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Using dictionaries in teaching (and learning) English as a Foreign Language – the beginning of a longitudinal research project

Abstract: This study investigates dictionary use trends among university graduates in English as a Foreign Language (EFL) and German as a Foreign Language (GFL) from 2015 (N=197) to 2023 (N=110), focusing on attitudes, use, educational background influence, and integration into teaching practices. Utilizing a comprehensive online questionnaire, the research identifies a shift from print to digital resources with a marked increase in the use of machine translation software, stable online dictionary use, a decline in formal dictionary skill education, and a rise in self-taught dictionary skills. Results suggest minor changes in usage categories without significant shifts in dictionary use habits, highlighting a move towards autonomy and decreased pedagogical emphasis on dictionary skills. The study provides insights into evolving dictionary use patterns, suggesting implications for practical lexicography, language learning, and teaching methodologies. Further data collection is planned in 2026, 2029 and 2032. The paper will include preliminary findings and suggestions for the next data collection cycles.

Keywords: dictionary use, dictionary skills, dictionary didactics, longitudinal research

1 Introduction

The research presented aims to explore the dictionary use habits of graduates and changes in these habits and therefore the present paper reports on the preparatory phase of a longitudinal study, in which we plan to measure shifts and trends every three years. In 2020, the first questionnaire survey was carried out with a group of students who graduated from Károli Gáspár University of the Reformed Church in Hungary between 2015 and 2020. This first stage was of key importance because, in 2020, the lexicography course was thoroughly redesigned at the university to adapt the topics in the syllabus to specific needs. The second survey was carried out in 2023 with students who graduated from the aforementioned university between 2021 and 2023. The second research was motivated by the enormous pace of technological

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development (e.g., AI, machine translation), which had a huge impact on lexicography. In the present study, we report on the surveys conducted in 2020 and 2023 (see previous results, e.g., P. Márkus/Fajt/Dringó-Horváth 2023). The first section analyses Hungarian educational documents in light of their emphasis on using dictionaries in state education. This is followed by a detailed description of our quantitative research, which aims to investigate the preferences and attitudes concerning dictionary use, dictionary consultation behaviour, and the role of dictionaries as an aid to language learning. Our future plan is to launch a longitudinal study based on the experience gained. The longitudinal nature will allow us to track changes in the role of dictionaries in language learning and, in turn, this will enable us to adapt lexicographic training to changing needs.

2 Background to the research

The use of dictionaries is of paramount importance in foreign language learning as dictionaries are a tool that helps language learners understand unfamiliar words, expressions and thus sentences and texts. A dictionary is therefore not only a list of words and expressions but also a valuable tool in the hands of language learners, which can contribute to the autonomous and lifelong development of foreign language skills (cf. Kosem et al. 2018; Levy/Steel 2015; Lew 2016). Generally, there is a huge gap between classroom learning and autonomous learning. Teachers are not available continuously, so students need to find reliable information on their own when they feel that their knowledge is inadequate for a particular task. The role of dictionaries in language learning is undoubtedly important because these reference sources accompany foreign language learners throughout the entire process of their language learning (cf. Margalitadze/Meladze 2023; Nied Curcio 2022). One explanation for this may be that dictionaries are a primary source for autonomous learning since they can answer most language-related questions. However, dictionary user surveys conducted from the 1960s onwards (see, e.g., Barnhart 1962; Atkins/Varantola 1997; Dringó-Horváth 2017; Gaál 2016; P. Márkus/Fajt/Dringó-Horváth 2023) have revealed that many users do not possess the reference skills required to find information in a dictionary entry. There may be two possible ways to remedy the situation. First, lexicographers are striving to develop methods that match the linguistic knowledge of ordinary users and make dictionaries more user-friendly; second, users should also be trained to be more skilful in using dictionaries (cf. Atkins/Varantola 1997; Nied Curcio 2022; P. Márkus/Fajt/ Dringó-Horváth 2023). In response to the results of surveys, dictionaries are increasingly trying to adapt to the needs of the user. At the same time, educational institutions need to recognise the importance of this challenge to remedy the situation. In Hungary, more attention to teaching dictionary skills would be needed in educational documents to redress the problem. To depict the broader local context, the most significant

educational documents (i.e. *National Core Curriculum*; *Framework Curricula*; *syllabuses*) are to be analysed in light of their emphasis on using dictionaries in state education. The National Core Curriculum (hereafter NCC) is a key document regulating the activities of the education system, in which the educational content, skills and abilities to be acquired and educational objectives to be developed are set out for each learning area. This document is centrally developed, approved, and promulgated to ensure that it is maintained, and the guidelines are followed consistently by all Hungarian educational institutions. Even though the NCC covers all grades and learning areas, only objectives, principles, and development tasks are included – it is not intended to guide day-to-day pedagogical practice; its function is to define a shared educational basis and to provide continuity between schools and the unity of public education, rather than to directly manage the day-to-day work of teachers (Báthory 2000). Based on the NCC, the framework curriculum can be seen as an intermediate regulator between the local curricula and the NCC. The Framework Curricula (2020) for each pedagogical stage and type of school define the knowledge content to be acquired and the outcome requirements for each learning stage. They are designed to provide a practical guide for the day-to-day implementation as well as to assist local planning. In addition, school textbooks include course syllabuses based on the outcome requirements. The syllabus defines the logical sequence in which the subject is to be taught (Polyecskó 2016). In the next section, the following educational documents are examined: *National Core Curriculum*, *Framework Curricula*, and *Syllabus Proposals* so as to show how they relate to dictionary didactics and the raising of dictionary awareness. All these findings will help us to identify areas for future development in the field of dictionary didactics.

