

Pedagogical Embeddedness and Effectiveness of the KRÉTA Foreign Language Preparation Module in Hungarian Public Education

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Introduction

The role of digital technologies in education has appreciated significantly in recent years. Digital learning environments create new opportunities for accessing educational content, and they can also become tools for supporting learning organization, individual learning pathways, autonomous learning, and student activity. This is particularly true for foreign language learning, where the digital environment can provide students with opportunities for practice outside classroom hours, progressing at an individual pace, and more continuous monitoring of the learning process.

An important element of the digital transformation of Hungarian public education is the Foreign Language Preparation Module (in Hungarian and hence: IFM) linked to the KRÉTA system, which serves to provide digital support for foreign language learning. The application of this module can create a learning environment in which school-based language teaching can be supplemented with home and independent learning opportunities. Consequently, the pedagogical significance of the IFM is not exclusively captured in the provision of digital learning materials; rather, it can also be examined from the perspective of its relationship with student activity, motivation, independent learning, differentiation, and the learning processes perceived by teachers and parents.

At the same of time, the assessment of digital language learning tools cannot be solely built on the question of technology availability. The pedagogical value of digital tools may also depend on the frequency and purpose with which students use them, how they fit into classroom work, what role they play in home learning, and how their application is evaluated by the actors involved. Therefore, when examining the IFM, it is justified to take student, teacher, and parent perspectives into account jointly.

The aim of the present research is to uncover the role that the KRÉTA Foreign Language Preparation Module plays in Hungarian public education in supporting the learning and teaching of the English language. The investigation extends equally to the frequency of student usage and experiences, perceived changes in motivation and language development, the support of independent learning, and how teachers judge the integrability of the module into classroom practice, its role in learning organization, and opportunities for differentiation. Additionally, the research examines parents' experiences, with a particular focus on supporting language learning outside of school and at home.

Another important dimension of the research is the effectiveness of applying the IFM. During this examination, the research pays attention both to observable changes in English language performance and to experiences and identifiable difficulties associated with the module's application. Thus, the study does not merely aim to describe the frequency of digital tool use; it also seeks to uncover its pedagogical embeddedness and the effects perceived by the actors involved.

The significance of the research stems from the fact that relying on a single indicator is insufficient for assessing the effectiveness of digital language learning solutions. The joint examination of student performance, usage habits, motivation, autonomous learning, pedagogical integration, and parental experiences can provide a more nuanced picture of the role that a national-level digital language learning system can fulfill in public education.

Accordingly, the research examines the application of the KRÉTA Foreign Language Preparation Module along ten research questions and their associated hypotheses. The results of the investigation can contribute to a more precise understanding of the conditions under which and the pedagogical areas in which digital language learning environments can be applied effectively, as well as which factors require further development or deeper investigation.

Literature Review

The research of digital language learning applications (DLLAs) and mobile-assisted language learning (MALL) has undergone significant development in recent years. Until the early 2020s, the literature primarily encountered impact studies of individual specific applications, which were mostly pre- and post-test, control-group, or questionnaire-based studies. Among the most frequently examined applications were Duolingo, Babbel, Busuu, Rosetta Stone, Memrise, and Xeropan. An important limitation of earlier research was that the effectiveness of individual applications was examined independently of one another, making it difficult to determine whether a given result was generally attributable to the application of mobile technology or to the pedagogical and technological characteristics of the specific app.

Research in recent years has brought an important change in this regard. On one hand, meta-analyses and systematic reviews examining MALL as a whole have appeared; on the other hand, the first direct comparative studies have emerged in which the effects of two commercial language learning applications were compared in the identical research environment. Concurrently, the research focus has gradually shifted away from the question of mere application effectiveness toward the investigation of learning mechanisms, self-regulated learning, user experience, motivation, speaking skills, and the artificial intelligence integrated into the applications.

Regarding the situation in Hungary, particularly important is the research conducted by Thékes (2023) commissioned by the National Media and Infocommunications Authority (NMHH), which examined the appearance of digital language learning in a public education environment. Upper-grade students and language teachers participated in the research, and the results showed that a clear demand exists among students for language learning in a digital environment, while traditional teacher presence remains decisive. One of the essential conclusions of the research is that digital tools and applications cannot simply be interpreted as alternatives to traditional language teaching; rather, they are complementary tools that, with proper pedagogical integration, can support the language learning process.

The effectiveness of mobile-based language learning applications has also been examined by several studies employing different methodological approaches. Mihaylova et al. (2022) analyzed the effect of mobile language learning applications on second-language acquisition in their meta-analysis, comparing the results of students using the applications

with control groups applying traditional learning methods. The analysis, based on research published between 2007 and 2019, demonstrated a positive, medium to large effect in favor of mobile applications (Hedges' g , after excluding outliers). The results suggest that mobile applications can effectively support language learning. At the same time, the authors emphasized that the risk of bias in the included studies was high and the quality of evidence was low, which is why the favorable effect size should be interpreted with appropriate methodological caution.

