

GAIOLA: An AI-assisted rehearsal platform for output-oriented EFL oral presentation practice

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Abstract—The increasing use of generative AI for script writing in EFL contexts has raised concerns about learners' limited engagement in oral rehearsal and productive language use. To address this gap, this paper introduces GAIOLA, Generative AI-supported Oral Language Activities, an AI-assisted rehearsal platform designed to support EFL learners' oral presentation development through iterative practice and feedback. Grounded in Swain's Output Hypothesis and Schmidt's Noticing Hypothesis, GAIOLA scaffolds noticing, hypothesis testing, and metalinguistic reflection by integrating text-to-speech modeling, speech transcription, pronunciation visualization, AI-generated assessments, and adaptive rephrasing support. The system enables learners to refine both written scripts and spoken delivery through repeated rehearsal cycles, while providing instructors with tools for activity design, feedback customization, and learning analytics. This paper presents the pedagogical rationale, system design, and learner-teacher interfaces of GAIOLA, and outlines a future classroom-based evaluation plan in General English and ESP contexts. GAIOLA positions AI as an output-oriented speaking scaffold rather than a content-generation shortcut.

Keywords—*AI-assisted language learning, EFL speaking, oral presentation rehearsal, assessment feedback, multilingual support system*

I. INTRODUCTION

With the increasing integration of generative AI into academic learning, English-as-a-foreign-language (EFL) learners frequently rely on AI-generated presentation scripts [1][2]. For educators, AI mitigates long-standing constraints of traditional classroom instruction, including limited instructional resources and one-size-fits-all pedagogical approaches, by enabling immediate feedback delivery and supporting dynamic, data-driven learning environments. For learners, AI enhances the depth and quality of learning experiences through adaptive content tailored to individual proficiency levels, learning needs, and preferences, thereby fostering greater learner autonomy and more effective personalized learning pathways [3][4][5].

Although such tools may improve textual accuracy and pronunciation correctness [6], they often limit learners' opportunities to engage in productive language use and oral rehearsal. According to Swain's Output Hypothesis, language development is facilitated when learners are pushed to produce output that requires them to notice gaps in their interlanguage, test linguistic hypotheses through production, and engage in metalinguistic reflection [7][8][9]. Similarly, Schmidt's Noticing Hypothesis emphasizes that conscious attention to linguistic form is a necessary condition for second language acquisition [10][11]. However, conventional presentation preparation practices and AI-assisted script generation rarely provide structured opportunities for these output-driven and noticing-based processes.

GAIOLA (<https://gaiola3.vipresearch.ca>) is designed to operationalize the core mechanisms of the Output Hypothesis and the Noticing Hypothesis by embedding noticing, hypothesis testing, and reflective processing into an iterative rehearsal cycle for EFL oral presentations. Rather than functioning as a content generator, the platform scaffolds learners' spoken output and supports active engagement with linguistic form and oral performance.

First, GAIOLA facilitates the noticing and triggering function by making discrepancies between learners' intended output and actual performance perceptually salient. Through text-to-speech modeling, learners are exposed to target-like pronunciation, stress patterns, and prosodic features, which serve as benchmarks for comparison. During oral practice, AI-based transcription and pronunciation analysis highlight mispronounced lexical items in red and problematic expressions in yellow. This visual feedback draws learners' attention to form-related gaps, triggering awareness of linguistic features that require modification [8][12]. From a Noticing Hypothesis perspective, these salience-enhancing mechanisms promote conscious registration of phonological and lexical features that might otherwise remain unnoticed in spontaneous speech

[10][11]. Such form-focused noticing is critical for transforming input and output experiences into learning opportunities.

Second, GAIOLA supports the hypothesis-testing function by enabling learners to experiment with revised linguistic forms and delivery strategies across repeated rehearsal cycles. After receiving feedback, learners can modify word choices, sentence structures, and pronunciation strategies, and immediately test these revisions through subsequent recordings. This process allows learners to evaluate whether alternative forms lead to improved intelligibility, fluency, and delivery quality [9]. Through repeated noticing of errors and subsequent production attempts, learners engage in cyclic form-meaning mapping processes that are central to both output-driven learning and attention-based acquisition mechanisms [11].

