

Students' Perceptions of a Web-Based TOEIC Prediction Platform for Autonomous English Learning

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Abstract

This study explores the use of TOEIC Prediction Website as a digital learning platform in supporting students' English proficiency development and TOEIC preparation. The objective of the study is to explore the role of the platform as a learning support system and its motivating role in the students' involvement in a web-based learning environment. A descriptive quantitative was applied by using a questionnaire which was distributed to 72 students of the D-III English Study Program of Politeknik Negeri Sriwijaya. Descriptive analysis was performed on the data to explore students' perceptions of the usefulness of the platform, the learning support features and the role it played in encouraging engagement. The results suggest that the TOEIC Prediction Website is successful in facilitating learning by providing structured practice resources, immediate feedback, and flexible accessibility, thereby helping students to understand TOEIC test formats and enhancing their learning experience. The platform also fosters behavioral, cognitive, and emotional engagement through active participation, independent learning, and continuous motivation. These results suggest that incorporating instructional support and engagement elements in digital learning settings may help prepare students for standardized English proficiency tests. The research indicates that the TOEIC Prediction Website has a promising potential as an alternative learning tool for TOEIC preparation in higher education contexts.

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Introduction

English functions as a lingua franca in international communication, education, and professional settings (Rose & Galloway, 2019; Jenkins, 2014). In many contexts where English is learned as a foreign language, standardized tests are used to document proficiency for academic and employment-related purposes. The Test of English for International Communication (TOEIC), administered by Educational Testing Service, is widely used to assess listening and reading proficiency in workplace-oriented contexts (Educational Testing Service, 2022). Consequently, higher education institutions often encourage or require students to achieve specified TOEIC scores before graduation, creating a need for accessible and well-structured preparation resources. Recent studies further indicate that student engagement, instructional design, and perceived usability are central to the acceptance of technology-mediated learning resources (Bond et al., 2020; Zhou & Zhang, 2022; Pikhart et al., 2024).

TOEIC preparation can be challenging because learners must develop listening and reading proficiency while also becoming familiar with the test format, pacing requirements, and task types. Classroom time may provide limited opportunities for repeated practice, immediate feedback, and individual progress monitoring. In teacher-centered settings, students may also have fewer

opportunities to plan, monitor, and evaluate their own learning. Research on learner autonomy and self-regulated learning therefore emphasizes the value of flexible practice environments that allow learners to exercise greater control over their learning processes (Benson, 2017; Teng & Zhang, 2020). Related research also suggests that structured online activities and timely digital feedback can support self-reported engagement and monitoring processes (Al-Obaydi et al., 2023; B. Yu, 2023; Mejeh et al., 2024).

Learner autonomy refers to learners' capacity to take responsibility for setting goals, selecting strategies, monitoring progress, and evaluating outcomes. In second- and foreign-language education, autonomy positions students as active participants rather than solely as recipients of teacher-directed instruction. Digital environments can support this process by extending access to practice materials and feedback beyond scheduled classroom meetings, although access to technology alone does not demonstrate that autonomy or proficiency has improved (Lai, 2022; Kessler, 2018). Recent evidence nevertheless emphasizes that digital access supports autonomy only when learners actively regulate their strategies and receive appropriate instructional scaffolding (Pratiwi & Waluyo, 2023; Mohebbi, 2025; Janjić & Coventry, 2025; Rahim et al., 2023).

Despite the growing use of educational technology, TOEIC preparation in many institutions continues to rely heavily on classroom instruction and printed practice materials. These resources can familiarize students with test content but may offer limited opportunities for repeated independent practice and immediate performance feedback. A web-based platform may supplement existing instruction by making structured exercises and score information available outside the classroom; its educational value, however, must be evaluated using evidence proportionate to the research design.

At Sriwijaya State Polytechnic, TOEIC is administered in the final semester as part of the institution's graduation requirements. Internal records supplied by the institution reported an average student score of 388 out of 990 across departments in 2022. Because the source manuscript did not provide the score distribution or an institutional benchmark, this figure is reported descriptively rather than characterized as meeting or failing a particular proficiency standard. The institution also identified limited access to structured TOEIC practice outside class. The present study therefore examined how participating students perceived a web-based TOEIC Prediction platform developed to provide listening and reading practice, immediate score displays, and flexible access. The study addresses perceived usefulness and learning experience; it does not test whether the platform improves TOEIC scores or English proficiency.

[ADDED—RESEARCH-GAP]: Although recent studies have examined digital language learning, online engagement, feedback, and learner autonomy, important gaps remain. Much of the literature evaluates broad online-learning environments, commercial applications, or combinations of digital tools rather than a purpose-built web-based platform for TOEIC preparation. Existing studies also frequently discuss perceived usefulness or autonomy without clearly separating favorable user perceptions from objective proficiency and test-performance outcomes. Evidence from Indonesian polytechnic settings, particularly among students with limited prior TOEIC experience who use a locally developed platform combining immediate scoring and lecturer-monitoring features, therefore remains limited (Bond et al., 2020; Hidayat et al., 2022; Pratiwi & Waluyo, 2023; Pikhart et al., 2024; Ribahan & Muslimin, 2025).

[ADDED—NOVELTY-AND-CONTRIBUTION]: The novelty of this study lies in examining an institutionally developed TOEIC Prediction Website within a vocational higher-education context while explicitly distinguishing perceived usefulness, learning support, and engagement from measured TOEIC achievement. The study contributes preliminary user-centered evidence for refining web-based TOEIC preparation, interpreting immediate score displays cautiously, and designing subsequent validation and outcome studies.

[ADDED—RESEARCH-OBJECTIVE]: Accordingly, this study aims to describe participating students' perceptions of the platform's ease of use, learning support, engagement, and overall usefulness as a supplementary resource for autonomous TOEIC preparation.

