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STUDENT-DEVELOPMENT AI FOR SUSTAINABLE ENGLISH LEARNING: THE “SAYLESS” APP[40]

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ABSTRACT

Sustainable education requires scalable, affordable, and personalized solutions capable of addressing diverse learner needs while reducing dependence on resource-intensive instructional models. This paper presents “SayLess”, a student-developed artificial intelligence (AI)-powered mobile application designed to support sustainable English language learning through adaptive personalization and learner autonomy. The application integrates AI-driven tools for reading, listening, speaking and writing, enabling real-time content adjustment to users’ proficiency, pace, and progress. The interface was designed in Figma, and the backend architecture was implemented using Visual Studio. The current version is deployed on iOS devices, with planned Android expansion to enhance accessibility. A pilot implementation with university students evaluated usability, engagement, and language development outcomes. Results indicate improvements in motivation, writing accuracy, and independent learning behaviors, alongside reduced reliance on traditional tutoring. The findings demonstrate that student-led AI innovation can contribute to sustainable educational practices aligned with global sustainable development goals.

KEY WORDS

AI in education, sustainable learning, adaptive systems, mobile learning, personalized English learning, EdTech innovation.

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INGLIZ TILINI SAMARALI O‘RGANISH UCHUN TALABALARNI RIVOJLANTIRUVCHI SUN’IY INTELLEKT: “SAYLESS” ILOVASI

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ANNOTATSIYA

Uzluksiz ta’lim o‘quvchilarning turli xil ehtiyojlarini qondirishga qodir, ayni vaqtda resurs talab qiluvchi o‘qitish modellariga qaramlikni kamaytiradigan keng ko‘lamli, hamyonbop va shaxsiylashtirilgan yechimlarni talab etadi. Ushbu maqolada talabalar tomonidan ishlab chiqilgan, sun’iy intellektga (SI) asoslangan va ingliz tilini barqaror o‘rganishni qo‘llab-quvvatlashga mo‘ljallangan “SayLess” mobil ilovasi taqdim etiladi. Ilova adaptiv shaxsiylashtirish hamda o‘quvchining mustaqil ta’lim olishini rag‘batlantirishga qaratilgan. U o‘qish, tinglash, gapirish va yozish uchun SI vositalarini o‘zida mujassam etgan bo‘lib, kontentni foydalanuvchining bilim darajasi, sur’ati va yutuqlariga real vaqt rejimida moslashtirish imkonini beradi. Ilova interfeysi Figmada loyihalashtirilgan, backend arxitekturasi esa Visual Studio yordamida yaratilgan. Hozirgi versiyasi iOS qurilmalarida ishga tushirilgan bo‘lib, qulaylikni oshirish maqsadida uni Android platformasiga ham kengaytirish rejalashtirilgan. Universitet talabalari ishtirokidagi tajriba sinovida ilovaning foydalanishga qulayligi, qiziqarliligi va tilni rivojlantirishdagi samaradorligi baholandi. Natijalar motivatsiyaning oshgani, yozma nutq aniqligining yaxshilangani, mustaqil o‘qish xulq-atvorining rivojlangani hamda an’anaviy repetitorlikka bo‘lgan ehtiyoj kamayganini ko‘rsatdi. Olingan xulosalar talabalar yetakchiligidagi SI innovatsiyalari global barqaror rivojlanish maqsadlariga mos keladigan barqaror ta’lim amaliyotlariga hissa qo‘sha olishini namoyon etadi.

KALIT SO‘ZLAR

Ta’limda sun’iy intellekt, barqaror ta’lim, adaptiv tizimlar, mobil ta’lim, shaxsiylashtirilgan ingliz tili o‘rganish, EdTech innovatsiyalari.

РАЗВИВАЮЩИЙ ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ ДЛЯ СТАБИЛЬНОГО ИЗУЧЕНИЯ АНГЛИЙСКОГО ЯЗЫКА: ПРИЛОЖЕНИЕ “SAYLESS”

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АННОТАЦИЯ

Устойчивое образование требует масштабируемых, доступных и персонализированных решений, способных удовлетворять разнообразные потребности учащихся и одновременно снижать зависимость от ресурсоёмких моделей обучения. В данной статье представлено разработанное студентами на базе искусственного интеллекта (ИИ) мобильное приложение SayLess, предназначенное для поддержки устойчивого изучения английского языка за счёт адаптивной персонализации и развития самостоятельности учащихся. Приложение на основе ИИ объединяет инструменты для развития навыков чтения, аудирования, говорения и письма, обеспечивая корректировку контента в реальном времени в соответствии с уровнем владения языком, темпом и прогрессом пользователя. Интерфейс был разработан в Figma, а серверная архитектура реализована в Visual Studio. Текущая версия развёрнута на устройствах iOS; для расширения доступности планируется выпуск версии для Android. В ходе пилотного внедрения с участием студентов вузов оценивались удобство использования, вовлечённость и результаты в освоении языка. Результаты указывают на повышение мотивации, грамотности письменной речи и навыков самостоятельного обучения, а также на снижение потребности в традиционном репетиторстве. Полученные данные демонстрируют, что студенческие инновационные разработки в области ИИ могут способствовать внедрению устойчивых образовательных практик, соответствующих глобальным целям устойчивого развития.