Third, GAIOLA promotes the metalinguistic and reflective function by providing explicit feedback and performance histories that encourage learners to consciously analyze their language use. Script-level feedback supports reflection on lexical appropriateness and spoken discourse conventions, while performance-level feedback fosters awareness of pronunciation patterns, fluency breakdowns, and delivery issues [8][9]. The accumulation of performance data over time further enables learners to monitor progress, identify recurring errors, and develop strategic awareness of their oral communication strengths and weaknesses. This reflective dimension aligns with Schmidt’s emphasis on sustained attention and awareness as foundations for long-term language development [11].

From a pedagogical perspective, GAIOLA also extends the Output Hypothesis and Noticing Hypothesis to instructional practice by providing teachers with tools to design speaking tasks that emphasize productive output, perceptual salience, and formative feedback. Instructors can create presentation activities, customize feedback prompts aligned with instructional goals, and monitor learners’ developmental trajectories. This supports targeted intervention and facilitates output-driven and attention-oriented speaking instruction in EFL classrooms [9][11][13].

Overall, GAIOLA operationalizes Swain’s Output Hypothesis and Schmidt’s Noticing Hypothesis in an AI-supported speaking environment by embedding noticing, hypothesis testing, and metalinguistic reflection into presentation rehearsal practices. By transforming AI from a passive writing aid into an active output scaffold, the platform promotes meaningful spoken production, sustained attention to linguistic form, and improved oral presentation competence among EFL learners [9][11].

II. GAIOLA APPLICATION

This section introduces GAIOLA with both learner and teacher use cases. Teachers can create any number of oral language activities for their courses. When students use GAIOLA, they can freely add an activity into their dashboard with the registration token given by their teachers. More details are explained below.

A. Learner interface

When learners sign in, the first interface the learner encounters is a curated set of activities created by their

instructors as seen in Figure 1. Each activity is uniquely structured, as teachers can modify and tailor the content to align with the specific learning objectives they have established for their students; this process will be discussed further in later sections. To join these classes, students use invite codes provided by their teachers, as these codes serve as the sole mechanism for accessing the assigned activities.

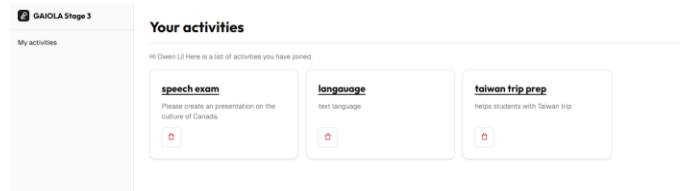


Fig. 1. Student account front page

After a student has accessed an activity, they are presented with a webpage similar to the one shown in Figure 2. In the example, the student is practicing English using Taipei 101 as their chosen trip destination. To begin, the student enters text into the script input box and then practices speaking it by clicking the microphone icon in the Practice Your Script area. As they speak, the system provides real-time feedback: correctly spoken phrases appear in green, while errors are highlighted in yellow. These highlights correspond directly to the red-marked segments in the Practice Your Script panel, where the captured spoken output is displayed. This immediate comparison helps learners quickly identify differences between what they intended to say and what they actually produced.

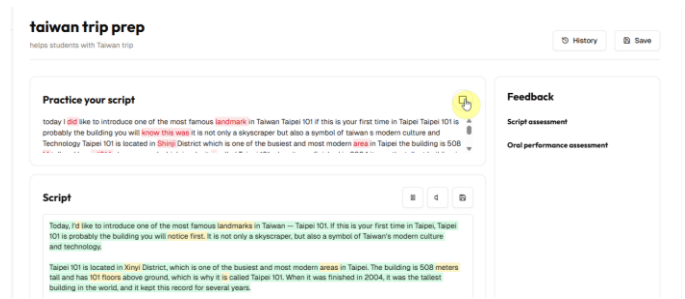


Fig. 2. Example of a student utilizing functions of an activity

There are additional functions that support the student experience, which will be briefly outlined here. First, the History feature (located in the top-right corner; see Figure 2) allows learners to revisit previously practiced scripts, enabling ongoing review and comparison of their progress. In addition, the speaker function positioned above the script area plays a native rendition of the student’s input text, providing accurate pronunciations that could be a tool for the student when they practice their oral performance. The system is also compatible with multiple major languages—including but not limited to Mandarin, Japanese, French, and others—and can automatically identify the language used in the script to ensure broader accessibility and adaptability for diverse learners.