Method

This study employed a descriptive quantitative survey design to examine participating users' perceptions of a web-based TOEIC learning platform. The research was conducted at Sriwijaya State Polytechnic among students in the D-III English Study Program who had accessed and used the TOEIC Prediction Website during the study period. A purposive convenience sampling strategy was used; therefore, the sample represents participating website users rather than a probability sample of the wider student population. The framework shown in Figure 1 organizes the areas explored—ease of use, learning support, engagement, and overall perception—and should not be interpreted as a causal model. No hypotheses or inferential relationships among constructs were tested.

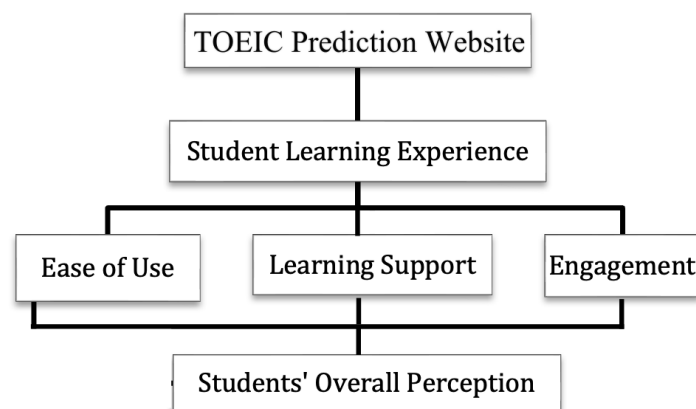


Figure 1. Descriptive framework for students' website-use experiences

Data were collected after students had used the website through a structured, study-specific questionnaire. The instrument comprised a demographic section and four substantive sections addressing ease of use, learning support, engagement, and overall perception. Items were rated on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Perceived usefulness concerned the extent to which students regarded the platform as relevant to TOEIC preparation; ease of use concerned accessibility and navigation; learning support concerned practice materials and feedback; and engagement concerned students' self-reported involvement while using the website.

The questionnaire was developed specifically for this study and was not adapted from a previously validated scale. The source manuscript did not report a formal expert content-validation procedure, construct-validation analysis, internal-consistency coefficient, exact administration dates, or the complete number of items in each substantive section. Accordingly, the instrument and findings are treated as exploratory and descriptive. The data were summarized using frequencies,

percentages, and mean scores; no inferential analyses were conducted. Table 1 presents the organizational structure of the questionnaire.

Table 1. Structure of the research questionnaire

Sections	Contents
Section A	Demographic Information
Section B	Ease of Use
Section C	Learning Support
Section D	Engagement
Section E	Overall Perception

The accessible population comprised 88 students enrolled in the D-III English Study Program in 2025 and preparing for the institutional TOEIC requirement. Students who had accessed and actively used the TOEIC Prediction Website were invited to complete the survey. Seventy-two students responded, representing 81.8% of the accessible program cohort. Because eligibility depended on website use and participation was voluntary, the achieved sample should not be interpreted as statistically representative of all students at the institution. The source manuscript did not report the number of eligible users who declined participation or whether respondents differed systematically from nonrespondents.

Table 2. Demographic profile of participants (N = 72)

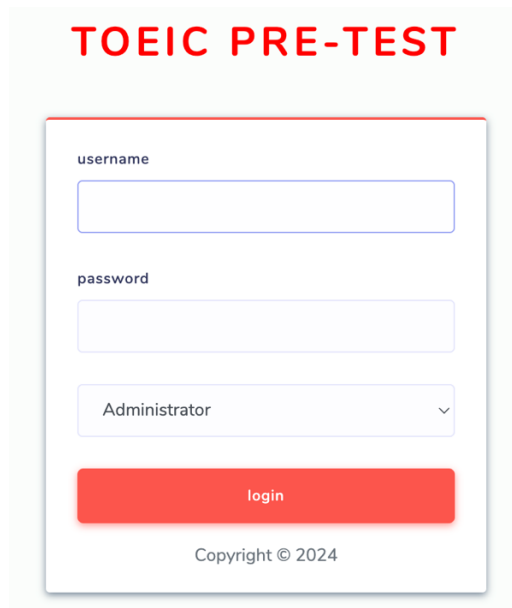
Variable	Category	Frequency	Percentage
Study Program	D-III English Study Program	72	100%
Gender	Male	28	38.9%
	Female	44	61.1%
TOEIC Experience	Have taken TOEIC before	13	18.1%
	Never taken TOEIC	59	81.9%

All participants were enrolled in the D-III English Study Program. Female students comprised 61.1% of the sample and male students 38.9%. Most respondents (81.9%) had not previously taken the TOEIC, whereas 18.1% reported prior TOEIC experience. These characteristics should be considered when interpreting the findings, particularly because the results reflect users’ initial perceptions rather than objective changes in test performance.

Result and Discussion

Overview of the TOEIC Learning Website

The TOEIC Prediction Website is a web-based platform designed to supplement TOEIC preparation through structured listening and reading exercises. Its development was informed by an earlier needs-analysis study reported in the proceedings of the FIRST 2024 conference (Yusri et al., 2025). The interface was designed to provide straightforward navigation, practice access, immediate score displays, and administrative monitoring. The present study evaluates users’ perceptions of these features rather than the technical quality or learning effectiveness of the platform.



The login page features a white background with a red header area. At the top, the text "TOEIC PRE-TEST" is displayed in red. Below this, there is a white box containing the login form. The form has two input fields: "username" and "password", both with blue borders. Below the password field is a dropdown menu currently showing "Administrator". At the bottom of the form is a red "login" button. Below the login button, the text "Copyright © 2024" is visible.