Tommerdahl et al. (2024), in their systematic literature review, specifically examined the effectiveness of commercially available foreign language learning mobile applications. Out of 1,786 publications identified in the ERIC, PsycINFO, and LearnTechLib databases, only eight studies met the requirements after applying strict selection criteria. According to the review, commercial applications are capable of supporting foreign language learning, but the investigations focused primarily on English language acquisition and vocabulary development. The methodological approaches of the included research varied significantly, which made direct comparison of the results difficult. The authors' findings thus simultaneously underscore the pedagogical potential inherent in commercial applications and draw attention to the limited quantity of empirical evidence regarding their effectiveness.

Kessler et al. (2025), further refining previous reviews from a methodological perspective, analyzed quantitative and mixed-methods research conducted with commercial mobile-based language learning applications, as well as their ethical issues. A systematic review of studies published in leading computer-assisted language learning journals covered 28 relevant studies. According to the results, the investigations frequently utilized mixed methods, and Duolingo was the most frequently researched application. 57.1% of the studies focused on English language learning. The authors also pointed out that important methodological and ethical issues arise in research examining commercial applications, particularly in terms of data collection and the adequate documentation of information related to the operation of the applications. The significance of the study, alongside examining application effectiveness, is that it also calls attention to the reliability of available evidence and the need to improve research practice.

The results of the three studies collectively suggest that mobile-based language learning applications can be promising tools for second-language acquisition, yet the assessment of their effectiveness cannot be separated from the methodological quality of the underlying research. While the meta-analysis overall indicates favorable learning outcomes, reviews focusing on commercial applications highlight the limited amount of appropriate empirical evidence, the variety of research methods, and the unequal representation of investigated languages and learning areas. All of this justifies the differentiated examination of individual applications, developed language skills, student groups, and pedagogical environments, as well as the continuation of more transparent, longer-term, and methodologically sound research.

Kim (2024), who conducted a meta-analysis of MALL research published between 2006 and early 2022, reached a similar conclusion. The study analyzed 32 cases from 28 studies and sought to answer what student and experimental characteristics influence the effectiveness of mobile-assisted language learning. The significance of the research lies in

interpreting the effect of MALL in relation to student characteristics and intervention specifics.

One of the best-documented areas of mobile technology is vocabulary learning. A recent meta-analysis specifically examined the effectiveness of mobile-technology-supported vocabulary learning. Based on the 65 studies included, the use of mobile technology was associated with a large effect size regarding vocabulary learning outcomes, and a significant effect was also shown in studies utilizing delayed post-tests. At the same time, the authors identified substantial heterogeneity among individual studies. This suggests that the mobile application alone does not explain learning outcomes; the applied pedagogical principles, repetition, task type, learning time, and student characteristics all play a role.

Regarding the efficiency of commercially available language learning apps, Tommerdahl, Dragonflame, and Olsen (2024) prepared a systematic review. Out of 1,786 studies found in the databases, after applying strict selection criteria, only eight investigations remained that possessed an adequate sample size, quantitative learning outcomes, and a sufficiently rigorous research design. The result is particularly important from the perspective of the present study: while the popularity of commercial language learning applications is extremely high, the number of studies examining the actual efficiency of the applications with rigorous methodology remains low. The authors also established that the investigations most frequently measured vocabulary development, and the methodological differences between individual studies complicate the direct comparison of results.

A particularly significant advance in the research of commercial applications was the direct comparison of Babbel and Duolingo. In the study, 59 adults learned Turkish over eight weeks using either Babbel ($n = 27$) or Duolingo ($n = 32$). At the end of the intervention, participants completed a post-test measuring reading, writing, speaking, listening comprehension, vocabulary, and grammatical performance, as well as a user experience questionnaire. Both groups improved, but no statistically significant difference was detected between the two applications in overall language development. However, a stronger relationship appeared in the Babbel group between the time spent learning and the post-test result, and Babbel users evaluated the application's grammar, speaking, pronunciation-development, and cultural contents more favorably.

Compared to earlier literature, this research represents a significant methodological advance. In literature published before 2023, studies often only examined whether a group using a given application improved. In contrast, the Babbel-Duolingo comparison makes it possible to compare two commercial applications within an identical learning environment and with an identical measurement system. At the same time, the result warns that the more favorable pedagogical characteristics or user perception of an application do not necessarily result in significantly greater language development.