Once the student has finished submitting their spoken input through the microphone, they can request an assessment generated by the backend Generative AI APIs, based on the instructional requirements defined by the teacher in the activity

settings. By clicking the Assessment button in the feedback area on the right side of the interface, two forms of evaluation are returned: a script assessment and an oral performance assessment. As illustrated in Figure 3, the script assessment offers targeted feedback on the student's written text, addressing grammar, sentence structure, and overall clarity. The oral performance assessment provides complementary guidance on pronunciation and highlights any spoken errors.

Feedback

Script assessment

The script is well-structured and informative. To improve it further, consider these points:

Vary the sentence structure to make it more engaging. For example, instead of starting consecutive sentences with "It is," try using different sentence beginnings.

While "Taipei 101" is mentioned frequently, consider using synonyms occasionally (e.g., "the tower," "the skyscraper") to avoid repetition.

Oral performance assessment

Your introduction is a good start! Try to enunciate the "d" in "101" for better clarity. When you say "landmarks," focus on pronouncing the "s" at the end. For the sentence "If this is your first time in Taipei, Taipei 101 is probably the building you will notice first," try to speak it a bit slower.

In the second paragraph, the pronunciation of "Xinyi" might need a bit of practice; try listening to native speakers. Focus on the plural pronunciation of "areas." The word "meters" needs a clear pronunciation, emphasizing the "s" at the end. Regarding "101 floors," slightly elongate the "o" in "floors." Also, in the same paragraph, ensure you pronounce "is" clearly.

Fig. 3. Generated output of the assessment function

Another key feature that supports students' linguistic practice is the rephrasing option. After completing their microphone-based practice, learners can request rephrased versions of words or phrases they found challenging in their script. These rephrasing options are also defined by the teacher and will be discussed in a later section. Based on the prompts associated with each rephrasing type, the backend Generative AI APIs generate appropriate alternative expressions for the student to select from, as shown in Figure 4.

Script

Today, I'd like to introduce one of the most famous landmarks in Taiwan — Taipei 101. If this is your first time in Taipei, Taipei 101 is probably the building you will notice first. It is not only a skyscraper, but also a symbol of Taiwan and technology.

Taipei 101 is the tallest building in the world. It is one of the most modern areas in Taipei. The building was completed in 2004.

The design of the building is unique, which represents growth, strength, and Chinese culture. Also, the building is designed to be earthquake- and typhoon-resistant, which is very important.

Inside the building, there is a huge tuned mass damper, a giant metal ball that helps keep the building steady during strong winds or earthquakes. Many visitors are surprised when they see this ball because it's both so large and so shiny.

Shorten Rewrite Formalize Simplify Expand

observe initially.

notice at the outset.

Fig. 4. Rephrasing option for an incorrectly said words

B. Teacher interface

The primary function of the GAIOLA system is to enable teachers to create activities through which students can practice their linguistic skills. To begin designing an activity, teachers first create an activity topic and provide supporting information that students can use as seen in Figure 5.

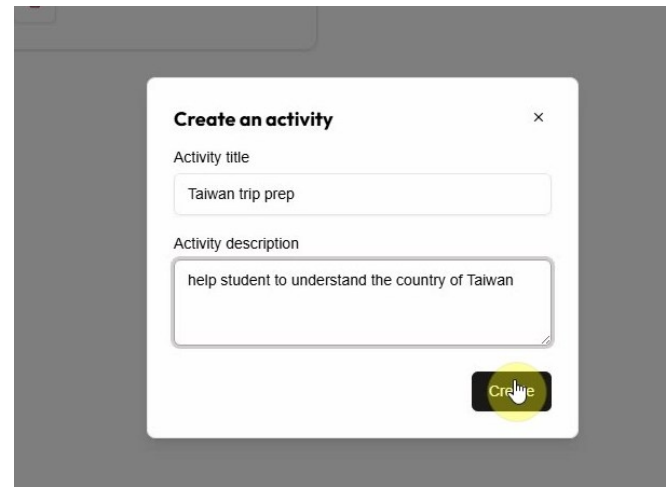


Fig. 5. Activity creation function of a teacher

Once an activity is created, the teacher is directed to a page where they can edit all activity content, as shown in Figure 6. In the Settings section, teachers begin by selecting which Generative AI API will be used to process the activity, choosing between OpenAI and Google AI as the default options. In this same section, they can also specify how student access codes are generated, either as fixed-quota (with a limited number of uses) or with a designated expiration date.