КЛЮЧЕВЫЕ СЛОВА

ИИ в образовании, устойчивое обучение, адаптивные системы, мобильное обучение, персонализированное обучение английскому языку, инновации в области EdTech.

INTRODUCTION

Artificial intelligence (AI) and mobile technologies are rapidly transforming higher education by enabling adaptive, scalable, and personalized learning experiences. Recent studies demonstrate that AI-based systems provide immediate feedback, automate assessment, and support individualized learning paths, which significantly improve learner outcomes (Holmes W., 2022, 504-526; Zawacki-Richter O., Marín V.I., Bond M., Gouverneur F., 2019). In language education, computer-assisted and mobile-assisted learning tools have proven particularly effective in increasing accessibility and learner engagement (Kukulska-Hulme A., 2020, 1-7; Beatty K., 2013; Stockwell G., 2016).

At the same time, the concept of sustainable education emphasizes equitable access, reduced costs, and environmentally responsible digital delivery (UNESCO., 2023, 36). Mobile learning solutions contribute to these goals by minimizing dependence on physical classrooms and printed materials (Godwin-Jones R., 2018, 1-7; Traxler J., 2018, 1-5). Furthermore, learner autonomy and motivation are recognized as key predictors of long-term language success (Little D., 2007, 14-29; Dörnyei Z., 2014).

Language education, particularly English as a Foreign Language (EFL), faces several persistent challenges. Many students lack individualized feedback, consistent practice opportunities, and affordable access to quality instruction. Conventional face-to-face tutoring models are resource-intensive, costly, and difficult to scale across diverse populations. Moreover, standardized digital platforms often fail to adapt to individual learning differences, resulting in decreased engagement and limited long-term retention.

In response to these challenges, student-led innovative initiatives have begun to play an increasingly important role in developing practical, technology-driven solutions. One such initiative is “SayLess” mobile application, an AI-powered platform created by a team of META university students to deliver personalized and sustainable English language learning experience.

The central idea behind “SayLess” is the principle of “less assistance” – more autonomy. “Rather than permanently simplifying content, the system gradually reduces scaffolding, enabling learners to transition from supported exercises to authentic academic materials. This approach aligns with constructivist learning theories and promotes long-term independence rather than short-term task completion.

This paper presents the design, implementation, and evaluation of “SayLess” as an innovative EdTech project. Specifically, the study aims to:

1. Describe the technical and pedagogical architecture of the application.

2. Examine its role in promoting sustainable and accessible learning.
3. Evaluate learner perceptions and preliminary outcomes.
4. Assess the feasibility of student-developed AI solutions in higher education context.

Despite these advances, many commercial applications still lack deep personalization and pedagogical scaffolding. To address this gap, the student-developed application "SayLess" was created as an AI-powered, sustainable solution for English language acquisition.

LITERATURE REVIEW

AI in language learning. Research on AI education highlights its potential to enhance adaptive instruction and real-time feedback (Luckin R., Holmes W., Griffiths M., Forcier L.B., 2016, 210; Alam A., 2021, 1-15). Systematic reviews show that AI applications in higher education primarily support personalization, prediction of learning outcomes, and intelligent tutoring (Zawacki-Richter O., Marín V.I., Bond M., Gouverneur F., 2019; Hwang G.J., Tu Y.F., 2021). In language learning contexts, AI-driven tools such as automated writing evaluation and speech recognition have demonstrated measurable improvements in accuracy and fluency (Chen X., Zou D., Xie H., Cheng G., 2020, 1-16).

Mobile-assisted language learning (MALL) further expands access by enabling flexible, location-independent study (Kukulska-Hulme A., 2020, 1-7; Reinders H., Pegrum M., 2016, 36-52). Such technologies support sustainable development by reducing institutional costs and increasing educational inclusivity (UNESCO., 2023, 36).

Artificial Intelligence has become increasingly integrated into language education through automated feedback systems, intelligent tutoring, speech recognition, and adaptive content delivery. Research demonstrates that AI can enhance learner engagement and provide immediate corrective feedback, which is essential for language acquisition. Adaptive systems adjust task difficulty and learning pace, thereby accommodating individual differences and promoting mastery learning.

However, critics note that many commercial applications emphasize gamification over pedagogy, often lacking systematic scaffolding and authentic communication practice. Consequently, there remains a need for solutions that combine technological innovation with sound instructional design.

Sustainable Education. Sustainable education involves practices that are economically viable, socially inclusive, and environmentally responsible. In digital contexts, sustainability refers to reducing dependency on physical infrastructure,

minimizing travel and paper usage, and providing scalable online resources over time, making education more efficient and equitable.

Student-Led Innovation in EdTech. Student-led development has gained attention as an effective strategy for creating contextually relevant educational technologies. Students understand peer needs and often design solutions that are more intuitive and accessible. Despite this potential, few empirical studies have documented student-developed AI tools for language education.

This gap highlights the importance of evaluating projects such as “SayLess”.