Figure 2. Login page of the TOEIC Prediction Website

Figure 2 shows the login page for student and administrator accounts. Administrators can manage user access and review available records. Figure 3 presents the homepage, which functions as the main navigation interface and provides access to the platform's learning sections.

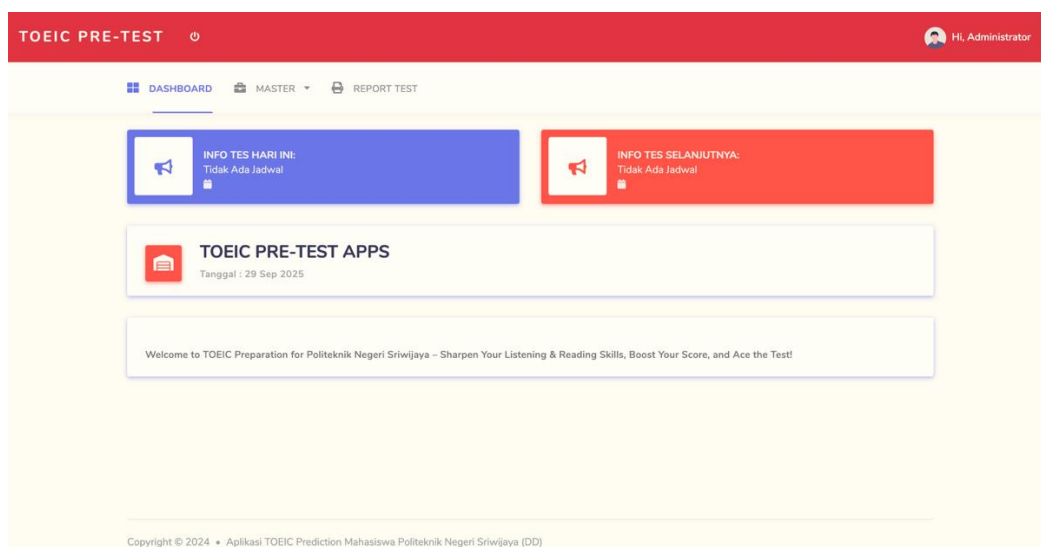


Figure 3. Homepage of the TOEIC Prediction Website

Figure 4 presents examples of the listening-practice interface, including photograph-based items (a) and question-response items (b). These activities expose users to selected TOEIC-style listening tasks and allow them to practice within the website environment.

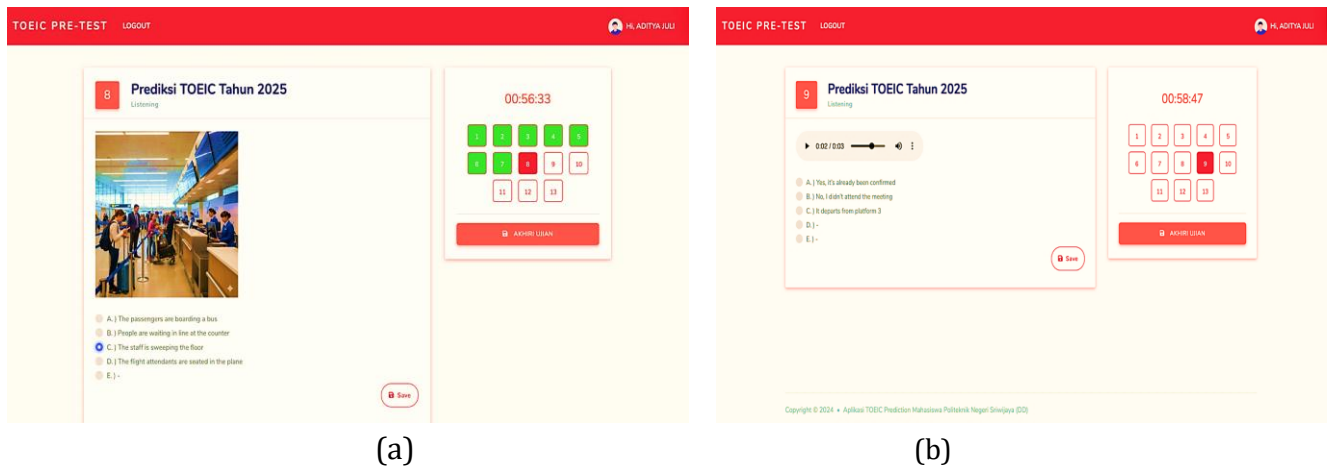


Figure 4. Listening-practice interfaces: photographs (a) and question–response items (b)

As shown in Figure 5, the platform displays listening, reading, and total scores immediately after practice is completed. This feature gives users prompt information about their performance. Although immediate score display may support self-monitoring, the present study did not examine whether students used the scores to change their learning strategies or whether repeated use improved later performance.

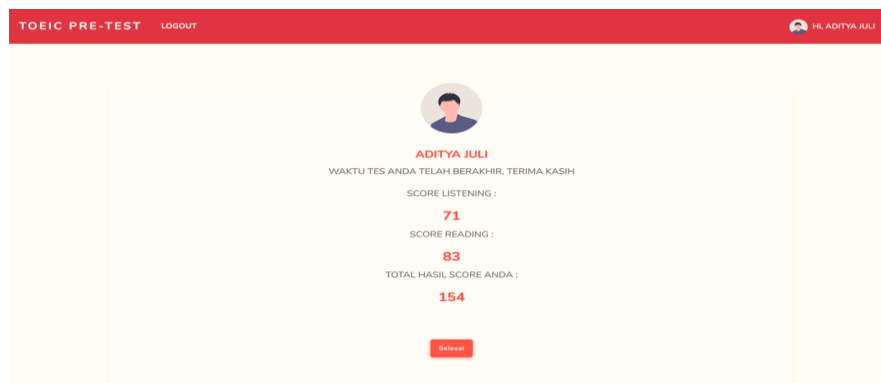


Figure 5. Scoring interface of the TOEIC Prediction Website

Figure 6 shows the administrator dashboard, which summarizes participating students' listening, reading, and total practice scores. The dashboard may help lecturers identify general performance patterns and students who may require additional guidance. The study did not analyze dashboard usage logs or evaluate how lecturers used these data in subsequent instruction.