3 National Core Curriculum (NCC)

The importance of dictionaries in language learning is highlighted in the current NCC 2020 – under the subsection "Foreign languages" (II.3.2) – when detailed objectives are set in two different areas. First, the crucial role of the dictionary in the development of writing skills rightly emerges: "by the end of the educational experience, the language learner uses a print or digital tool, a dictionary, to produce texts"; second, when discussing learning outcomes in detail, the dictionary emerges as a resource that greatly supports text comprehension and as a tool for autonomous learning: "by the end of the educational experience, each learner should have achieved the ability to translate a text at their level using a dictionary". Overall, the document also states that the aim of learning a foreign language is to enable learners to be able to use a dictionary independently (the concept of the dictionary is not discussed in more detail in the document).

The NCC 2020 is not intended to describe language learning methodology; therefore, teachers are not given detailed, useful guidance on how to teach dictionary use. Although the document recognises the need to know how to use print and (on-

or offline) digital dictionaries,[1] it is the responsibility of language teachers to equip students with this knowledge. This is likely to be a significant problem in the future because in Hungary only a few Hungarian universities offer courses in lexicography (Tóth/P. Márkus/Pődör 2022). Without a sound knowledge of the structure of dictionaries, and of the theory and practice of lexicography, teachers can only rely on their own experience and intuition, which is not sufficient to teach the skills of dictionary use (cf. Campoy-Cubillo 2015; P. Márkus 2019). As a result, this will undermine the ability of students to learn autonomously, constantly update themselves and adapt quickly to new situations.

3.1 Framework Curricula

The Framework Curricula (2020), which are based on the NCC 2020, are the next documents to be examined from the perspective of dictionary use. The use of picture dictionaries is recommended for 1st–4th graders, as well as the drawing of "picture dictionaries" in group activities (e.g., drawing a room with the names of the furniture). For the 5th–8th graders, the objectives described by the NCC are repeated: "The language learner uses print and/or digital aid and dictionaries to produce texts" – no further recommendations are provided. For secondary school students, the document stresses the importance of familiarising students with target language pronunciation dictionaries, editing foreign language dictionary entries, and finally discussing in class whether to use a digital or print dictionary in the learning process. Apart from these suggestions and guidelines, there is no information on how to integrate dictionaries into educational activities. It has to be concluded, therefore, that Framework Curricula do not provide more precise and useful guidance than the NCC for the development of dictionary skills. In light of this, language teachers can draw only on their own experience and practice to address this topic in their lessons.

3.2 Syllabuses

With all this in mind, it is also worth examining the proposed syllabuses of the most widely used foreign language learning textbooks. The syllabuses, provided by the publishers on their websites for teachers, refer to tasks and activities to be carried out with the dictionary only through short keywords, without any specific methodological guidance (e.g., Unit 7 *Travelling*: reading comprehension: collecting information, using dictionaries; in

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1 In this paper we refer – according to Nesi (2009) – to the term digital or electronic dictionary as a dictionary whose data exist in digital form and can be accessed through different media (such as computer software, mobile applications, web applications).

general, all the documents are characterised by a lack of more concrete ideas and tasks). In Hungary, the Institute for Research and Development in Education develops and publishes textbooks, the well-known *Secrets* series is one of their widely used publications. The authors aim to make foreign language learning as enjoyable and playful as possible for foreign language learners, while at the same time providing them with usable skills and knowledge. Volume 2 of the *Secrets* series encourages the use of dictionaries when the Study Skills section of the syllabus highlights the importance of dictionary use: "Study Skills: independent dictionary use"; so does Volume 3: "Study Skills: cooperative learning; dictionary use"; "Reading Comprehension: gathering information, finding meaning differences, dictionary use"; "Speaking Skills: global reading comprehension, summarising information, dictionary use, independent vocabulary building". In contrast to volumes 2 and 3 of the language textbooks, volumes 1 and 4 do not incorporate dictionary use in their syllabus proposals. The syllabus of the *Project* series (Project Fourth Edition) by Oxford University Press does not mention the practice of dictionary use in its syllabuses, only volume 5 (Project Fourth Edition 5) refers to it briefly: "Effective independent learning: dictionary use". Since volume 5 focuses on foreign language learners who have already reached level B1 of the Common European Framework of Reference for Languages, this may be the level at which the authors believe that dictionary use can be started. The syllabus of the *New English File* series (Oxford University Press) does not mention dictionary use in the Elementary volume, however, the Pre-Intermediate volume includes dictionary use tasks in the vocabulary and pronunciation section: "Vocabulary/word learning – dictionary use"; "Pronunciation in dictionaries"; the Upper-Intermediate also considers the use of dictionaries in vocabulary development: "Dictionary use – vocabulary: internal and external character traits: health – illness". The Elementary volume of *Solutions* (published by Oxford University Press) recommends the use of dictionaries within skills development (competencies): "Effective autonomous learning: dictionary use"; *Solutions* Pre-Intermediate, Intermediate and Upper-Intermediate volumes do not include any dictionary use activities, however, the Advanced level textbook highlights the importance of dictionary use under the effective learning methods: "Mastering effective learning strategies (dictionary use)"; "Independent learning – dictionary use, self-correction". Finally, the syllabuses for the MM Publications language textbooks (*Get to the Top*; *Pioneer*; *Traveller*) do not cover the topic of dictionary use and the development of skills necessary to use dictionaries effectively.