The newer direction of MALL research is also well illustrated by Metruk's (2024) systematic review, which concentrated specifically on mobile-technology-supported pronunciation development. The author's review shows that mobile technology offers new opportunities especially in pronunciation practice, primarily through speech recognition, immediate feedback, and repeated individual practice. With the development of this research field, the mobile phone is thus no longer merely a tool for practicing vocabulary

and grammatical structures; it increasingly becomes a technological environment for developing productive language skills.

A further important change in MALL research is the coming to the fore of self-regulated learning. One of the most important characteristics of mobile applications is that they allow the flexible organization of learning across space and time. The learner can choose the time, duration, and in many cases the content of learning themselves. However, based on systematic reviews, technological access alone does not guarantee the success of self-regulated learning. Student attitude, motivation, self-regulation ability, and preparedness for digital learning are all decisive. A digital tool is capable of contributing to lasting learning outcomes if it fits into an appropriate pedagogical environment.

The newest research direction is represented by artificial intelligence integrated into applications and generative AI-based chatbots. This change is also significant from the perspective of the DLLA model presented earlier, since chatbots no longer merely allow the execution of pre-programmed tasks; rather, they can also support the individual practice of meaningful output and productive language use. Reviewing 24 empirical studies, Du and Daniel (2024) concluded that AI chatbots offer opportunities especially in practicing speaking skills. A decrease in speech anxiety, improvement in pronunciation, and an increase in student confidence, motivation, and engagement also appeared in the research.

Synthesizing 57 studies published between 2010 and 2024, Koç and Savaş (2025) examined the role of chatbots in language learning. According to the authors, voice-based AI chatbots offer new pedagogical opportunities primarily through interaction, personalization, and continuous practice opportunities. Nevertheless, based on research, it still cannot be considered clear-cut that AI-based conversation can replace human language interaction in every instance.

Li et al. (2025) conducted a meta-analysis specifically concerning generative AI chatbots. The authors included 41 experimental or quasi-experimental studies from 2023 onward, totaling 3,515 participants and 48 independent effect sizes. According to their results, the use of generative AI chatbots was associated with a medium-to-large positive effect on second-language learning effectiveness ($ES = 0.576$; 95% CI [0.385; 0.768]). At the same time, the study also pointed out that the effect can depend, among other factors, on the language learned, the learning goal, the applied AI tool, and the duration of the intervention.

Therefore, the emergence of artificial intelligence necessitates new dimensions in evaluating digital language learning applications. In the case of earlier applications, we could primarily examine what contents and task types they offer, to what extent they apply gamification, what their user experience is, and what opportunities they provide for developing receptive and productive skills. In the case of AI-based systems, this is supplemented by customizability, adaptability, real-time feedback, conversation quality, the accuracy of handling linguistic errors, and the reliability of AI-generated content.

However, recent systematic reviews warn that the question of effectiveness cannot be considered settled in AI chatbot research either. Reviewing 37 studies published between 2014 and 2025, Li et al. (2025) separated four main outcome types: cognitive, affective, behavioral, and agentic outcomes. Cognitive and affective outcomes dominated, while a smaller portion of studies examined changes in students' independent agency and learning

agency. Therefore, the authors consider the investigation of teacher-AI collaboration, out-of-class use, and the K–12 environment to be particularly important in the future.

Overall, therefore, based on the evidence available regarding MALL by the mid-2020s, it can be formulated that mobile applications are generally in a positive relationship with second-language learning outcomes, especially in the areas of vocabulary and certain productive skills. At the same time, it cannot be stated that all applications are equally effective, nor that a DLLA alone could cover the entire language acquisition process. One of the most important lessons of systematic reviews is precisely that research results show significant heterogeneity.

Research Questions

The aim of our research was to examine the application of the KRÉTA Foreign Language Preparation Module (IFM) in Hungarian public education, with a particular focus on its role in student language performance, independent learning, learning motivation, and the pedagogical usefulness perceived by teachers and parents. During the research, we formulated ten research questions.

Research Question 1: Does the English language performance of students who use the IFM regularly differ significantly from the performance of students learning through traditional methods?

Research Question 2: How did the English language performance of students in schools affected by direct dissemination change following the introduction of the IFM?

Research Question 3: To what extent and with what frequency do students use the IFM during school and home learning?

Research Question 4: How do students judge the effect of the IFM on their own English language learning motivation and learning engagement?

Research Question 5: In what ways does the IFM support students' independent language learning, particularly outside of school and at home?

Research Question 6: How do teachers judge the integrability of the IFM into everyday classroom practice and the learning organization process?

Research Question 7: What role do teachers attribute to the IFM in supporting student differentiation and individualized learning pathways?

Research Question 8: What are parents' views on the role of the IFM in supporting their children's language learning outside of school and at home?