METHODS

Research design. The pedagogical design of “SayLess” follows principles of adaptive scaffolding and gradual autonomy development. This approach aligns with constructivist models of learner-centered education and research on autonomous learning environments (Little D., 2007, 14-29). Digital analytics and AI-based feedback mechanism were incorporated to ensure personalized progression, consistent with learning analytics framework described in the article “Learning analytics: Principles and constraints” (Khalil M., Ebner M., 2017, 1-23).

The study employed a mixed-methods design combining technical development, pilot implementation, and user feedback analysis. The methodology consisted of three phases:

1. Desing and development
2. Pilot testing
3. Evaluation through questionnaires and observation.

Application development. The application was developed by a team of five students using an agile project-based approach.

Technical stack:

- Interface design: Figma
- Backend development: Visual Studio
- Platform: iOS (current), Android (planned)
- AI tools: adaptive text simplification, grammar correction, speech recognition

Pedagogical structure.

Table 1.

The core language skills of the app.

Reading	***Listening***
Texts are automatically simplified according to proficiency level. Gradual reduction of assistance supports independent comprehension of authentic materials.	Tasks include exposure to multiple accents and adjustable playback speed.

Speaking	***Writing***
Voice-based interaction provides pronunciation practice and immediate feedback.	AI-assisted grammar and coherence correction guides revision.

Participants. The pilot study involved first-year students of META University with A1-A2 English proficiency. Participants used the application for two weeks during independent study sessions.

Instruments. Data were collected using:

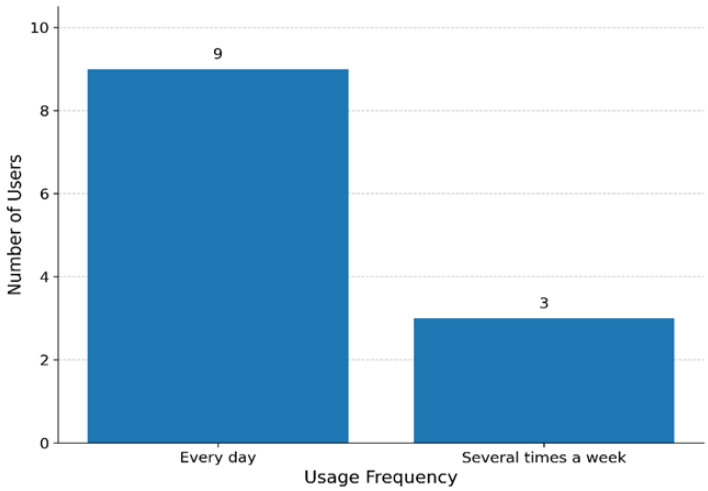
- questionnaires;
- user activity logs;
- instructor observations.

RESULTS

Patterns of "SayLess" Use. The survey includes 10 questions of satisfaction, and educational effectiveness of using the "SayLess" application to develop language skills.

Figure 1.

The frequency of "SayLess" app use.



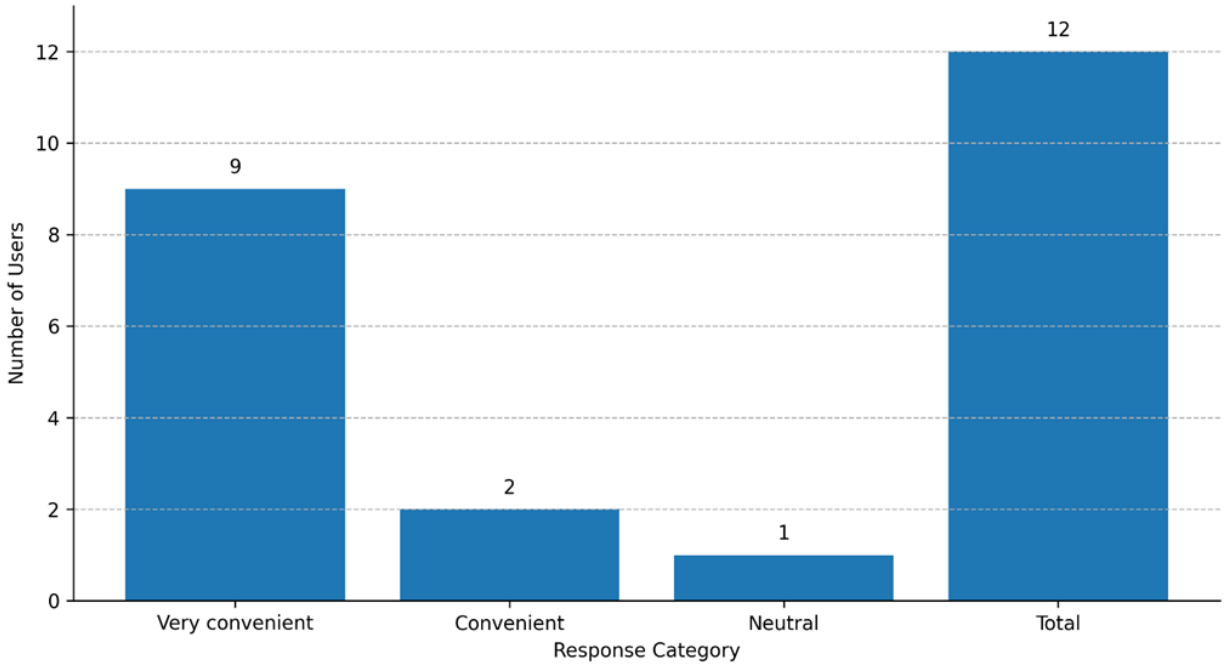
The data on application usage frequency reveals a strong pattern of consistent and high engagement among "SayLess" users. The vast majority of respondents have successfully integrated the application into their daily or near-daily routines, which is a crucial indicator or both product value and user commitment to language learning.