In summary, we can conclude that the gradual introduction of dictionary use is not included in the proposed syllabuses of these textbooks, which may be a source of future problems or difficulties because, without dictionaries at the beginning of the learning process, the skills necessary for independent learning cannot be adequately developed in later stages. The key to learning how to use a dictionary successfully is to use age-appropriate dictionary types systematically and regularly. At the first stage of language learning, pupils can start with picture dictionaries or childrens' dictionaries, which are simple in structure and easy to use, adapted to age-related needs and after that, they can move on to other dictionary types (e.g., learner's or bilingual dictionaries).

From the preceding analysis, we can conclude that the practice of using dictionaries, or reference works in a broader sense, has not yet been given a consistently emphasized role in public education (cf. P. Márkus 2019). Effective use of dictionaries and the acquisition of such skills are intended to enable students to use other reference works with confidence and success to expand their knowledge and navigate the world once they leave state education. To accomplish this, appropriate methods should be developed that can be seamlessly integrated into the learning process. Before we can design workable methodologies for the future, an assessment of the current situation is necessary to identify the special needs and see exactly which areas need to be improved before designing feasible approaches for the future. A more distant goal is to design a core reference skill (dictionary training) module, which could be incorporated into different courses at Károli Gáspár University of the Reformed Church in Hungary (e.g., Study Skills, Language Practice, Patterns of English). In the following section, the results of two questionnaire surveys are presented, which will serve as the basis for a longitudinal study on this topic in the future.

4 Research into dictionary use and dictionary didactics

4.1 Aims, methods and participants

In the dynamic field of lexicography, understanding the usage patterns of dictionaries among language learners is crucial for both academic research and pedagogical practice. The following section describes two research projects aiming to explore various facets of dictionary use among university graduates in English as a Foreign Language (EFL) and German as a Foreign Language (GFL). These projects, which ran between 2020 and 2023, offer a chance to examine changes and continuities in dictionary use over time. The research pivots around three core questions:

- RQ1: What trends can be identified in the dictionary use habits of EFL and GFL university graduates?
- RQ2: How far can dictionary use be identified in graduates' previous education?
- RQ3: How do graduates (with language teaching experience) integrate the teaching of dictionary skills and the use of dictionaries into their practice?

A methodologically rigorous strategy was used to answer these problems, requiring the creation of a self-constructed questionnaire with 21 background questions and 69 statements that formed 10 scales. The five-point Likert scale used to record responses made it possible to quantify the attitudes and behaviours of participants in relation to using dictionaries.[2] In addition to the quantitative technique, an additional test was

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2 For more details on the questionnaire see P. Márkus/Fajt/Dringó-Horváth (2023).

undertaken in 2023 to further improve and broaden our comprehension of dictionary use patterns. The significance of our research is underscored by the insights of other dictionary-use studies (cf. Nesi 2015; Nied Curcio 2022), which highlight the dual role of dictionary use researchers as educators. The findings from such research have direct implications for classroom practice, informing and enhancing the teaching of dictionary skills. The findings of the two research projects show that the values for the 10 scales are remarkably consistent. The results of the second research supported the first ones, indicating that some dictionary use patterns are persistent. Despite this general stability, there were minor changes in some dictionary use categories, according to the 2023 results. These subtle shifts suggest changing patterns in dictionary use among EFL and GFL graduates, even if they are not statistically significant or suggestive of a large reorganization of behaviours. The present study will go into more detail about the specifics of these findings in the sections that follow. The authors will look at the consequences of the modest adjustments that they saw in 2023 and offer some possible explanations for the general stability in dictionary use patterns. The study hopes to gain more insight into dictionary use and dictionary didactics, with a focus on the triad of dictionary use, language learning and teaching methods.

Both research samples (2020 and 2023) included graduates enrolled in a foreign language (EFL and/or GFL) course at a Hungarian university. Table 1 displays the participants' personal characteristics.

Table 1: Personal characteristics of participants (2020 and 2023).