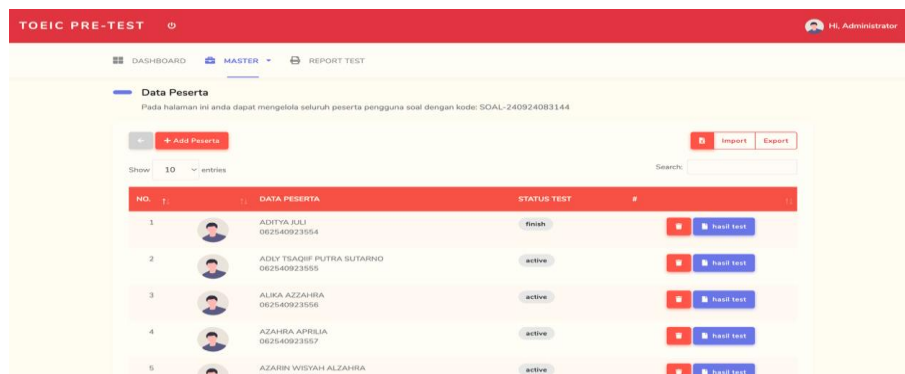


Figure 6. Administrator dashboard for monitoring TOEIC practice scores

Students’ Perceived Usefulness of the TOEIC Learning Website

Five questionnaire statements were used to describe students’ perceived usefulness of the TOEIC Prediction Website. The 72 participants responded on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). Table 3 presents the item means and the dispersion values reported in the source dataset.

All five usefulness items received mean ratings above 4.00. The item stating that the website was useful for TOEIC preparation received the highest mean (M = 4.30), followed by the item concerning the usefulness of real-time scoring for evaluating progress (M = 4.26). These results indicate strong agreement with the usefulness statements among participating users; they do not demonstrate objective learning improvement.

Participants also agreed that the platform helped them become familiar with the TOEIC format (M = 4.18) and offered opportunities for listening and reading practice (M = 4.21). The item concerning English-skill practice received a mean of 4.12. These ratings describe students’ perceptions of the platform as a supplementary resource and should not be interpreted as measured gains in TOEIC familiarity, English proficiency, or test performance.

Table 3. Students’ perceived usefulness of the TOEIC Prediction Website (N = 72)

No	Statement	Mean (μ)	SE	Interpretation
1	The TOEIC Prediction website helps me understand the TOEIC test format.	4.18	0.049	High
2	The practice exercises help improve my English skills.	4.12	0.052	High
3	The TOEIC Prediction website helps me practice listening and reading skills more frequently.	4.21	0.048	High
4	The real-time scoring feature helps me evaluate my learning progress.	4.26	0.045	Very High
5	The TOEIC Prediction website is useful for preparing for the TOEIC test.	4.30	0.044	Very High

The favorable usefulness ratings are consistent with research indicating that technology-mediated language environments can extend access to self-directed practice beyond the classroom (Lai, 2022). Immediate feedback is also theoretically relevant to self-regulated learning because it can provide information for monitoring progress and adjusting strategies (Hattie & Timperley, 2007). The present study, however, measured agreement with usefulness statements rather than actual feedback use or self-regulatory behavior.

Participants’ positive ratings also resemble findings from studies in which learners valued the accessibility and practicality of digital language-learning resources (Zulkepli et al., 2018). In TOEIC preparation, repeated exposure to item formats may be useful as a supplement to classroom instruction, but stronger claims require performance data and documented usage patterns.

Perceived Learning Support Provided by the TOEIC Prediction Website

In this study, learning support refers to students’ perceptions that the website provided accessible materials, practice opportunities, and performance information relevant to TOEIC preparation. The platform organized listening and reading activities within a web-based environment and displayed

scores after task completion. These features are consistent with common design principles for digital language-learning resources (Pikhart et al., 2024; Zhou & Zhang, 2022).

Alignment between practice activities and the target test can help learners become familiar with item types, task demands, and pacing. Nevertheless, the present survey did not independently evaluate content alignment, procedural knowledge, or test-taking strategy development. The platform should therefore be described as providing perceived learning support rather than as demonstrating improved readiness.

The real-time scoring mechanism provides immediate performance information after practice. Such information may support formative self-monitoring when learners understand the scores and use them to plan subsequent practice (Hattie & Timperley, 2007; Mejeh et al., 2024). This proposed mechanism was not directly measured in the present study.

The website can be accessed beyond scheduled class time, allowing users to revisit materials and repeat activities at their own pace. This flexibility is compatible with autonomous and self-regulated learning, but accessibility should not be equated with demonstrated learner autonomy (Mohebbi, 2025; Pratiwi & Waluyo, 2023).

Taken together, the organized activities, immediate score display, and flexible access were perceived positively by participating students. These features support the platform's use as a supplementary preparation resource in the studied context. Evidence of effectiveness would require validated measures, objective TOEIC outcomes, usage data, and an appropriate comparison or longitudinal design.

Student Engagement with the TOEIC Prediction Website

The questionnaire also addressed students' general engagement-related experiences with the website. Engagement is conceptually related to the quality of learning support, because accessible tasks and feedback may influence how learners participate in digital activities. However, the study relied on self-report and did not collect behavioral usage logs.