A significant 75% of the survey respondents (9 out of 12) report using the app "Every day". This figure is a powerful testament to the application's perceived utility and ability to foster strong habit formation. Daily use is highly correlated with successful outcomes in language acquisition.

The remaining 25% of users (3 out of 12) use the app "Several times a week".

This group also maintains a high level of weekly consistency, suggesting that even for users who do not engage daily, the app remains a vital part of their study schedule. This high-frequency data suggests that the content, features, or highlight this finding to demonstrate the app's success in driving habit formation and maintaining perceived necessity for daily learning progress.

Figure 2.
How user-friendly is the app interface.

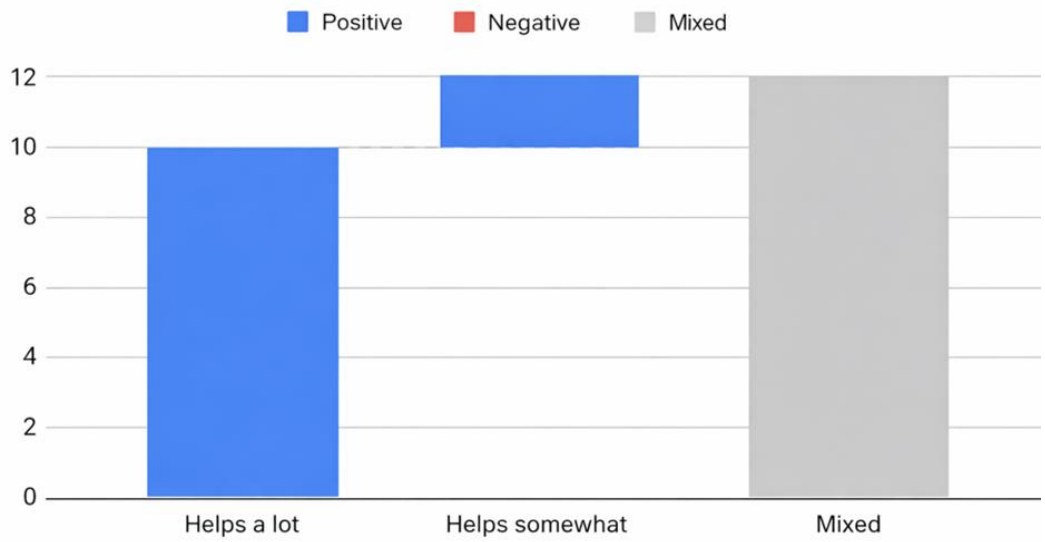


In Fig.2, user perceptions of the app interface were evaluated through a short usability survey. The distribution of response demonstrates a predominantly positive assessment of the interface design. Out of 12 participants, 9 respondents (75%) rated the interface as very convenient, 2 respondents (17%) indicated it was convenient, and 1 respondent (8%) selected a neutral option. Notably, no negative evaluations were recorded.

These findings indicate that 92% of users expressed positive perceptions of usability (combining "very convenient" and "convenient" responses). The high concentration of favorable ratings suggests that the majority of participants experience minimal difficulties when interacting with the application. The small proportion of neutral responses and the absence of dissatisfaction further emphasize the overall effectiveness of the interface design.

Figure 3.

Does the text adaption feature help understand English texts better.

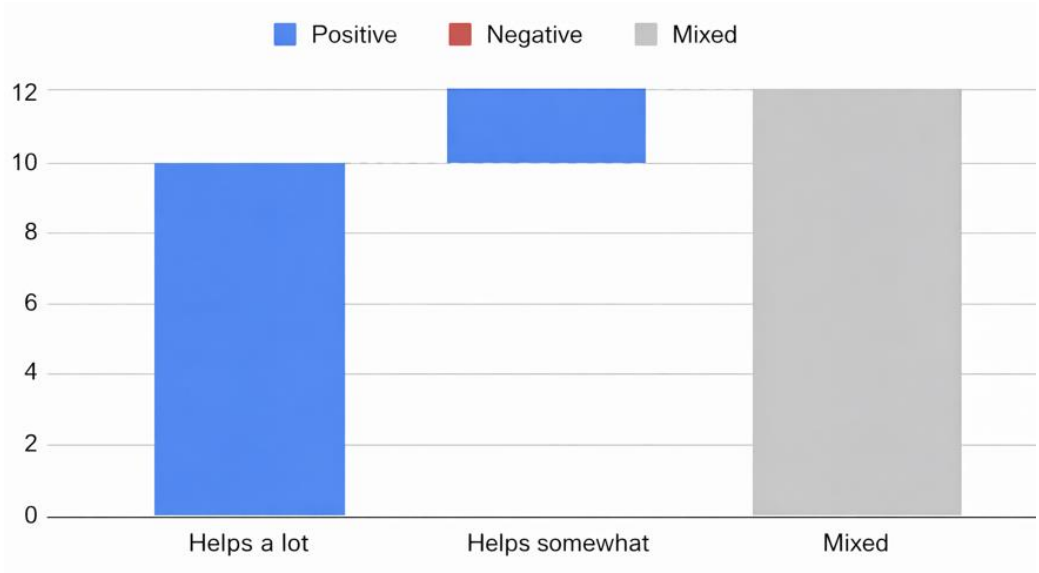


The results indicate that the AI-based text adaptation (reading simplification) feature was perceived as beneficial by the majority of respondents. As shown in Fig.3, most students reported positive effects on reading comprehension.