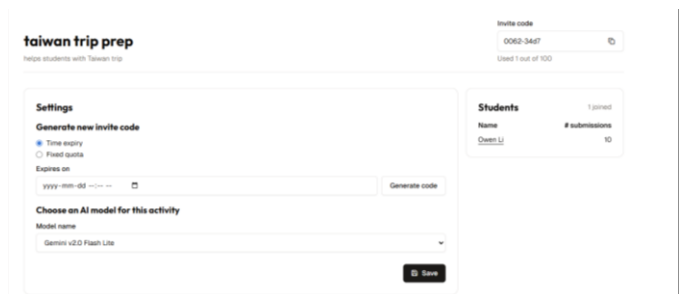


Fig. 6. Setting section of activity creation

On the right side of Figure 7, teachers can copy and retrieve the invite code that students use to join an activity. For each student who successfully enters the activity, the system records key information, including the number of script submissions and the saved versions of each script. These records can be accessed by clicking the student's name in the list, allowing teachers to monitor learners' progress over time, as illustrated in the reference image below.



Fig. 7. UI page of a student's submission history

In the same page the Prompts section can be seen (refer to Figure 8), teachers can customize the instructions that guide the

Generative AI API in processing students' practice results. There are two prompts: Script Assessment Prompts, which evaluate the overall clarity and coherence of the written script, and Oral Performance Prompts, which assess the student's spoken performance, including pronunciation, clarity, and overall oral skills. As shown in the reference image, the assessment prompt section automatically loads a set of default prompts for the activity.

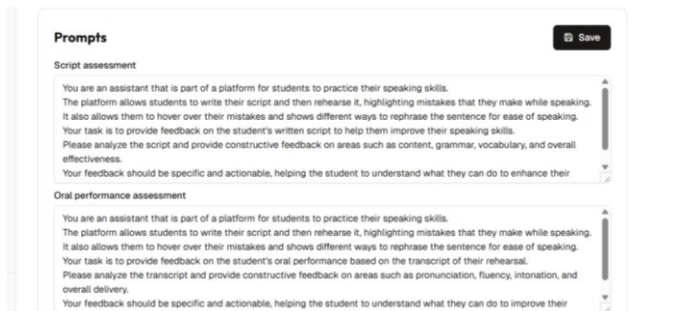


Fig. 8. Prompt editing section for an activity

Scrolling further down the webpage, teachers can access the Rephrasing Options section, as illustrated in Figure 9. In this area, teachers may edit the prompts that enable students to rephrase words or phrases they find challenging. The default rephrasing options include Shorten, Rewrite, Formalize, and Simplify, each with its own description and corresponding prompt that is sent to the Generative AI API to generate rephrased suggestions. Teachers can delete or save individual prompts using the icons on the right side of each entry, as well as add additional rephrasing options as needed.

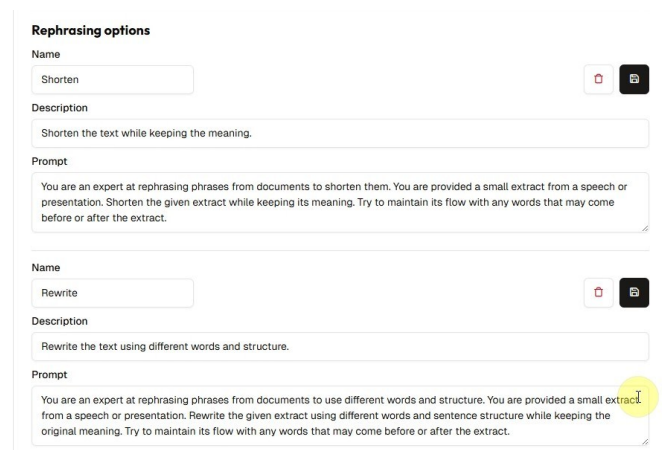


Fig. 9. Rephrasing option editing section of an activity

III. FUTURE EVALUATION PLAN

Technology-Enhanced Language Learning (TELL) research has consistently demonstrated that digital tools supporting interaction, feedback, and learner autonomy can positively influence second language development [14][15]. More recent studies in AI-assisted language learning further suggest that automated feedback systems and intelligent tutoring environments can enhance speaking performance, engagement, and self-regulated learning by providing timely, personalized, and form-focused support [16][17][18]. However, empirical