Research Question 9: To what extent does the use of the IFM contribute to the development of students' independent learning skills and digital competencies?

Research Question 10: What obstacles, difficulties, and limitations do students, teachers, and parents identify during the use of the IFM?

In connection with the research questions, we formulated ten hypotheses aimed at examining student performance, usage frequency, motivation, independent learning,

pedagogical integration, differentiation, parental support, digital competencies, and obstacles arising during usage.

Research Hypotheses

In connection with the research questions, we formulated ten hypotheses examining the potential effects of the IFM's application on student performance, usage frequency, motivation, independent learning, pedagogical integration, differentiation, parental support, and the development of digital competencies.

H1: The English language performance of students who use the IFM regularly is significantly higher than that of the non-using control group based on the results of the 2025 and 2022 National Assessment of Basic Competencies (NABC / OKM).

H2: In schools affected by direct dissemination, a significant improvement is observable in students' English language performance following the introduction of the IFM.

H3: A significant portion of students uses the IFM regularly, multiple times a week, particularly during home-based, independent language learning.

H4: The majority of students attribute a positive effect to the IFM in increasing language learning motivation and learning engagement.

H5: The use of the IFM supports students' independent language learning, particularly in out-of-school and home-based learning processes.

H6: The majority of teachers judge the IFM to be easily integratable and pedagogically useful in everyday classroom practice and learning organization.

H7: According to teachers, the IFM significantly supports differentiation among students and the creation of individualized learning pathways.

H8: The majority of parents positively evaluate the role of the IFM in supporting their children's out-of-school, particularly home-based, language learning.

H9: The use of the IFM contributes to the development of students' independent learning skills and digital competencies.

H10: Students, teachers, and parents report technical and usage obstacles associated with the use of the IFM to a moderate extent; however, these obstacles do not exceed the benefits perceived from the system.

Course of the Research

In the first phase of the research, prior consultations took place with the developers and staff of the KRÉTA Foreign Language Preparation Module (IFM). Within the framework of this professional cooperation, a targeted institutional database was created that summarized the schools that have been actively and systematically applying the IFM in their educational practice since 2022. Following the identification of the target institutional circle, the investigation continued with an objective performance measurement: we compared the National Assessment of Basic Competencies (NABC / OKM) databases for the years 2022 and 2025 requested from the Educational Authority (Oktatási Hivatal), focusing specifically on the foreign language performance of 7th-grade students.

Concurrently with the analysis of competence measurement data, three self-compiled online questionnaires were developed for students, language teachers, and parents. Before finalizing the measurement instruments, pre-testing and validation were carried out on a sample of 15 participants, during which the appropriateness of questions and statements was verified by calculating item discrimination indices. The validated questionnaires were subsequently distributed in mid-March 2026 via the Google Forms platform to the schools listed in the previously established database. Participants were given a two-month timeframe for data provision and completion.

Reliability tests confirmed the excellent internal consistency of the measurement instruments: based on Cronbach's alpha indices, all three questionnaires proved reliable, showing values of $\alpha = 0.84$ for the student questionnaire, $\alpha = 0.82$ for the language teacher questionnaire, and $\alpha = 0.80$ for the parent questionnaire. Following the close of the two-month data collection phase, the cleaning, processing, and statistical analysis of the incoming quantitative databases were performed using SPSS software.

Measurement Instruments

To examine the effectiveness of the KRÉTA Foreign Language Preparation Module (IFM) in acquiring English and German, as well as digital language learning attitudes, three online questionnaire surveys were prepared, ensuring the comparability and triangulation of data through a uniform structure. The measurement instruments consisted of closed-ended background questions and 5-point Likert-scale statements (1 = completely uncharacteristic; 5 = completely characteristic).

The student questionnaire was validly completed by a total of 894 pupils. Its first unit recorded sociodemographic background data (age, grade level, school type, target language) serving to characterize the descriptive statistics of the sample. The second part measured students' general digital language learning attitudes, mobile device usage habits, openness to mobile-assisted language learning (MALL), and the motivational power of gamification. The third block focused specifically on the KRÉTA IFM, examining user experience and design, learning autonomy and efficiency (vocabulary, grammar, reading comprehension), and students' home learning motivation on Likert scales.

A total of 122 active foreign language teachers participated in the teacher survey. After recording professional background data (taught language, age group, school type, professional experience), the questionnaire examined teachers' general methodological culture and ICT attitudes, touching upon the classroom integration of tools, the recommendation of apps, and the future role of artificial intelligence. The module-specific concluding part measured teachers' concrete experiences regarding the applicability of the IFM as classroom and homework tasks, language progress observed in students, and the administrative trackability of student progress.