Student engagement in digital learning is often conceptualized as comprising behavioral, cognitive, and emotional dimensions (Bond et al., 2020). In this study, engagement was treated as a general self-reported area; separate validated scores for the three dimensions were not reported. References to behavioral, cognitive, and emotional engagement therefore provide an interpretive framework rather than distinct empirical results.

The repeated listening and reading exercises provide opportunities for active participation and familiarity with task formats. Such features may support behavioral involvement, but the study did not report login frequency, time on task, number of completed exercises, or persistence across sessions (Zhou & Zhang, 2022).

The organization of content by skill area and the immediate display of scores may encourage learners to focus attention, evaluate responses, and identify areas for further practice. These processes are theoretically related to cognitive engagement, although no direct measure of cognitive processing or strategy use was administered (Pikhart et al., 2024).

Real-time scores and progressive practice may also influence motivation and feelings of accomplishment. Nevertheless, motivation, anxiety, and emotional engagement were not measured with validated subscales, so the findings do not establish changes in these outcomes (Mohebbi, 2025).

Flexible access may help students continue practice outside the classroom and is compatible with learner-autonomy principles. Whether students actually used this flexibility to regulate the frequency, timing, and goals of their learning remains an important question for future research.

Overall, the platform contains design features that could support participation, monitoring, and flexible practice. The current evidence demonstrates positive perceptions among participating users, not verified increases in behavioral, cognitive, or emotional engagement.

Discussion

The study shows that students generally regarded the web-based TOEIC Prediction platform as a useful supplementary resource. All five usefulness items were rated highly ($M = 4.12\text{--}4.30$), with the strongest ratings for overall usefulness in TOEIC preparation ($M = 4.30$) and real-time scoring as a means of evaluating progress ($M = 4.26$). Students also valued repeated listening and reading practice, test-format familiarization, structured materials, and access beyond scheduled class time. These findings are relevant because 81.9% of respondents had not previously taken the TOEIC, suggesting that the platform may address an initial familiarization gap. Nevertheless, the results represent favorable perceptions rather than demonstrated gains in proficiency, TOEIC performance, learner autonomy, or multidimensional engagement. The discussion therefore distinguishes perceived affordances from verified learning effects.

The positive ratings accord with international research showing that acceptance of digital language learning depends on perceived usefulness, ease of use, self-efficacy, and alignment with immediate goals. Hsu and Lin (2022) extended technology-acceptance explanations by incorporating psychological factors, while Han et al. (2021) associated the perceived online environment with EFL engagement and self-efficacy. Zheng and Xiao (2024) linked online self-efficacy and self-regulation with course satisfaction, and Fang et al. (2025) showed that flow, self-efficacy, and behavioral intention help explain engagement in informal digital English learning. The current pattern is comparable because students most valued practical, goal-aligned functions. However, unlike these model-testing studies, this survey did not examine relationships among acceptance, self-efficacy, engagement, and continued use.

The strong rating for real-time scoring also aligns with evidence that personalized practice and prompt feedback can support strategy adjustment when embedded in an explicit regulatory process. Wang et al. (2021) found that a mobile system integrating recommendations, feedback, and an e-portfolio improved grammar-test performance. Ghorbani and Ebadi (2020) reported benefits from mobile-mediated instructor feedback, and Okumuş Dağdeler et al. (2020) emphasized immediate feedback in collocation learning. Zhang (2024) similarly demonstrated that learning-oriented digital feedback can enhance L2 performance, self-regulation, and engagement. These studies make the platform's scoring function pedagogically plausible, but the present survey did not determine whether students interpreted scores accurately, revised their plans, or improved on later tasks.

Research syntheses further support flexible practice while warning against equating positive attitudes with effectiveness. Mihaylova et al. (2022) identified beneficial effects of language-learning applications but also substantial bias and low evidence quality. Metruk (2024) found that mobile technologies can extend pronunciation practice, although outcomes depend on design and research rigor. Jeong (2022) associated mobile-assisted learning with self-directed experience and digital competence, whereas Viberg et al. (2023) stressed the neglected affective dimension of self-

regulation. Accordingly, flexible access and immediate scores may create favorable conditions for autonomous TOEIC preparation, but autonomy requires observable goal setting, persistence, emotional regulation, strategy use, and evaluation rather than access alone.

A contextualized interpretation is also necessary. Pérez-Paredes and Zhang (2022) argued for socially situated rather than device-centered mobile learning, and Kukulska-Hulme (2021) emphasized investigating how technology is embedded in learners' actual activities. Wang et al. (2024) likewise integrated technology, tasks, feedback, and contextual support within a pedagogical framework, while Mustaffa and Sailin (2022) showed that regional practices are shaped by infrastructure and teacher readiness. Studies of extramural learning indicate that activity type, frequency, and purpose influence engagement and effectiveness (Lee & Sylvén, 2021; Zhang et al., 2021), and psychological needs shape participation in online English courses (Zhou et al., 2022). Thus, the platform's contribution depends on sustained integration into guided TOEIC preparation.

The findings correspond with Indonesian evidence that learners value digital tools for accessibility, repeated practice, and reduced pressure. Among Indonesian vocational students, Bashori et al. (2022) reported positive evaluations of web-based speaking environments and their potential to reduce anxiety. Although the present platform targets listening and reading, both studies show that controlled digital environments can offer lower-risk rehearsal. Nuraeni et al. (2020) also found positive student perceptions of mobile-assisted English learning while documenting technical and implementation problems. Favorable ratings should therefore be considered together with connectivity, compatibility, interface stability, and clarity of instructions.