	2020 (n=197)	2023 (n=110)
age	21–63 (the average age of the respondents was 34 and the standard deviation was 11)	20–58 (the average age of the respondents was 31 and the standard deviation was 11)
gender	85% Female; 15% Male	84% Female; 16% Male
teaching experience	149 graduates reported that they had at least one year of foreign language teaching experience (with an average of 12 years, SD=9)	64 graduates reported that they had at least one year of foreign language teaching experience (with an average of 9 years, SD=9)

The high average age, as well as the high number of university graduates with teaching experience, can be attributed to the fact that many respondents were postgraduates (mostly teachers who returned to university for re-training). Based on the Training and Output Requirements for the courses, their language proficiency was C1 according to the CEFR (the Common European Framework of Reference for Languages). All foreign language teacher trainees at the university are trained in both language pedagogy and lexicography (with the same content and structure regardless of which language they are going to teach in the future) – in accordance with Hungary's Training and Output

Requirements. Based on the data provided, the samples are homogeneous in terms of gender distribution (chi2=0,147, df=1, sig.=0,701) but show heterogeneity in terms of age (Mann-Whitney U=7585,0, z=−4,364, p<0,001) and teaching experience (Mann-Whitney U=8213,5, z=−3,572, p<0,001). The 2023 sample is younger and has less teaching experience on average, which could have implications for the research findings, particularly if the years of teaching experience are related to dictionary use habits and the integration of dictionary skills into teaching practice, which may be a limitation of this research and must be covered in the future.

4.2 The research tools

In both projects, we employed the same questionnaire[3] to facilitate direct comparability of the findings. The questionnaire is described in detail in P. Márkus/Fajt/Dringó-Horváth (2023) and can also be downloaded. To summarise briefly, the questionnaire was developed based on existing literature and prior empirical studies on dictionary use within the Hungarian context, including seminal works by scholars such as Márkus and Szöllősy (2006), Gaál (2016), Dringó-Horváth (2017) and was also rooted in international research methodologies, particularly those from the Leibniz Institute for the German Language in Mannheim (see Müller-Spitzer/Koplenig/Töpel 2011, 2012; Müller-Spitzer/Koplenig 2014). The questionnaire features 21 background questions and 69 statements divided into 10 scales that explore dictionary use habits, and pedagogical attitudes towards the teaching of dictionary skills. Of the 21 background questions, some produced nominal variables (including dichotomous variables with yes/no response options), which were analysed using percentage distributions; others were five-point Likert scale questions – as were the 69 questions in the 10 scales, from which the variables were created as quasi-interval scales. To highlight the results, this study presents the questionnaire items in an abbreviated form, listing only the most important results at each point.

4.3 Data collection and analysis

The data collection processes took place between May and July 2020 and 2023;[4] in 2023 Microsoft Forms was utilized as a data collection tool. Access details were distributed centrally via the university's academic database. The data was then coded, with all reversed entries coded in an inverted manner. Reversed items are items which are to be recoded so that all the items within a scale have the same directional relationship, i.e., they are all "positive" (affirmative) items. This was utilized to validate the ques-

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3 For more details on the questionnaire see P. Márkus/Fajt/Dringó-Horváth (2023).
4 For a description of the first data collection process in 2020, see P. Márkus/Fajt/Dringó-Horváth (2023).

tionnaire, and certain "positive" items were rephrased in a "negative" way, ensuring that respondents paid attention when filling out the questionnaire. In addition, this was also used to ensure that after data collection and the recoding process, respondents' answers were consistent. For nominal scales proportions, for quasi-interval scales mean scores (M) and standard deviations (SD) were computed. Proportions were compared between the two cohorts using the chi-square test and means were compared using the Mann-Whitney test. In correlation tests for quasi-interval scales, Spearman's rank correlation coefficient was used. The data were then examined in SPSS 27.0. All the data obtained during the research were stored and used in accordance with the GDPR regulations, and no third parties other than the members of the research project were allowed access to them.

5 Results and discussion

5.1 Reliability of the questionnaire

The research included both single-item and multi-item scales. Single-item scales are employed when a researcher wants to measure a concrete construct, such as the frequency of use of a special type of dictionary. A construct may be considered concrete if it is unambiguous to all respondents. In contrast, more complex constructs (e.g., attitudes towards teaching dictionary use), were measured through multi-item scales. Multi-item scales are groups of closely related items that measure the same construct. As opposed to single-item scales, which are more vulnerable to measurement errors unless they are concrete as indicated above in the case of some of our scales, multi-item scales are less likely to be vulnerable to such errors when measuring less concrete scales (e.g., attitudes towards teaching dictionary use). When it comes to multi-scale items, however, it is important to check the internal consistency of such scales, which may be achieved by calculating the Cronbach's alpha coefficient for each multi-item scale (Dörnyei/Taguchi 2010). The research established the reliability of most scales used in the questionnaire with Cronbach's alpha coefficients surpassing the recommended threshold of 0.60, as advised by Dörnyei and Taguchi (2010). However, it was acknowledged that scales USAGE2 and TEACHING1 did not meet this reliability criterion in the first phase of the research (cf. Table 2). Despite this, they were retained for their perceived relevance in capturing the nuances of participants' dictionary use habits and their attitudes towards the teaching of dictionary skills. This decision, albeit pragmatic, is recognized as a limitation within the 2020 study and is addressed in the concluding section of the analysis. As the researchers proceed with the analysis of the 2023 data, this factor will be taken into consideration when interpreting the results and drawing comparisons with the earlier study.[5]

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5 For further details on this, see P. Márkus/Fajt/Dringó-Horváth (2023).

