B-D). They rarely use the Internet to improve speaking (Table 2, row 14, columns B-D). Students initiate written and spoken communication more often than it was observed eight years ago. But their reluctance to initiating spoken communication has remained the same (Table 2, row 15–16, columns B-D). Wikipedia is not used as a resource for language learning – this has been a big change over the years (Table 2, row 17, columns B-D). Watching films with the original soundtracks has remained the same (Table 2, row 18, columns B-D). However, there are big changes in the use of strategies related to watching films with Polish subtitles and voice over on the Internet, which have decreased (Table 2, rows 19–20, columns B-D). The strategies related to searching lyrics of the students' favourite songs and translating songs have remained the same (Table 2, rows 21, 23, columns B-D). However, translating fragments of films has slightly decreased (Table 2, row 22, columns B-D). Sending messages and using smileys and abbreviations have remained more or less at the same level (Table 2, row 25, 27, columns B-D). Also sending messages in a foreign language and participation in spoken communication increased during the pandemic, but the former reached the level observed 8 years ago (Table 2, row 26, columns B-D). The frequency of active language learning while using websites for fun has substantially decreased over the years (Table 3, columns B-F). Taking into consideration the huge developments in technology it is surprising that the frequency of the use of strategies has remained relatively steady for 8 years.

The results demonstrate that the hypothesis of noticeable change over the years is true only in the case of some strategies. Namely, the increased use of machine translators and spell checkers, the decreased use of Wikipedia for language learning, the decreased use of subtitles and voiceover while watching films, the decreased attention to language learning while being exposed to foreign language materials contacted for fun.

Comparison of the Use of the Digital Strategies in the Pandemic

In Table 2, in columns F, G and H the data about the changes observed by the students are presented. Most of them did not notice any changes in the use of the majority of DLLS during the pandemic, in comparison to their use before. The biggest change is indicated for learning pronunciation 45.5% (Table 2, row 10, column F). The change noticed by the students 40.9% refers to participation in spoken communication and sending messages in a foreign language. The next group of strategies, which are perceived as used more often during the pandemic at the level of 27.3% each, are: the use of Internet materials for learning vocabulary and grammar. These are followed by using the Internet for improving writing and speaking, using machine translators and monolingual dictionaries and initiating written communication at the level of 18.2%. The strategies indicated by the students as increased are

the same as the 5 top components identified in the Factor Analysis done on the data collected 8 years ago, except for reading, which is not present in FA and listening, which is not indicated in the current study. This can be interpreted in the following ways: (1) either both cohorts of learners were able to develop their language learning strategies by themselves, or (2) taking into consideration the role of the teachers indicated in FA, they were equipped with the strategies by their teachers at secondary school level. This may mean that the evolutionary change in the use of the strategies by students is relatively small.

The results (Tables 2 and 3) show that the pandemic practice slightly increased the frequency of the use of strategies during the COVID-19 period in comparison to their use before. However, the majority of the respondents did not change their habits during the intensive use of computers for studying. This means that the impact of the pandemic has not been as strong as it might be expected even in the case of revolutionary change of the learning environment. This makes the second hypothesis false with some exceptions only. The numbers do not sum up to 100 because some students did not tick the answers e-g and the percentages are calculated for the entire group of the respondents.

During the pandemic, half of the students started learning a new language and half of them intensively learned the languages they knew (Table 4). In the open question only one student mentioned that she wanted to learn new languages intensively, but the pandemic circumstances influenced her learning negatively. Thus, she did not achieve the expected results.

5 Indication for the Future

It is worth mentioning that innovative approaches to the use of digital tools should not be limited to the communication platforms such as Zoom, MsTeams, WebEx, etc., as they were intensively used during the pandemic. The strategy training needs to involve preparations to the future use of bots and robots, virtual reality, augmented reality, artificial intelligence applied to all pedagogical stages of: (1) learning and teaching, such as introducing the language and noticing the language; (2) practicing language use in context and in communication; (3) monitoring correctness and progress as well as assessment. Thus, the learning strategies need to be adapted in a balanced way: keeping the human factors that support language learning and the qualities of the new environments. It should also start early in language education as at the university level the use of strategies by students remains similar to their use in secondary school. Such strong factors as the developments of educational technology and its intensive use during the pandemic has not affected the distribution of the use of DLLS among students, who are future translators and language teachers.

6 Conclusions

The analysis shows that the use of the majority of DLLS remains the same or it is only slightly subject to change in response to the broadened learning environment. However, the change is not as intensive as it could be expected. It is worth mentioning that the participants of the current study experienced the beginning of the pandemic as school learners, not university students, which may force them to stick to the strategies they acquired at secondary school. The findings show that either (1) the profile of the learners as future translators and language teachers determine their use of DLLS as the frequency of the use of strategies has not changed substantially over the years or during the pandemic as they all came to the university with habits how to use language learning strategies, or (2) their use of strategies is: (2a) formed by their teachers at secondary school level or (2b) developed by themselves. The emphasis on the role of the teachers is supported by the findings from the previous study which stressed the role of the teachers in the strategic training at secondary school level as the FA indicated. The set of components of FA is replicated in the list of strategies perceived as used more often during the pandemic. Thus, the similarities in the results between the two studies and the reference to FA may come from the same training students get at secondary school level. So, there is a need for strategy training offered to learners at lower levels of education. There are more and more digital resources for language learning available on the Internet so learners who are aware of a variety of strategies can be, potentially, more creative in adopting the strategies they know and even in creating their own strategies for making their learning more individualised and effective.

To sum up, the post-pandemic reflection enhanced by the comparison of the two sets of data collected in the last 8 years shows that strategies that digital language learning acquired at lower levels of education remain steady (with some exceptions only), despite the evolutionary or revolutionary changes in the learning environment.

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