Other Indonesian studies underline the need for structured guidance. Menggo et al. (2022) showed that smartphone-assisted self-regulated learning supported speaking when students received an explicit method for organizing practice. Ningsih et al. (2022) found that teachers valued mobile technology but emphasized purposeful pedagogical adoption. Skill-specific studies reported benefits from Busuu-supported listening (Syafrizal & Septiawati, 2022) and authentic multimedia for learners requiring additional support (Yulian et al., 2022). The present study adds an institutional TOEIC context centered on test familiarization and score reporting, while confirming that equitable benefits require lecturer mediation, reliable access, and inclusive design.

Theoretically, the results indicate perceived technological and pedagogical affordances, not established autonomy or effectiveness. The usefulness and scoring ratings are compatible with technology acceptance, in which usefulness and ease of use influence engagement (Hsu & Lin, 2022), and with self-regulated learning, in which feedback may inform monitoring and strategy adjustment (Wang et al., 2021; Zheng & Xiao, 2024). Yet the full regulatory cycle was not measured. Platform features should therefore be treated as enabling conditions whose effects depend on self-efficacy, psychological needs, affective regulation, and actual use (Viberg et al., 2023; Zhou et al., 2022). Pedagogically, lecturers should combine access with goal-setting sheets, guided score interpretation, differentiated practice pathways, reflective logs, and feedback conferences so that scores become actionable information rather than isolated numbers.

Institutionally, the website should form part of an integrated assessment-support system rather than remain an optional add-on. Policies should require alignment with the TOEIC construct, accessibility across devices, validation of questionnaire and assessment data, transparent score interpretation, privacy protection, secure storage, and restrictions on high-stakes use of unvalidated prediction scores. Because digital learning can affect confidence, anxiety, and persistence, dashboard

data should support non-punitive guidance rather than surveillance or ranking. Periodic usability audits, lecturer training, technical support, and alternative access are also needed. These measures reflect contextualized frameworks that connect technology, pedagogy, and social setting (Pérez-Paredes & Zhang, 2022; Wang et al., 2024).

The study contributes a user-centered evaluation of an institutionally developed TOEIC Prediction platform in Indonesian vocational higher education, a context less visible than commercial-app or general mobile-learning research. Its novelty lies in identifying the affordances students valued most—real-time scores, structured listening and reading practice, test familiarization, and flexible access—while separating perceived usefulness from achievement. This distinction responds to warnings that favorable reactions and technological availability do not automatically demonstrate language gains (Kukulska-Hulme, 2021; Mihaylova et al., 2022). The study establishes a baseline for linking validated perception measures, server analytics, feedback use, self-regulatory behavior, and objective TOEIC outcomes in subsequent evaluation.

The findings are limited by the single-program setting, purposive convenience sampling, voluntary participation, predominance of first-time TOEIC takers, and a study-specific questionnaire without reported validation or reliability evidence. Self-selection, acquiescence, novelty, and social-desirability biases may have inflated ratings. No usage logs, qualitative explanations, pretest–posttest scores, or comparison condition were available; therefore, causal effects and relationships among usefulness, engagement, autonomy, and performance cannot be inferred. Future research should validate the instrument, use mixed methods and multisite samples, combine analytics with interviews or learning journals, and test objective listening and reading gains. Longitudinal or experimental designs should compare guided and unguided use and examine whether real-time scores strengthen strategic self-regulation, reduce test anxiety, or merely encourage repeated task completion.

Conclusion

This study described students' perceptions of a web-based TOEIC Prediction platform used as a supplementary preparation resource at Sriwijaya State Polytechnic. Participating users rated the five reported usefulness statements positively, particularly the platform's overall relevance to TOEIC preparation and its real-time scoring feature. Students also reported favorable experiences with structured practice and flexible access. The findings should be interpreted as exploratory evidence of user perception rather than proof that the platform improves English proficiency, TOEIC scores, learner autonomy, or multidimensional engagement. Future research should employ a validated instrument, report complete item- and scale-level results, collect server-based usage data, and compare objective TOEIC performance across time or against an appropriate comparison group. Such designs would clarify whether the platform's perceived benefits translate into measurable learning outcomes.

References

- Al-Hawamleh, M. S., Alazemi, A. F., & Al-Jamal, D. A. H. (2022). Digital portfolio and self-regulation in speaking tasks. *Asian-Pacific Journal of Second and Foreign Language Education*, 7, Article 14. <https://doi.org/10.1186/s40862-022-00141-w>
- Al-Obaydi, L. H., Shakki, F., Tawafak, R. M., Pikhart, M., & Uгла, R. L. (2023). What I know, what I want to know, what I learned: Activating EFL college students' cognitive, behavioral, and emotional engagement