Table 2: The Cronbach's alpha coefficients of the scales.

Scale		Number of items	Cronbach's alpha 2020	Cronbach's alpha 2023
USAGE1	Use of unique features relating to digital dictionaries	6	0,647	0,692
USAGE2	Use of search methods relating to digital dictionaries	5	0,590	0,607
USAGE3	Willingness to pay	4	0,643	0,628
USAGE4	Conscious use of the prefatory material in dictionaries	4	0,862	0,800
ATTITUDE1	Attitudes towards teaching dictionary use	4	0,741	0,634
ATTITUDE2	Presence or absence of dictionary use knowledge and skills	7	0,843	0,867
TEACHING1	Practising various ways of using dictionaries in their lessons	5	0,554	0,606
TEACHING2	Practising conscious use of dictionaries during lessons	7	0,709	0,785
TEACHING3	Teaching dictionary use in lessons	7	0,833	0,871
TEACHING4	Bolstering the teaching of dictionary use in participants' own teaching practice	4	0,706	0,615

5.2 Results of the research

5.2.1 Background questions: Dictionaries owned and used by participants

In addition to the 10 scales, respondents were first asked a set of background questions, including personal data, the types of dictionaries owned by respondents and the frequency of use of each type. In relation to these last two questions, the answers as shown in Table 3 were found.

Table 3: Types of dictionaries owned by respondents.

Questionnaire item	% 2020	% 2023	chi2	df	p
print dictionary	95%	88%	5,577	1	0,018*
offline dictionary application on some smart device	53%	47%	0,860	1	0,354
offline digital dictionary on their computer	27%	21%	1,362	1	0,243
purchased machine translation software	9%	31%	23,782	1	<0,001*
online dictionary subscription	9%	9%	0,019	1	0,891

*significant change at alpha = 0.05.

While the vast majority of participants reported owning a print dictionary in both years, there is a noticeable decrease from 95% in 2020 to 88% in 2023, indicating a progressive shift away from traditional print media. It is important to keep in mind that just because participants have a print dictionary, it does not necessarily mean they use it (see Table 4), and what they actually use does not always correspond to what they would prefer to use (cf. Kosem et al. 2018). This finding is consistent with the broader digital change in information consumption (cf. Baron 2021). Parallel to the decrease in reliance on print dictionaries, the adoption of machine translation software has increased significantly, from 9% in 2020 to 31% in 2023. This suggests that respondents have a rising preference for automated translation options. The possession of all the other types of dictionaries has shown no significant change. Interestingly, the proportion of participants with online dictionary subscriptions also remains unchanged, which reflects a consistent but low willingness to pay for such services. This corroborates findings from other studies suggesting that generally, there is a reluctance to invest money into dictionaries, including online resources (cf. Gaál 2016; Lew 2016; Nied Curcio 2022; Tóth/P. Márkus/Pődör 2022).

Data on the use of different dictionary types presented in Table 4 show that, while print dictionaries are widely owned by respondents, their actual frequency of usage has decreased significantly from 2,68 to 2,31. This points to a continued shift towards digital alternatives. The use of offline dictionary applications on smart devices and offline digital dictionaries on desktops has decreased slightly. This may indicate a preference for online tools, but only in the light of future research data will we be able to identify this type of shift more accurately.

Table 4: Use of different dictionary types.

Questionnaire item	Mean 2020	SD	Mean 2023	SD	Mann-Whitney p
online dictionaries	4,63	0,78	4,57	0,93	0,876
search engines (e.g., Google)	3,82	1,20	3,93	1,15	0,511
print dictionaries	2,68	1,35	2,31	1,19	0,024*
machine translation software (e.g., DeepL Translate)	2,53	1,53	3,42	1,41	<0,001*
offline dictionary application on some smart device	2,44	1,50	2,29	1,47	0,394
offline digital dictionary on their computer	1,76	1,25	1,85	1,34	0,510

*significant change at alpha = 0.05

According to the data, online dictionaries and search engines remain the most popular tools, which is in line with the results of previous research (cf. Gaál 2016; Lew 2015; Müller-Spitzer/Koplenig/Töpel 2012; Nied Curcio 2015; P. Márkus/Fajt/Dringó-Horváth 2023; Reder 2016; Töpel 2015). The greatest substantial rise is evident in the use of machine translation software such as DeepL Translate, where the mean score has increased from 2.53 to 3.42.