Specifically, 10 students indicated that the feature helps a lot, while 12 students reported that it helps somewhat. In contrast, 12 students selected the mixed/neutral option. Overall, 22 out of 34 participants (64,7%) demonstrated a positive perception of the tool, whereas 35,3% expressed partial or uncertain benefits.

Figure 4.

Do audio tasks help distinguish between British and American accents.

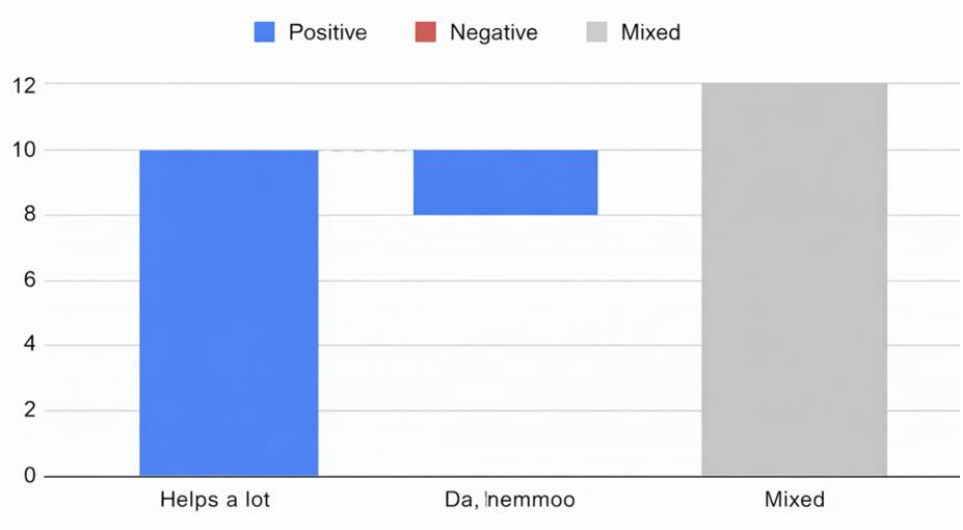


As illustrated in Fig.4, the survey examined students' perceptions of whether audio-based tasks help them distinguish between British and American accents. The responses were predominantly positive, with no negative evaluations reported.

The absence of negative responses suggests that audio-based activities do not create additional cognitive burden or confusion for learners. Instead, they appear to provide a supportive learning environment that facilitates gradual improvement.

Figure 5.

Have your speaking skills improved using AI dialogues.



The results indicate that AI-mediated dialogues serve as an effective scaffold for oral language development. Nearly two-thirds of participants perceived measurable improvement in their speaking skills, suggesting that interactive AI conversations provide additional opportunities for practice beyond the classroom.

The relatively high proportion of “help somewhat” responses suggests that AI dialogue practice may produce incremental rather than immediate gains. This outcome is consistent with communicative language learning theory, which emphasizes that speaking competence develops gradually through repeated exposure, rehearsal, and feedback. AI tools likely support process by enabling low-anxiety, on-demand conversational practice and immediate corrective feedback.

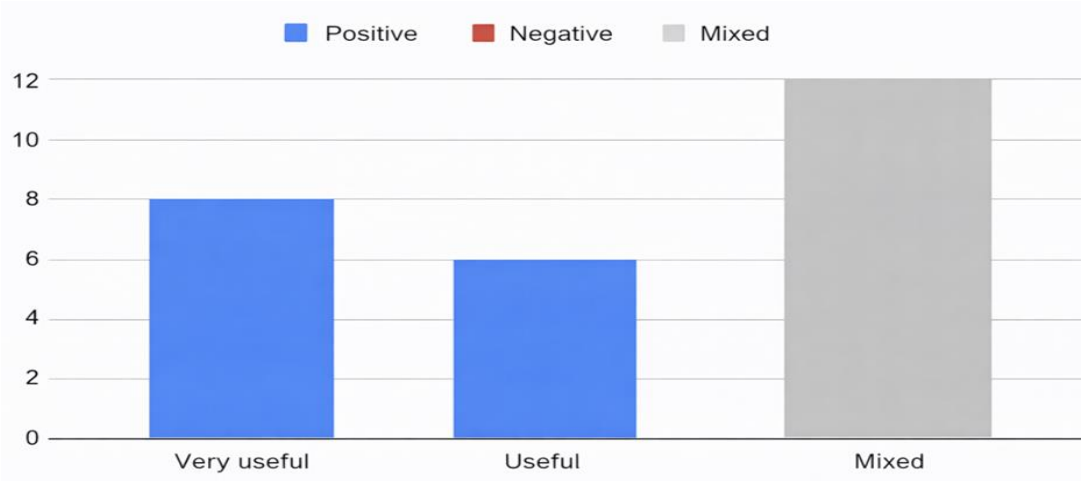
The 29,4% strong positive responses demonstrate that there is a substantial subgroup of learners. AI dialogues significantly enhance fluency, lexical retrieval, and confidence. These benefits may stem from increased speaking time, individualized pacing, and the absence of social pressure commonly associated with peer interaction.