- through structured feedback in an online environment. *Frontiers in Psychology*, 13, Article 1083673. <https://doi.org/10.3389/fpsyg.2022.1083673>
- Bashori, M., van Hout, R., Strik, H., & Cucchiarini, C. (2022). Web-based language learning and speaking anxiety. *Computer Assisted Language Learning*, 35(5–6), 1058–1089. <https://doi.org/10.1080/09588221.2020.1770293>
- Benson, P. (2011). *Teaching and researching autonomy in language learning* (2nd ed.). Routledge. <https://doi.org/10.4324/9781315833767>
- Bond, M., Buntins, K., Bedenlier, S., Zawacki-Richter, O., & Kerres, M. (2020). Mapping research in student engagement and educational technology in higher education: A systematic evidence map. *International Journal of Educational Technology in Higher Education*, 17, Article 2. <https://doi.org/10.1186/s41239-019-0176-8>
- Educational Testing Service. (2022). *TOEIC listening and reading test examinee handbook*. <https://www.ets.org/toEIC/test-takers/prepare.html>
- Fang, F., Meng, Y., Tang, L., & Cui, Y. (2025). The impact of informal digital learning of English (IDLE) on EFL learners' engagement: Mediating roles of flow, online self-efficacy, and behavioral intention. *Behavioral Sciences*, 15(7), Article 851. <https://doi.org/10.3390/bs15070851>
- Ghorbani, N., & Ebadi, S. (2020). Exploring learners' grammatical development in mobile-assisted language learning. *Cogent Education*, 7(1), Article 1704599. <https://doi.org/10.1080/2331186X.2019.1704599>
- Han, J., Geng, X., & Wang, Q. (2021). Sustainable development of university EFL learners' engagement, satisfaction, and self-efficacy in online learning environments: Chinese experiences. *Sustainability*, 13(21), Article 11655. <https://doi.org/10.3390/su132111655>
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81–112. <https://doi.org/10.3102/003465430298487>
- Hidayat, D. N., Lee, J. Y., Mason, J., & Khaerudin, T. (2022). Digital technology supporting English learning among Indonesian university students. *Research and Practice in Technology Enhanced Learning*, 17, Article 23. <https://doi.org/10.1186/s41039-022-00198-8>
- Hsu, H.-T., & Lin, C.-C. (2022). Extending the technology acceptance model of college learners' mobile-assisted language learning by incorporating psychological constructs. *British Journal of Educational Technology*, 53(2), 286–306. <https://doi.org/10.1111/bjet.13165>
- Janjić, P., & Coventry, K. R. (2025). Digital language learning resources: Analysis of software features and usage patterns in UK schools. *Frontiers in Education*, 10, Article 1532802. <https://doi.org/10.3389/feduc.2025.1532802>
- Jenkins, J. (2014). *English as a lingua franca in the international university: The politics of academic English language policy*. Routledge. <https://doi.org/10.4324/9780203798157>
- Jeong, K.-O. (2022). Facilitating sustainable self-directed learning experience with the use of mobile-assisted language learning. *Sustainability*, 14(5), Article 2894. <https://doi.org/10.3390/su14052894>
- Kessler, G. (2018). Technology and the future of language teaching. *Foreign Language Annals*, 51(1), 205–218. <https://doi.org/10.1111/flan.12318>
- Kukulska-Hulme, A. (2021). Reflections on research questions in mobile-assisted language learning. *Journal of China Computer-Assisted Language Learning*, 1(1), 28–46. <https://doi.org/10.1515/jccall-2021-2002>
- Lai, C. (2022). Learner autonomy and technology. In N. Ziegler & M. González-Lloret (Eds.), *The Routledge handbook of second language acquisition and technology* (pp. 370–381). Routledge. <https://doi.org/10.4324/9781351117586-32>
- Lee, J. S., & Sylvén, L. K. (2021). The role of informal digital learning of English in Korean and Swedish EFL learners' communication behaviour. *British Journal of Educational Technology*, 52(3), 1279–1296. <https://doi.org/10.1111/bjet.13082>
- Little, D. (2015). Learner autonomy and second/foreign language learning. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition: An introduction* (2nd ed., pp. 123–140). Routledge.
- Mejeh, M., Sarbach, L., & Hascher, T. (2024). Effects of adaptive feedback through a digital tool: A mixed-methods study on the course of self-regulated learning. *Education and Information Technologies*, 29, 1–43. <https://doi.org/10.1007/s10639-024-12510-8>
- Menggo, S., Darong, H. C., & Semana, I. L. (2022). Self-regulated learning method through smartphone assistance in promoting speaking ability. *Journal of Language Teaching and Research*, 13(4), 772–780. <https://doi.org/10.17507/jltr.1304.10>

- 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>
- Mohebbi, A. (2025). Enabling learner independence and self-regulation in language education using AI tools: A systematic review. *Cogent Education*, 12(1), Article 2433814. <https://doi.org/10.1080/2331186X.2024.2433814>
- Mustaffa, N. U. C., & Sailin, S. N. (2022). A systematic review of mobile-assisted language learning research trends and practices in Malaysia. *International Journal of Interactive Mobile Technologies*, 16(5), 169–198. <https://doi.org/10.3991/ijim.v16i05.28129>
- Ningsih, S. K., Suherdi, D., & Purnawarman, P. (2022). Secondary school teachers' perceptions of mobile technology adoption in English as a foreign language learning: Trends and practices. *International Journal of Education and Practice*, 10(2), 160–170. <https://doi.org/10.18488/61.v10i2.3004>
- Nuraeni, C., Carolina, I., & Supriyatna, A. (2020). Mobile-assisted language learning (MALL): Students' perception and problems towards mobile learning in English language. *Journal of Physics: Conference Series*, 1641(1), Article 012027. <https://doi.org/10.1088/1742-6596/1641/1/012027>
- Okumuş Dağdeler, K., Konca, M. Y., & Demiröz, H. (2020). The effect of mobile-assisted language learning (MALL) on EFL learners' collocation learning. *Journal of Language and Linguistic Studies*, 16(1), 489–509. <https://doi.org/10.17263/jlls.712891>
- Öztürk, M., Yüce, E., & Mihçı Türker, P. (2025). Online peer feedback versus online teacher feedback? Effect of online feedback on students' self-regulated learning. *Technology, Knowledge and Learning*, 30, 769–787. <https://doi.org/10.1007/s10758-024-09812-8>
- Pérez-Paredes, P., & Zhang, D. (2022). Mobile-assisted language learning: Scope, praxis and theory. *Porta Linguarum, Monograph 4*, 11–25. <https://doi.org/10.30827/portalin.vi.21424>
- Pikhart, M., Klimova, B., & Al-Obaydi, L. H. (2024). Exploring university students' preferences and satisfaction in utilizing digital tools for foreign language learning. *Frontiers in Education*, 9, Article 1412377. <https://doi.org/10.3389/educ.2024.1412377>
- Pratiwi, D. I., & Waluyo, B. (2023). Autonomous learning and the use of digital technologies in online English classrooms in higher education. *Contemporary Educational Technology*, 15(2), Article ep423. <https://doi.org/10.30935/cedtech/13094>
- Rahim, F. R., Sari, S. Y., Putri, R. E., Andini, K., & Dier, M. (2023). Science teachers' perceptions of web-based learning. *Indonesian Journal of Educational Research and Review*, 6(1), 66–76. <https://doi.org/10.23887/ijerr.v6i1.51644>
- Ribahan, & Muslimin, A. I. (2025). Navigating digital learning: Autonomy among EFL students in Indonesia. *Edelweiss Applied Science and Technology*, 9(2), 1034–1048. <https://doi.org/10.55214/25768484.v9i2.4644>
- Rokeman, N. R. M. (2024). Likert measurement scale in education and social sciences: Explored and explained. *EDUCATUM Journal of Social Sciences*, 10(1), 77–88. <https://doi.org/10.37134/ejoss.vol10.1.7.2024>
- Rose, H., & Galloway, N. (2019). *Global Englishes for language teaching*. Cambridge University Press. <https://doi.org/10.1017/9781316678343>
- Syafrizal, S., & Septiawati, T. (2022). Enhancing listening skills of EFL Indonesian learners through Busuu application. *International Journal of English Language and Literature Studies*, 11(3), 147–154. <https://doi.org/10.55493/5019.v11i3.4615>
- Teng, L. S., & Zhang, L. J. (2020). Empowering learners in the second/foreign language classroom: Can self-regulated learning strategies-based writing instruction make a difference? *Journal of Second Language Writing*, 48, Article 100701. <https://doi.org/10.1016/j.jslw.2019.100701>
- Viberg, O., Kukulska-Hulme, A., & Peeters, W. (2023). Affective support for self-regulation in mobile-assisted language learning. *International Journal of Mobile and Blended Learning*, 15(2), 1–15. <https://doi.org/10.4018/IJMBL.318226>
- Wang, X., Chen, J., & Zhang, T. (2021). Facilitating English grammar learning by a personalized mobile-assisted system with a self-regulated learning mechanism. *Frontiers in Psychology*, 12, Article 624430. <https://doi.org/10.3389/fpsyg.2021.624430>