The parent pillar was completed by 352 guardians. In addition to the child's basic data, the background data mapped the family's digital provision. This was followed by measuring parental perception related to digital education, examining the usefulness of screen time for language learning purposes and the effectiveness of digital solutions compared to traditional forms. Finally, the questionnaire quantified the effects of the IFM experienced in the home environment, with particular attention to the child's independent learning routine, parental

satisfaction and assistance, and development observed in the child's language attitude and grades. Alongside questionnaire data collection, the research was also built upon secondary data analysis. The Educational Authority sent the research the 2022 and 2025 National Assessment of Basic Competencies (NABC / OKM) results of representatively selected institutions across all competence domains. The analysis extended to the data of 6th-, 7th-, and 8th-grade students from a total of 207 schools. During the investigation, data were compared based on the English-as-a-foreign-language results of 7th-grade students. The selection of the 7th grade as the analytical focus was justified by several methodological considerations. On one hand, 8th-grade students are already in the period concluding primary education; thus, their learning motivation and performance can be significantly influenced by further education and school-choice factors, which can distort judgments regarding the effect of digital development programs. On the other hand, in the case of 6th-graders, foreign language competence development often does not yet reach the level—particularly language performance above the A2 level—at which the differentiated effect of the IFM becomes reliably measurable. The 7th grade therefore represents an optimal transitional level: students already possess appropriate preliminary foreign language knowledge, yet they are not yet under the direct influence of external effects stemming from changing schools.

Results and Conclusions

The first research question of the investigation aimed at whether the English language performance of students who use the IFM regularly differs significantly from the performance of students learning through traditional methods. Based on the analysis, 7th-grade students achieved significantly better results on the national competence measurement (NABC / OKM) English test in 2025 than students examined in 2022 ($t = 2.26$; $p < 0.05$). The result points to a statistically detectable performance improvement during the examined period. At the same time, caution is necessary regarding causal conclusions during the interpretation of results, as the available comparison in itself does not allow for the clear establishment that the performance change is directly attributable to the use of the IFM. Nevertheless, the result is in line with the hypothesis suggesting that a positive relationship may exist between the regular application of the IFM and higher English language performance.

The second research question concerned the performance change of students in schools affected by direct dissemination of the IFM. According to the related hypothesis, a significant improvement is expected in English language performance in these institutions following the introduction of the IFM. To investigate this research question, however, the appropriate selection of the affected schools and the execution of the comparative analysis still need to be carried out; therefore, no definitive conclusion can currently be drawn regarding this hypothesis.

The third research question examined the extent and frequency with which students use the IFM during school and home learning. Based on the results, the related hypothesis was partially verified. 24.6% of students gave a high regularity score of 4 or 5 to the question regarding usage, while also taking the category of 3 into account, 50.6% of respondents indicated that they use the platform with varying degrees of regularity. This suggests that the IFM has already integrated into the learning practice of a significant portion of the

examined student circle, yet regular use cannot yet be considered general. Particularly noteworthy is the judgment of supporting independent home learning: 36.0% of students judged the IFM to be explicitly useful in this area, and an additional 27.6% evaluated it as moderately useful. Taken together, the two categories represent 63.6% of respondents, showing that a significant portion of students views the IFM as a relevant learning support tool from the standpoint of independent, home-based language learning.

The fourth research question was directed at assessing the effect of the IFM on student motivation and language learning engagement. Based on the data, nearly one-third of students attributed a direct motivational effect to the use of the platform, while nearly 58% of respondents related positively to the application of digital solutions. More than 40% of students reported perceptible changes in their own language development in connection with the use of the IFM. The combined proportion of responses expressing a positive or open attitude toward the effect supporting language development was 67.1%. These results suggest that, in the perception of a significant portion of students, the IFM can contribute to supporting language learning motivation and personal language development.

The fifth research question examined the realization of students' independent language learning through the use of the IFM. The results showed the most marked positive tendency in this area. 63.6% of respondents acknowledged the added value of the IFM in supporting independent, home learning to some degree, within which 36.0% gave an explicitly positive evaluation. Based on the results, the IFM can be interpreted as a digital learning environment that can connect classroom and home learning processes and provide opportunities for students to practice at their own pace. In this sense, the platform can complement teacher support in the home learning process.

The sixth research question examined teachers' opinions regarding the integrability of the IFM into classroom practice and its pedagogical usefulness. 63.5% of respondents indicated that they had integrated the IFM into their classroom work on a daily or regular basis. According to 75.3% of teachers, the platform is suitable for structuring and organizing course material. These data suggest that the majority of the teachers examined also interpret the IFM as a pedagogical solution supporting learning organization. At the same time, the proportion of the lowest evaluation categories remained low, pointing to a limited presence of explicit rejection of the system.