However, the presence of 35,3% mixed responses indicates variability in perceived effectiveness. This may reflect differences in learners’ proficiency levels, technological familiarity, or the authenticity of AI-generated conversations. To maximize learning outcomes, AI dialogues could be supplemented with structured prompts, pronunciation feedback, and task-based scenarios that mirror real-life communication.

Overall, the findings support the integration of AI-based conversational tools as complementary speaking practice mechanisms. Rather than replacing teacher- led instruction, such tools function as adaptive rehearsal environments that extend opportunities for oral production and promote learner autonomy.

Figure 6.

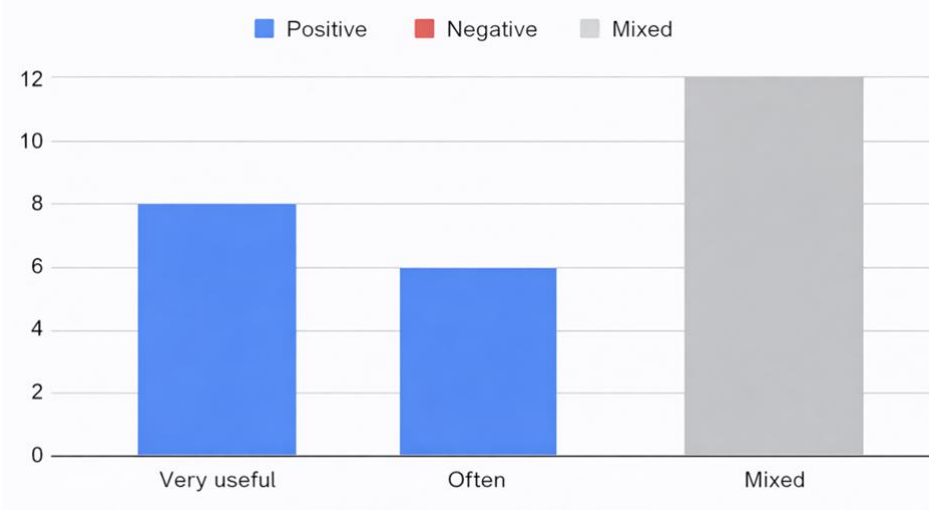
How useful are automatic writing checks.



Students' evaluations of the usefulness of automatic writing checks (grammar, vocabulary suggestions, and writing tips) are presented in Fig.6. the distribution of responses demonstrates generally favorable attitudes toward AI-assisted writing support tools. Specifically, 8 respondents rated the feature as very useful, while 11 students considered it useful. Overall, 19 out of 31-34 respondents expressed positive perceptions of automatic writing feedback, whereas roughly 35-40% indicated moderate or uncertain usefulness.

Figure 7.

Completed tasks are adjusted to language proficiency.

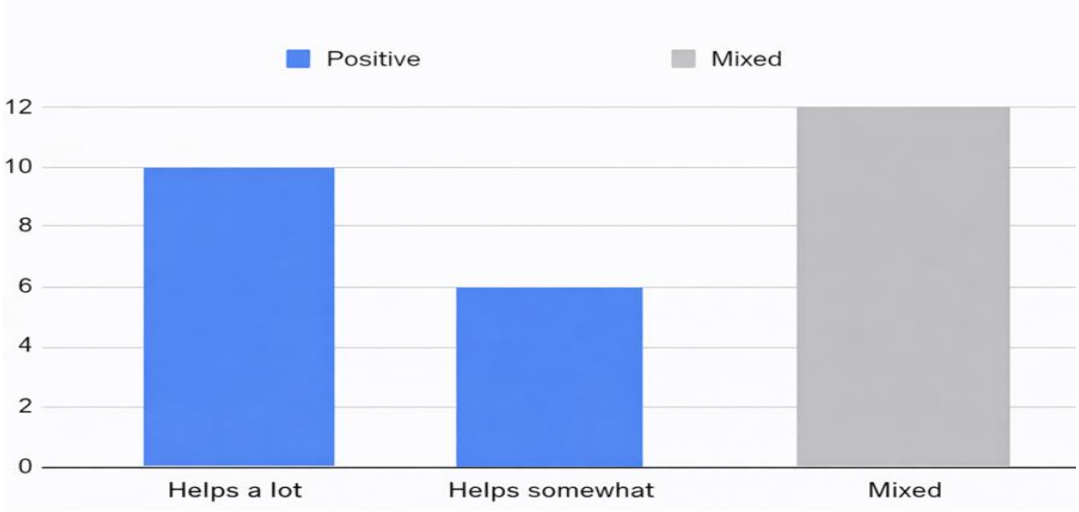


The results indicate that adaptive or level-adjusted tasks are generally perceived as beneficial, with more than 60% of learners reporting consistent personalization. This suggests that the instructional design and AI-supported

adaptation mechanisms effectively accommodate heterogeneous proficiency levels in the classroom.