- Wang, X., Hamat, A., & Ng, L. S. (2024). Designing a pedagogical framework for mobile-assisted language learning. *Heliyon*, 10(7), Article e28102. <https://doi.org/10.1016/j.heliyon.2024.e28102>
- Wijaya, H., Sumule, L., Weismann, I. T. J., Supartini, T., & Tari, E. (2021). Online learning evaluation in higher education: Study survey method. *Journal of Education Technology*, 5(3), 401–408. <https://doi.org/10.23887/jet.v5i3.35466>
- Yang, W., & Ying, Z. (2026). Exploring the potential of gamified reading: The effects of Duolingo on L2 reading, self-efficacy, and learner experiences in a Chinese university EFL context. *BMC Psychology*, 14, Article 14. <https://doi.org/10.1186/s40359-025-03180-3>
- Yu, B. (2023). Self-regulated learning: A key factor in the effectiveness of online learning for second language learners. *Frontiers in Psychology*, 13, Article 1051349. <https://doi.org/10.3389/fpsyg.2022.1051349>
- Yu, L.-T. (2023). A comparison of the autonomous use of technology for language learning for EFL university students of different proficiency levels. *Sustainability*, 15(1), Article 606. <https://doi.org/10.3390/su15010606>
- Yulian, R., Ruhama', U., & Utami, P. Y. (2022). EFL slow learners' perception in speaking with authentic multimedia-assisted language learning. *International Journal of Language Education*, 6(2), 183–195. <https://doi.org/10.26858/ijole.v6i2.21511>
- Yusri, Y., Ningrum, S., & Mulyadi, A. I. (2025). Need analysis for a web-based “TOEIC Prediction” application to optimize students' English proficiency. In *Proceedings of the 8th FIRST 2024 International Conference on Global Innovations (FIRST-T3 2024)* (pp. 51–61). Atlantis Press. https://doi.org/10.2991/978-2-38476-396-2_7
- Zhang, M. (2024). Enhancing self-regulation and learner engagement in L2 speaking: Exploring the potential of intelligent personal assistants within a learning-oriented feedback framework. *BMC Psychology*, 12, Article 421. <https://doi.org/10.1186/s40359-024-01917-0>
- Zhang, R., Zou, D., & Cheng, G. (2021). Target languages, types of activities, engagement, and effectiveness of extramural language learning. *PLOS ONE*, 16(6), Article e0253431. <https://doi.org/10.1371/journal.pone.0253431>
- Zheng, Y., & Xiao, A. (2024). A structural equation model of online learning: Investigating self-efficacy, informal digital learning, self-regulated learning, and course satisfaction. *Frontiers in Psychology*, 14, Article 1276266. <https://doi.org/10.3389/fpsyg.2023.1276266>
- Zhou, S., Zhu, H., & Zhou, Y. (2022). Impact of teenage EFL learners' psychological needs on learning engagement and behavioral intention in synchronous online English courses. *Sustainability*, 14(17), Article 10468. <https://doi.org/10.3390/su141710468>
- Zhou, T., & Zhang, W. (2022). Effectiveness of online or blended language learning: A systematic review. *Sustainability*, 14(12), Article 7303. <https://doi.org/10.3390/su14127303>
- Zulkepli, N., Ahmad Tajuddin, S. N. A., Atan, A., & Khaja, F. N. M. (2018). A study on autonomous use of technology for language learning among ESL learners at tertiary level. *International Journal of Academic Research in Business and Social Sciences*, 8(11), 1093–1107. <https://doi.org/10.6007/IJARBS/v8-i11/4986>