evidence remains limited regarding how AI-supported rehearsal platforms influence oral presentation performance and affective variables in authentic classroom contexts.

To evaluate the pedagogical effectiveness and classroom applicability of GAIOLA, the platform is planned to be implemented in multiple undergraduate EFL courses, including Freshmen General English courses for non-English majors and ESP courses such as Business English and Travel English. These instructional contexts are characterized by frequent oral presentation tasks that require both content preparation and spoken performance, making them suitable environments for evaluating GAIOLA's rehearsal-oriented design.

GAIOLA will be integrated into course-based speaking projects, including SDG-related proposal presentations in Freshmen English, business case study analyses and Shark Tank-style pitch proposals in Business English, and travel package presentations conducted in a simulated international travel fair format in Travel English courses. Students will use GAIOLA to prepare scripts, rehearse oral delivery, receive AI-generated feedback, and iteratively revise their presentations prior to in-class performance.

To examine learning outcomes, students' speaking performance will be assessed using analytic oral presentation rubrics focusing on pronunciation accuracy, fluency, intelligibility, discourse organization, and delivery effectiveness. Pre- and post-task performance comparisons will be conducted to examine potential gains associated with GAIOLA-supported rehearsal. In addition, platform-generated performance logs and revision histories will be analyzed to capture patterns of learner engagement, rehearsal frequency, and feedback utilization.

Learner perceptions will be collected through validated questionnaires measuring motivational variables and affective factors relevant to EFL speaking, including speaking anxiety, willingness to communicate, perceived usefulness, and learning engagement. Reflective journals will also be incorporated to elicit qualitative insights into students' experiences with Generative AI-supported rehearsal, perceived learning benefits, challenges, and changes in presentation preparation strategies.

Data analysis will adopt a mixed-methods approach. Quantitative data from speaking assessments and questionnaires will be analyzed using descriptive statistics and inferential analyses to examine performance changes and attitudinal trends. Qualitative data from reflective journals and selected student interviews will be thematically analyzed to identify recurring perceptions, usage patterns, and pedagogical implications. Triangulation of performance data, survey responses, and learner reflections will allow for a more comprehensive understanding of GAIOLA's instructional impact.

The findings from this evaluation will inform further refinement of GAIOLA's feedback mechanisms, interface design, and instructional integration strategies. In particular, analysis of mispronunciation patterns, revision behaviors, and learner feedback will guide the optimization of Generative AI feedback prompts and visualization features. Through iterative classroom-based evaluation, GAIOLA aims to evolve into a

more pedagogically grounded Generative AI-assisted speaking platform that aligns with authentic EFL presentation practices.

IV. CONCLUSION

This paper presented GAIOLA, an Generative AI-assisted rehearsal platform designed to support EFL learners' oral presentation development through iterative output, form-focused feedback, and reflective practice. Grounded in the Output Hypothesis and the Noticing Hypothesis, GAIOLA operationalizes key mechanisms of second language development by making performance gaps salient, enabling hypothesis testing through repeated production, and fostering metalinguistic reflection via explicit feedback and performance histories. Unlike Generative AI tools that primarily generate language for learners, GAIOLA emphasizes learner-produced output and rehearsal as central to speaking development. By integrating customizable teacher controls with learner-facing pronunciation modeling, transcription-based feedback, and rephrasing support, the platform bridges pedagogical theory and classroom practice. The proposed future evaluation plan will further examine GAIOLA's effects on speaking performance and learner perceptions across General English and ESP contexts. Overall, GAIOLA contributes to the growing body of Generative AI-assisted language learning research by demonstrating how Generative AI can be pedagogically aligned with output-driven EFL speaking instruction.

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