Figure 8.

The app helps study independently.

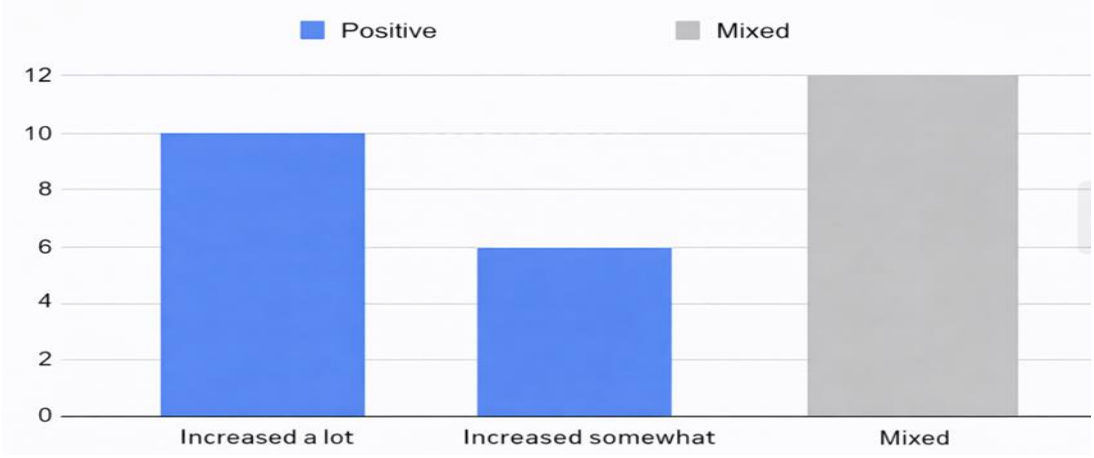


The findings indicate that the application effectively facilitates self-directed learning, with more than 60% of participants acknowledging that it supports independent study either strongly or moderately. This suggests that the integration of AI-powered tools, automated feedback, and interactive practice creates conditions that enable learners to engage with language content beyond the traditional classroom environment.

The 38,7% mixed responses highlight areas for improvement. Some students may still require teacher guidance for complex tasks, clarification of instructions, or motivational support. Consequently, the application may function best as a blended – learning complement, rather than a complete substitute for instructor involvement.

Figure 9.

The “SayLess” has increased motivation to learn English.



The findings suggest that the platform positively influences learner motivation, with nearly two-thirds of participants reporting increased enthusiasm for studying English. Motivation is a critical predictor of language acquisition success;

therefore, these results highlight the pedagogical value of AI-enhanced learning environments that provide interactive, personalized, and flexible practice opportunities.

Table 2.

Students' feedback on useful features and areas for improvements.

Category	Percentage (%)
General improvement suggestions	20
All features are useful	10
Everything is very useful	10
Everything is very good	10
App is great overall	10
More gamification needed	10
More grammar/tense testing	10
Uncertain / no specific opinion	10

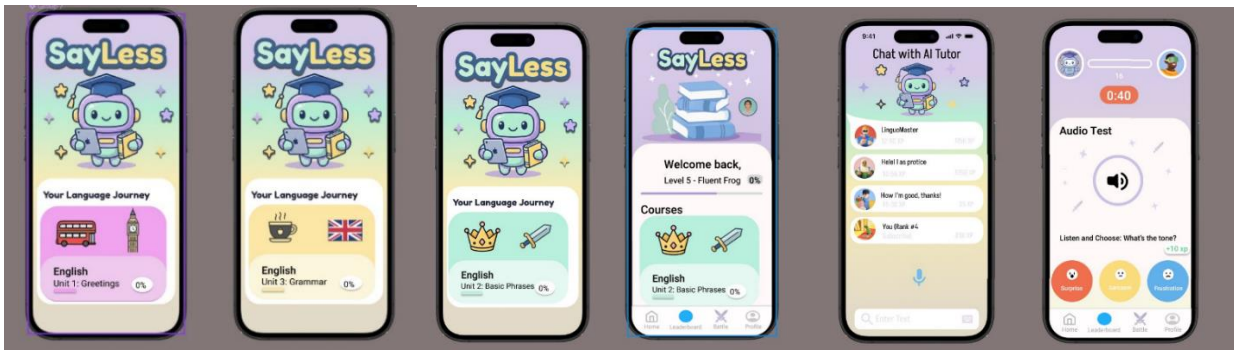
Students' responses regarding which application features they considered most useful and what aspects should be improved are presented in Table 2. The distribution demonstrates a wide range of opinions, with feedback spread relatively evenly across categories.

Each response category accounts for approximately 10-20% of the total sample, indicating the absence of a single dominant feature or concern. The largest proportion of responses (20%) relates to general improvement suggestions, while the remaining categories each represent 10% of participants.

Usability. Most students reported that the interface was intuitive and easy to navigate. Mobile accessibility increased study frequency.

Picture 1.

Sample characteristics.



Skill development.