The seventh research question concerned the role of the IFM in differentiation and supporting individual learning pathways. More than 71% of teachers judged that the module can play a significant role in supporting independent learning. In addition, 53.5% believed that language learning supported by the IFM can be more effective. The proportion of responses questioning effectiveness was 19.8%. Based on the results, a significant portion of teachers sees the potential for differentiation and the support of individualized learning pathways in the IFM. This may be particularly relevant in the case of students with varying abilities and different learning paces, although the pedagogical effectiveness related to this would warrant further examination through direct performance measurements.

The eighth research question examined parents' opinions on the role of the IFM in supporting out-of-school language learning. 51.6% of responding parents judged the platform to be effective, while nearly 61% believed that the IFM directly supports their child's independent, home-based learning. The proportion of explicitly rejecting responses

was relatively low: 11.7% agreed with the statement questioning effectiveness, while 17.4% agreed with another statement concerning the lack of results from the system. The results indicate that a significant portion of parents evaluates the IFM as a digital tool suitable for supporting language learning outside of school.

The ninth research question examined the role of the IFM in student autonomy and the development of digital competencies. According to 60.7% of parents, the platform helps their child's independent learning, which is consistent with student responses: 36% of students judged the IFM to be explicitly useful, and a further 27.6% moderately useful from the perspective of independent learning. 61.4% of parents judged the module to be useful in general as well. Based on the results, the use of the IFM can create learning situations in which students must independently navigate the digital learning environment, organize their own learning activities, and track their progress. All of this can theoretically contribute to the development of digital learning competencies and student autonomy; however, demonstrating the actual change in these competencies would require longitudinal or pre- and post-measurements.

The tenth research question aimed at uncovering obstacles, difficulties, and limitations experienced during the use of the IFM. Based on the results of the three user groups, the assessment of the system is not uniform, and student responses show a more critical picture than those of teachers or parents. More than 60% of parents judged the system to be useful, while the proportion of those explicitly dissatisfied was about 17%. Among teachers, the majority of responses were also positive: more than half of the teachers disagreed with the statement that language learning with the IFM would not be more effective, and 60% positively evaluated the trackability of student progress. In contrast, more divided results were born among students. Regarding language development, about 40% reported a positive effect, while 33% perceived no improvement. A similar tendency appeared in the assessment of the IFM's role in complementing classroom learning: 43% perceived a positive added value, and 30% did not consider the digital interface to be an appropriate complement.

Overall, based on the results, no dominant technical or usage obstacles can be identified in any of the examined user groups that would clearly make the application of the IFM impossible. At the same time, the data also point out that the perception of the platform differs by user group. Teachers and parents evaluated the IFM more favorably overall, whereas student responses showed a greater degree of division. A particularly important result is that a significant portion of students did not perceive a direct improvement in language performance or added value supporting classroom learning. This suggests that when assessing the pedagogical effectiveness of the IFM, it is insufficient to examine solely the frequency of use or general attitudes; the combined analysis of actual language performance, usage intensity, student background variables, and pedagogical implementation is also necessary. At the same time, the available results overall show that the IFM can be considered a relevant digital learning support tool with respect to supporting students' independent learning, complementing classroom work, and the differentiation opportunities perceived by teachers.

Conclusions

Based on the research results, the IFM can be considered a promising digital learning support tool in English language development, particularly from the perspective of supporting independent learning, complementing classroom activities, and creating individual learning pathways. The investigation—built on the responses of 894 students, 122 teachers, and 352 parents, as well as the analysis of the National Assessment of Basic Competencies data from 207 schools—supports the pedagogical relevance of digital language learning solutions from multiple aspects.

One of the most important lessons of the results is that a positive relationship can be hypothesized between the application of the IFM and higher English language performance. The 2025 competence measurement results of seventh-grade students were significantly better than the 2022 results ($t = 2.26$; $p < 0.05$). This difference points to a performance improvement that occurred during the examined period; at the same time, it does not prove in itself that this was directly brought about by the use of the IFM. For a more precise assessment of the digital development program's effectiveness, it is therefore necessary to carry out further analyses that also take into account the intensity of application usage, individual student characteristics, and the peculiarities of institutional implementation.

The results of the student questionnaire show that the IFM has already appeared in the learning practice of a significant portion of respondents, yet its usage cannot yet be considered general. 24.6% of students reported high-regularity usage, while 50.6% indicated at least some degree of use. One of the platform's most important strengths is the support of independent, home-based language learning: 63.6% of students judged the IFM to be useful to some degree in this area. This suggests that the module can provide an opportunity to link classroom learning with home practice, as well as completing tasks adapted to the students' own pace. At the same time, neutral and negative student feedback indicates that the platform's pedagogical added value is not perceived equally by every student.