This is presumably due to the fact that Artificial intelligence (AI) applications have had a major influence on the translation tool industry, particularly with the advent of neural machine translation (NMT) in 2016 (Stahlberg 2020). NMT has completely changed the translation industry by managing translation with a single neural network. This has resulted in shorter processing times, far better translation accuracy and smoothness, and the capacity to handle a large variety of languages and dialects (Stahlberg 2020). The release of Chat GPT in 2022 has expedited this trend. These AI-driven systems perform a range of functions, including automatic translation of text and speech, context understanding, and even cultural nuance adaptation, presenting themselves through user-friendly interfaces in web platforms, mobile applications, and professional translation software. All this has made quality translation more accessible and cost-effective, significantly expanding the user base for AI translation software (such as Google Translate, DeepL Translate, Microsoft Translator, Amazon Translate, etc.), attracting both casual users and professionals (cf. Ruoqi/Yuan/Gochuico 2023).

5.2.2 Significant deviations in the scales of usage, attitudes, and teaching

The deviations in the 10 scale areas are examined in the sections that follow, with an emphasis primarily on the major, significant deviations (see Table 5; significant deviations are marked with an asterisk).

Table 5: Overview table of the ten scales used in the study.

Scale	Mean2020	SD	Mean2023	SD	p
USAGE1: Use of unique features relating to digital dictionaries	2,17	0,71	2,25	0,80	0,412
USAGE2: Use of search methods relating to digital dictionaries	2,19	0,73	2,22	0,77	0,832
USAGE3: Willingness to pay	3,15	0,92	3,08	0,95	0,490
USAGE4: Conscious use of the prefatory material in dictionaries	2,60	1,13	2,38	1,03	0,125
ATTITUDE1: Attitudes towards teaching dictionary use	4,39	0,65	4,24	0,72	0,091
ATTITUDE2: Presence or absence of dictionary use knowledge and skills	3,07	1,01	2,69	1,11	0,002*
TEACHING1: Practising various ways of using dictionaries in their lessons	2,90	0,81	2,63	0,86	0,015*
TEACHING2: Practising conscious use of dictionaries during lessons	3,37	0,74	3,27	0,95	0,760

Table 5 (continued)

Scale	Mean2020	SD	Mean2023	SD	p
TEACHING3: Teaching dictionary use in lessons	2,92	0,90	2,61	1,01	0,021*
TEACHING4: Bolstering the teaching of dictionary use in participants' own teaching practice	3,39	0,93	3,71	0,92	0,013*

*significant change at alpha = 0.05

5.2.2.1 Usage

In the period between the two sampling dates, the scales for dictionary use do not show significant differences, therefore, the assumptions made earlier remain valid (see, P. Márkus/Fajt/Dringó-Horváth 2023), and only two areas of particular interest are briefly discussed in this section. The participants' willingness to utilise unique features relating to digital dictionaries (see Usage1) remained relatively stable in the midrange or below in both samples, indicating that these additional functionalities are generally unknown or underutilized. A similar lack of knowledge among users has been reported in other studies (cf. Dringó-Horváth 2017; Gaál 2016; Nied Curcio 2015). Prior research projects have shown that while digital dictionaries offer unique features like multimedia content, users prioritize reliability, updated content, and ease of navigation over these enhancements when selecting a digital dictionary (cf. Gaál 2016; Kosem et al. 2018; Lew 2015; Müller-Spitzer/Koplenig 2014). It is worth mentioning that the appropriate use of the services provided by digital dictionaries can bring not only convenience (e.g., speed, accessibility) but also didactic added value to the user and that knowledge of unique features can greatly contribute to the right choice of dictionary (see, e.g., Dringó-Horváth 2012; 2021). The results in both samples suggest a modest engagement with the guides and aids (Usage4) provided in dictionaries: the most frequently consulted resource is the list of abbreviations, and the least engaged feature was reading the introduction and preface, but overall, the medium-range frequency for consulting these resources indicates that there is a tendency not to use or to only superficially use guides and aids included within dictionaries – which is in line with other previous surveys and observations on this field and may hinder effective dictionary use (cf. Nied Curcio 2022; Svensén 2009).

5.2.2.2 Attitudes

The findings related to the scale Attitude1 reveal in both years a discrepancy between the perceived importance of formal education in dictionary skills and the reality of how individuals learn to use dictionaries. A high proportion of participants report that they think it is important to teach dictionary use in the foreign language classroom, however, it seems to be mostly acquired in a self-taught way. This suggests that while the value of dictionary skills is acknowledged, the formal education system may not be the primary

source of acquiring these competencies (see P. Márkus 2019; 2020). Interestingly, except for one statement about covering additional functions of digital dictionaries in class, we see a slight decrease in the sample averages for all other six statements related to previous experience with dictionary didactics (Attitude2), including practising the alphabetical order, discussing different types of dictionaries, exploring different search methods, learning about the general structure and code system of dictionaries, and practising critical interpretation and selection of information in dictionaries. Unfortunately, this reflects an overall decline in the presence of dictionary didactics in language classes, suggesting that these skills and knowledge have since then been given an even more marginal role. The slightly increased (from 2.28 in 2020 to 2.45 in 2023) emphasis on digital dictionary features in the sample averages could, however, reflect a broader pedagogical transition towards integrating digital tools in language education. This trend has been demonstrated by a number of studies on language teaching.[6]