- *Reading.* Students demonstrated improved comprehension of longer texts.
- *Writing.* Grammar errors decreased after AI-supported revision.

- *Speaking.* Confidence increased due to private opportunities.
- *Listening.* Recognition of accents improved.

Motivation. Participants indicated higher motivation due to personalized feedback and flexible learning schedules.

Table 2.

AI features integrated in the app

Skill	AI function	Pedagogical purpose
Reading	Adaptive text simplification	Gradual scaffolding
Speaking	AI dialogue simulation	Pronunciation practice
Listening	Accent recognition	Comprehension accuracy
Writing	Grammar & structure correction	Self-editing
System	Progressive hint reduction	Learner autonomy

Sustainability Indicators.

- reduced dependence on printed materials;
- fewer in-person tutoring sessions;
- scalable mobile access;
- lower financial costs.

DISCUSSION

The findings are consistent with previous research indicating that AI-supported environments increase learner motivation and engagement (Holmes W., 2022, 504-526). The observed growth in writing accuracy and speaking confidence aligns with studies on automated feedback systems and mobile language learning (Chen X., Zou D., Xie H., Cheng G., 2020, 1-16; Stockwell G., 2016). Moreover, the reduced reliance on traditional classroom resources demonstrates the sustainability benefits emphasized in global educational policy documents (UNESCO., 2023, 36).

Importantly, the student-led nature of the project confirms that innovation can emerge from local academic communities, supporting calls for participatory and inclusive educational technology development (Selwyn N., 2019).

The findings suggest that student-developed AI applications can provide meaningful contributions to sustainable education. The“SayLess” successfully integrates adaptive technology with pedagogical scaffolding, addressing several weaknesses of traditional language learning models.

Key contributions:

- Personalization
- Autonomy
- Accessibility

- Sustainability

The gradual withdrawal of support encourages independent learning, which is essential for long-term success.

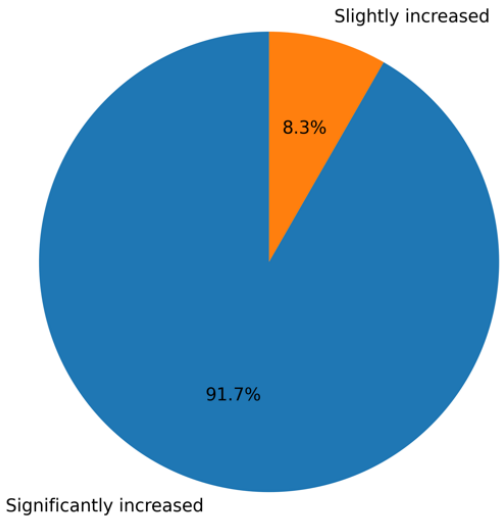
Limitations:

- small sample size;
- short evaluation period;
- limited platform availability.

Future research should include longitudinal studies and broader populations.

Pie Chart 1.

Overall learning motivation after using “SayLess”



The aggregated survey results demonstrate a predominantly positive learner perception of the *SayLess* application. The majority of participants reported increased motivation and perceived improvements in language skills after using the AI-powered platform. Only a small proportion indicated neutral or no noticeable change, while negative responses were minimal.

These findings suggest that adaptive AI support, personalized feedback, and mobile accessibility contribute significantly to learner engagement and autonomy. The results confirm that “SayLess”effectively promotes sustainable language learning by reducing dependence on traditional instruction and enabling independent practice.

Overall, the application shows strong potential as a scalable, cost-efficient, and environmentally sustainable solution for English language education in higher education contexts.

Overall Interpretation

Taken together, the findings indicate that the “SayLess” application functions as a comprehensive AI-assisted learning ecosystem that supports:

- frequent engagement

- accessible usability
- multi-skill development
- adaptive personalization
- independent study
- increased motivation

Importantly, the absence of negative evaluations across nearly all measures suggests broad acceptance and minimal perceived drawbacks. Rather than substituting traditional instruction, the application appears to operate most effectively as a blended-learning supplement, extending practice opportunities and providing individualized scaffolding alongside teacher guidance.

From a theoretical standpoint, the results align with principles of scaffolding, adaptive learning, self-regulated learning, and technology-enhanced language instruction. Practically, they demonstrate that AI tools can meaningfully enhance both cognitive and affective dimensions of language acquisition when thoughtfully integrated into the learning process.

Implications for practice

Based on the findings, several pedagogical recommendations emerge:

1. Integrate AI tools as supplementary practice environments rather than replacements for teachers.
2. Expand gamified and interactive elements to strengthen motivation.
3. Enhance adaptive mechanisms for more precise level matching.
4. Combine automated feedback with reflective and teacher-guided activities.
5. Provide onboarding guidance to ensure learners fully exploit available features.

CONCLUSION

The “SayLess”project illustrates how AI, mobile learning, and adaptive scaffolding can jointly promote sustainable, autonomous, and equitable language education. These outcomes support broader evidence that intelligent digital tools can democratize access to quality learning opportunities (Holmes W., 2022, 504-526; UNESCO., 2023, 36).

The results confirm that AI tools can enhance autonomy, reduce resource dependency, and support scalable language education aligned with global sustainability goals.

Future work will focus on Android deployment, advanced analytics, and expanded evaluation.

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