The results related to motivation and language development likewise paint a favorable yet nuanced picture. Nearly one-third of students attributed a direct motivational effect to the platform, and more than 40% perceived a positive change in their own language development as well. All of this suggests that the IFM can contribute to maintaining interest in language learning and strengthening student engagement. However, the division of responses warns that the digital environment in itself does not guarantee an increase in motivation or the development of language competencies. For the effective application of the platform, the clear definition of learning goals and regular feedback on student progress can both be important.

Teacher feedback reinforces the organizational and methodological applicability of the IFM. 63.5% of respondents integrated the module into their classroom work on a daily or regular basis, and 75.3% considered it suitable for structuring and organizing course material. In addition, more than 71% of teachers believed that the platform can play a significant role in supporting independent learning. These results suggest that the IFM can also be interpreted as a pedagogical tool helping the organization of learning processes. The potential inherent in differentiation and supporting individual learning pathways can be particularly important in the case of students with varying abilities and different paces, though further performance-based investigations are necessary to establish their actual effectiveness.

Parental responses similarly indicate favorable tendencies. 51.6% of respondents judged the platform to be effective, and about 61% believed that the IFM supports their child's independent, home-based learning. The consistency between student and parental feedback is observable particularly in the area of autonomous learning. This leads us to conclude that it can fulfill a relevant role in the out-of-school learning environment as well. At the same time, parental judgment and student experiences are not identical in every respect, which justifies the joint interpretation of the opinions of different stakeholder groups.

One of the essential findings of the research is that the perception of the IFM differs by user group. Teachers and parents evaluated the platform more favorably overall, whereas student responses were more divided. It is particularly noteworthy that about 33% of students did not perceive language development, and 30% did not consider the digital interface to be an appropriate complement to classroom learning. These results draw attention to the fact that the success of introducing digital learning tools cannot be judged solely on the basis of teacher or parental satisfaction. The combined examination of student experiences, actual usage habits, and measurable language outcomes is indispensable for assessing pedagogical effectiveness.

When interpreting the research results, the methodological limitations of the investigation must also be taken into account. Questionnaire data primarily provide information on participants' experiences, attitudes, and perceived changes, and therefore do not replace the direct measurement of language competencies. Similarly, comparing the 2022 and 2025 competence measurement results does not allow for the clear separation of the IFM's effect from other potential influencing factors. Investigating the hypothesis concerning the performance change of schools affected by direct dissemination likewise requires further institutional selection and comparative analysis. Furthermore, proving the actual development of digital competencies and student autonomy would necessitate longitudinal or pre- and post-measurements.

Overall, the research points out that the IFM offers substantive opportunities for supporting digital foreign language learning, particularly in the areas of independent practice, the supplementation of classroom work, and differentiated learning organization. At the same time, the results also indicate that the platform's pedagogical value cannot be considered identical for every student, and favorable user feedback in itself does not prove an improvement in language performance. From the standpoint of moving forward, complex investigations are therefore required that take into consideration usage frequency, the method of pedagogical application, student attitudes, and actual language performance alike. The longer-term effectiveness of the IFM can be expected to be judged most reliably if the application of the digital tool is coupled with conscious pedagogical planning, regular feedback, and development tailored to student needs.

Summary

Based on the research results, the KRÉTA Foreign Language Preparation Module (IFM) appears in the examined public education environment as a digital learning support tool that can play a significant role primarily in the areas of independent learning, home-based language learning, the support of classroom work, and the differentiation of learning processes. Overall, the results show a favorable picture of the IFM's pedagogical

applicability; at the same time, based on student responses, the platform's impact cannot be considered equally strong for every user.

One of the most important results of the student data is that the IFM shows its strongest position in supporting independent, home-based learning. 63.6% of students judged the module to be useful to some degree from the standpoint of their own home learning, within which 36% gave an explicitly positive evaluation. At the same time, usage frequency suggests that the IFM has not yet become part of every student's daily learning routine: the proportion of responses indicating high regularity was 24.6%, while together with categories indicating lesser or greater regularity, 50.6% of students showed some level of embeddedness.

Regarding motivation and language development, primarily positive tendencies emerge as well. Nearly one-third of students attributed a direct motivational effect to the use of the IFM, while 67.1% accepted or were open to some degree regarding the platform's role in supporting language development. At the same time, the division of student responses suggests that the use of the digital tool in itself does not guarantee the language development perceived by students: about 40% reported positive change, while 33% perceived no improvement.

Teacher responses showed a clearer picture than this. 63.5% of respondents integrated the IFM into their classroom work on a regular or daily basis, while 75.3% considered the platform suitable for structuring and organizing course material. In addition, more than 71% believe that the IFM can play a significant role in supporting independent learning, and 53.5% thought that language learning supported by the IFM can be more effective. These results suggest that teachers also interpret the IFM as a pedagogical tool supporting learning organization and differentiation.