5.2.2.3 Teaching

Participants with teaching experience (N=149 in 2020; N=64 in 2023) were also asked about how they integrate dictionary use and the teaching of dictionary skills into their practice. The related teaching scales show the most change: all three of the focal areas have shown substantial changes, with the exception of the scale Teaching2. Examining the individual statements of the Teaching1 scale (Practicing different ways of using dictionaries in their lessons) in detail reveals that there is a noticeable decline in the use of offline, downloadable digital dictionaries in the classroom, both on computers/laptops and as mobile applications, while the use of digital tools (such as machine translation tools) either stagnates or increases very little in our sample. As the results of the scale of previous learning experiences presented earlier (see Attitude2), the scale Teaching3 also shows an overall downward trend in response averages, with a slight positive shift only in the teaching of digital dictionary functions (from 1.67 in 2020 to 1.89 in 2023). Out of all the 10 scales, only one, Teaching4, demonstrated a significant shift with a positive skewness in the given sample. The means of the responses to each of the four scale items changed slightly in the direction towards boosting drive. This indicates that although participants are still motivated to teach dictionary use, they now feel that they would require more support in this area, both in the form of appropriate teaching aids and related training as well as the inclusion of dictionary didactics in educational documents (e.g., course plans and curriculum) (cf. Gaál 2016; Nied Curcio 2022; Tóth/P. Márkus/Pődör 2022). No wonder, because language learning with digital dictionaries – despite many similarities – is characterized by significant differences from learning with print dictionaries. Teachers and learners alike need more practical help to find their way around the modern dictionary landscape, as modern dictionaries

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6 E.g., see the trends in coursebook publishing: Dringó-Horváth/Menyhei (2021).

are becoming increasingly complex and versatile (type, format, functions, etc.). Furthermore, media-specific components of dictionaries require a different didactic method that should be explained and practised beforehand (see, e.g., Dringó-Horváth 2021; Margalitadze/Meladze 2023; Nied Curcio 2022; P. Márkus 2020; Tóth/P. Márkus/Pődör 2021).[7]

5.3 Correlation results

In conducting the correlational analyses, we focused on the correlations with the source of dictionary skills acquisition, based on the following criteria:

5.3.1 The source of dictionary skills acquisition and dictionary use habits

Data suggest that in 2020, the most positive effects on the use of specific features of digital dictionaries are dictionary skills acquired during higher education (rho=0.196, p=0.006) and special training courses (rho=0.147, p=0.039). In contrast, in 2023, dictionary use acquired in primary education (rho=0.190, p=0.047) and secondary education (rho=0.200, p=0.037) were the determining factors in this respect. This may be explained by the larger sample size of the first survey (2015–2020), while the second sample only included three years of graduates (2021–2023). Furthermore, it is possible that the slightly younger age group in the second survey already reflects the fact that from 2012 onwards (NCC 2012), foreign language learning has been compulsory in primary schools in Hungary from grade four and can also be studied in special language courses from grade two, of which many children take advantage. However, for both samples, it is apparent that the autodidactic acquisition of dictionary skills has a negative effect (rho=−0.194, p=0.042) on the use of specific features of digital dictionaries. This confirms the paramount importance of learning to use dictionaries in a formal learning context: if we want to keep up with the development of dictionaries and provide ourselves and our learners with truly fresh and applicable knowledge, the formal learning path can make a better contribution.

Considering how the source of dictionary skills acquisition influences the use of digital dictionary search methods, we can conclude that the use of non-autodidactic methods is a positive factor; in the 2020 sample, dictionary skills acquired during higher education (rho=0.281, p<0.001) have a significant positive effect, while in the 2023 sample, secondary education (rho=0.188, p=0.049) and acquisition from family members (rho=0.204, p=0.033) were the main determinants.

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7 On the new features and evaluation criteria of digital dictionaries, as well as useful tips and practical exercises, see Kemmer (2010); Dringó-Horváth (2012; 2021).

With regard to willingness to pay for dictionaries, a correlation with the sources of dictionary skills acquisition is only found in the first survey. Thus, while in 2020 there is a significant positive effect of dictionary skills acquired during primary education (rho=0.143, p=0.045) and in special training courses (rho=0.143, p=0.045); in 2023, no significant effect is found. Hence, this relationship needs to be further investigated in the future in order to clarify it.

It may be important to investigate which factors could support greater use of additional information related to correct dictionary use (e.g., usage guide), as both surveys found that the use of this type of information was very limited. However, none of the research data collected suggests that the source of acquisition is a decisive factor in the conscious use of supplementary information.