Parental data likewise indicate favorable perceptions. 51.6% of parents judged the IFM to be effective, and nearly 61% believed that the platform directly supports their child's independent, home-based learning. Parental and student perceptions show consistency with one another at this point, as the recognition of the IFM's role in supporting independent learning appeared in a significant proportion in both groups.

At the same time, the results also point out that there are areas in the application of the IFM where further development and pedagogical support are justified. Student responses were significantly more divided than those of teachers and parents. Regarding language development and the supplementation of classroom learning, both positive and negative opinions were present in significant proportions. This suggests that it is not expedient to interpret the effectiveness of the IFM solely in connection with the fact of usage; usage frequency, the mode of pedagogical integration, student motivation, and individual learning characteristics can all influence the perception and effectiveness of the platform.

Regarding performance data, the 2025 seventh-grade NABC / OKM English language results were significantly higher than the 2022 results ($t = 2.26$; $p < 0.05$). This signals a statistically detectable performance change and is consistent with the assumption that a positive relationship may exist between the application of the IFM and student English language performance. However, a clear causal relationship cannot be derived from the result in itself; therefore, further control-group and longitudinal analyses are necessary for

a more precise determination of the IFM's effect. Investigating the performance change of schools affected by direct dissemination likewise requires further analysis.

Overall, the research results show that the KRÉTA IFM can play an important role primarily in supporting independent and home-based language learning, supplementing classroom learning, organizing learning, and creating the opportunity for differentiation. The responses of students, teachers, and parents show mutually reinforcing results at multiple points, particularly with regard to supporting independent learning. At the same time, the heterogeneity of student responses warns that the pedagogical value of the digital learning environment does not automatically follow from the availability of the technology. Appropriate pedagogical integration, regular use, and the active involvement of students are all necessary for the effective application of the IFM. The research results therefore primarily substantiate the pedagogical potential of the IFM, while the precise uncovering of actual performance effects and cause-and-effect relationships necessitates further empirical investigations.

References

- Du, J., & Daniel, B. K. (2024). Transforming language education: A systematic review of AI-powered chatbots for English as a foreign language speaking practice. *Computers and Education: Artificial Intelligence*, 6, 100230. <https://doi.org/10.1016/j.caeai.2024.100230>
- Kim, G. (2024). Implications for language education in mobile learning environment: A study on meta-analysis of mobile-assisted language learning (MALL). *Studies in English Education*, 29(3), 51–78. <https://doi.org/10.22275/SEE.29.3.03>
- Koç, F. Ş., & Savaş, P. (2025). The use of artificially intelligent chatbots in English language learning: A systematic meta-synthesis study of articles published between 2010 and 2024. *ReCALL*, 37(1), 4–21.
- Li, M., Wang, Y., & Yang, X. (2025). Can generative AI chatbots promote second language acquisition? A meta-analysis. *Journal of Computer Assisted Learning*, 41(4), e70060. <https://doi.org/10.1111/jcal.70060>
- Li, Y., Zhou, X., Yin, H.-B., & Chiu, T. K. F. (2025). Design language learning with artificial intelligence (AI) chatbots based on activity theory from a systematic review. *Smart Learning Environments*, 12, Article 24. <https://doi.org/10.1186/s40561-025-00379-0>
- Metruk, R. (2024). Mobile-assisted language learning and pronunciation instruction: A systematic literature review. *Education and Information Technologies*, 29(13), 16255–16282. <https://doi.org/10.1007/s10639-024-12453-0>
- Mihaylova, M., Gorin, S., Reber, T. P., & Rothen, N. (2022). A meta-analysis on mobile-assisted language learning applications: Benefits and risks. *Psychologica Belgica*, 62(1), 252–271. <https://doi.org/10.5334/pb.1146>
- Tommerdahl, J. M., Dragonflame, C. S., & Olsen, A. A. (2024). A systematic review examining the efficacy of commercially available foreign language learning mobile apps. *Computer Assisted Language Learning*, 37(3), 333–362.
- Kessler, M., Ferronato, T., Torres Centurion, M. J., Akay, M., & [fifth author name to be verified]. (2025). Mobile-assisted language learning with commercial apps: A focused

methodological review of quantitative/mixed methods research and ethics. *Research Methods in Applied Linguistics*, 4(1), Article 100186.
<https://doi.org/10.1016/j.rmal.2025.100186>

Thékes, I. (2023). Digitalizáció a nyelvtanulásban: A tanári jelenlét még mindig elengedhetetlen a sikerhez. Nemzeti Média- és Hírközlési Hatóság.