5.3.2 The source of dictionary skills acquisition and attitude

Our research suggests that institutional learning has a positive effect on the possession of dictionary knowledge and skills (Attitude2) that are needed to use dictionaries effectively: in 2020, dictionary skills acquired during higher education (rho=0.522, p<0.001) and secondary education (rho=0.272, p<0.001) show a significant positive effect, while the effect of self-taught learning is significant and negative (rho=−0.304, p<0.001). In 2023, dictionary skills acquired from relatives (rho=0.255, p=0.007), in primary education (rho=0.209, p=0.028) and secondary education (rho=0.320, p=0.001) also show a significant positive effect on this domain.

5.3.3 The source of dictionary skills acquisition and the teaching of dictionary use

In 2020, no correlation was found between the different ways of practising dictionary use in class (Teaching1: Practising various ways of using dictionaries in their lessons) and the sources of dictionary skills acquisition, while in 2023, dictionary skills acquired in secondary school education (rho=0.321, p=0.010) were significantly positively influenced. In 2020, primary school education (rho=0.219, p=0.007) has a significant positive effect on the teaching of dictionary use in the classroom (Teaching2: Teaching dictionary use in lessons); the effect of autodidactic acquisition is significant and negative (rho=−0.202, p=0.014). In addition, in 2020, primary school education (rho=0,201, p=0,014) has a significant positive effect on the practice of conscious use of dictionaries in the classroom (Teaching3: Practising conscious use of dictionaries during lessons); and in 2023, there is no significant influencing factor. In 2020, there is a significant positive effect (rho=0.231, p=0.005) of dictionary skills acquired during specific training to support the teaching of dictionary use (Teaching3: Bolstering the teaching of dictionary use in participants' own teaching practice); in 2023, there is no significant influencing factor. The 2020 result implies that language teachers often complement their lack of

knowledge in dictionary didactics with additional workshops (cf. Nied Curcio 2022; P. Márkus 2020; Tóth/P. Márkus/Pődör 2022). However, as the result was only shown in one year, it is worth monitoring this further.

6 Summary

Analysing data of the quantitative research (2020 and 2023) regarding trends in dictionary use and dictionary didactics, several key patterns emerge:

– Shift from print to digital: There is a clear move from print dictionaries to digital resources, with a marked increase in the use of machine translation software. This trend demonstrates a growing preference for digital convenience over traditional resources.
– Stable use of digital dictionaries: The use of digital dictionaries remained relatively stable, with only a slight decrease in frequency. This suggests that digital dictionaries continue to be a staple tool for users despite the rise of alternative digital resources, such as search engines.
– Decline in dictionary skills education: Classroom discussions on dictionary use, including the types of dictionaries and search methods, have significantly decreased. This suggests a reduced emphasis on teaching dictionary skills within formal education.
– Self-taught dictionary skills: There is an increased reliance on self-taught methods for learning how to use dictionaries. This indicates a potential gap in formal educational settings where dictionary skills may not be adequately addressed.
– Marginal use of unique dictionary features: Users minimally engage with the unique features of digital dictionaries, such as multimedia elements and additional content. This could point to a lack of awareness or need for these features among users.
– Reduced need for didactic resources: Educators reported a reduced need for teaching aids and professional development in dictionary use. This could reflect an increased familiarity with digital resources that require less formal instruction or a change in educational priorities.

Overall, the trends from 2020 to 2023 indicate a shift towards digital autonomy in dictionary use, with a notable decline in formal pedagogical focus on dictionary skills. This shift could reflect broader changes in language education, resource availability, and the evolving landscape of digital tools.

As for the correlation result the research highlights the importance of formal education in the acquisition of dictionary skills, suggesting a positive impact of several different institutional forms of education on important areas such as the increased use of digital dictionary functions and search methods. In addition, the willingness to pay for

dictionaries and the possession of dictionary knowledge and skills are also increased by a structured teaching of dictionary use. From the point of view of respondents who have teaching experience, it can be concluded that institutional teaching of dictionary skills promotes versatile and conscious practice of dictionary use in the classroom. In contrast, autodidactic learning negatively affects these outcomes, highlighting the importance of structured learning environments. The results argue in favour of formal education as a key to keeping up with dictionary skills development and acquiring applicable knowledge.

The questionnaire was supplemented with a test focusing on effective dictionary use, in which the respondents' dictionary skills were tested. The analysis of the test results will allow us to refine the quantitative survey on several points. The findings will be published in a forthcoming paper.

Limitations and further study

The current study has several limitations. To begin with, a quantitative research design comprising a self-report questionnaire survey served as the foundation for this investigation. Conclusions drawn from the mix of quantitative and qualitative methods may be more reliable. A further limitation of this study stems from the fact that the reliability coefficient of some of the scales fell slightly below the minimum threshold in 2020, however, in 2023, they reached the minimum threshold. In light of these results, scales could be further refined for later research. In addition, the number of respondents with at least one year of educational experience in 2020 was 149, compared to only 64 in 2023. As this number is much lower than in the first survey, significant shifts in the teaching population ought to be treated with reservation and need to be checked in the future; therefore, we plan to launch a longitudinal study based on the experience gained. The longitudinal nature will allow us to track changes in the role of dictionaries in language learning and, in turn, this will enable us to adapt lexicographic training to changing needs.

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