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IMPLEMENTING GOOGLE DRIVE–BASED E-PORTFOLIOS IN A FLIPPED ENGLISH CLASSROOM: A QUALITATIVE STUDY OF NURSING STUDENTS' SPEAKING PERFORMANCE

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Abstract: This study qualitatively investigates the implementation of a Google Drive–based e-portfolio in a flipped English classroom, aiming to enhance nursing students' English for Specific Purposes (ESP) speaking proficiency. The study examines the integration of flipped learning and digital portfolios into instructional practice, considering the communicative demands faced by nursing students in professional healthcare settings. It evaluates student engagement with the learning model and identifies the benefits and challenges that developed during the process. A qualitative research design was utilized, involving twenty sixth-semester nursing students participating in an English for Specific Purposes (ESP) speaking course at a private college of health sciences in Indonesia. Data were gathered from various sources, including recorded speaking samples from students, semi-structured interviews, classroom observations, and survey responses. Thematic analysis yielded four principal findings: noticeable enhancement in speaking performance, heightened engagement and participation in classroom activities, favorable perceptions of Google Drive–based e-portfolios as instruments for practice and reflection, and preliminary challenges concerning adaptation, technology, and time management. The results show that using e-portfolios in a flipped classroom is a structured and useful way to help nursing students improve their professional speaking skills. The study provides pedagogical insights into the practical application of technology-enhanced English for Specific Purposes (ESP) instruction within health sciences contexts.
Keywords: *Flipped classroom; e-portfolio; English for Specific Purposes; nursing education; speaking performance; Google Drive.*

INTRODUCTION

Communication competence is a fundamental component of professional nursing practice because nurses are required to interact effectively with patients, families, and multidisciplinary healthcare teams in diverse clinical situations. In many healthcare contexts, English is used to explain procedures, deliver health education, provide care instructions, and communicate with international medical communities. Consequently, English for Specific Purposes (ESP) instruction has become increasingly important in nursing education because speaking competence directly influences students' professional readiness and communicative confidence in workplace settings (Kissová & Tengler, 2024; Dash & Mohapatra, 2025). Nevertheless, speaking remains one of the most difficult language skills for EFL nursing students because classroom instruction often prioritizes theoretical language knowledge rather than sustained oral interaction and authentic communication practice (Kusuma & Waluyo, 2023; Ngo & Luu, 2023). As a result, many nursing students possess adequate conceptual understanding of medical terminology but still struggle to communicate fluently, spontaneously, and confidently in professional situations (Esmaeilee, 2024; Kusuma & Indrayani, 2026). This situation highlights the need for instructional approaches that not only improve linguistic knowledge but also support authentic speaking practice, reflection, and learner engagement in ESP classrooms.

Recent discussions in higher education increasingly position authentic assessment as an important pedagogical framework for developing meaningful and professionally relevant learning experiences. Rather than emphasizing isolated examinations, authentic assessment encourages students to demonstrate competencies through realistic tasks that resemble workplace communication and problem-solving activities (McArthur, 2023; Ajjawi et al., 2024). Several studies argue that authentic assessment can strengthen learner engagement, reflective thinking, and professional identity formation because students perceive learning tasks as meaningful and connected to real-life contexts (Asgarova et al., 2023; Gravett, 2025). Similarly, research in digital assessment emphasizes that meaningful assessment should involve interaction, feedback, and opportunities for continuous improvement instead of one-time performance measurement (Bearman et al., 2023; Nieminen & Boud, 2025). However, scholars also caution that authenticity in assessment is difficult to achieve when classroom activities remain disconnected from actual communicative demands or when technology is integrated without clear pedagogical alignment (Nieminen et al., 2023; Vallis, 2025). In ESP-oriented nursing education, this issue becomes particularly important because speaking competence requires students to apply language skills dynamically in emotionally and cognitively demanding communication situations.

Within ESP contexts, speaking competence involves more than grammatical accuracy because learners must negotiate meaning, respond spontaneously, and communicate appropriately in profession-specific interactions. Nursing students are expected to conduct patient interviews, explain medical procedures, respond empathetically to patients, and collaborate with healthcare professionals using clear spoken English. Nevertheless, previous studies consistently report that EFL learners often experience difficulty transforming declarative linguistic knowledge into procedural communicative competence during speaking tasks (Kusuma & Waluyo, 2023; Ngo & Luu, 2023). These challenges are intensified by anxiety, fear of making mistakes, and limited opportunities for authentic oral interaction, particularly in contexts where English exposure outside the classroom is minimal (Al-Hawamleh et al., 2022; Esmaeilee, 2024). Moreover, communicative breakdowns frequently occur because students focus excessively on linguistic accuracy rather than interactional fluency and meaning negotiation (Kusuma et al., 2025). Such findings suggest that speaking instruction in nursing ESP classrooms requires learning environments that promote repeated oral practice, reflective engagement, and authentic communicative interaction rather than passive language reception.

The increasing use of educational technologies has encouraged language educators to redesign classroom instruction in ways that promote active participation and learner autonomy. Technology-enhanced learning environments provide opportunities for collaborative interaction, flexible access to learning resources, and continuous communication practice beyond classroom boundaries (Dash & Mohapatra, 2025; Taghizadeh & Emam, 2025). Studies on digital language learning further demonstrate that technology-mediated speaking activities can increase students' willingness to communicate and reduce anxiety because learners are given greater control over the pace and process of learning (Roohani & Heidari Vincheh, 2023; Kusuma et al., 2025). However, research also indicates that technology itself does not automatically improve language performance because learning outcomes depend heavily on pedagogical design, instructional scaffolding, and the quality of interaction embedded within digital activities (Bearman et al., 2023; Elkington & Chesterton, 2025). In some cases, technology-enhanced instruction becomes merely a tool for content delivery rather than a mechanism for facilitating meaningful communication and reflection (Vlachopoulos & Makri, 2024). Therefore, integrating technology into ESP speaking instruction requires carefully structured learning models that support sustained interaction and reflective speaking development.

One instructional model that has gained substantial attention in language education is flipped learning. In flipped classrooms, students engage with instructional materials before class, allowing classroom sessions to focus on collaborative and communicative learning activities. Previous studies report that flipped instruction can increase student participation, interaction, and engagement because learners arrive in class with prior exposure to conceptual material (Kissová & Tengler, 2024; Dash & Mohapatra, 2025). In ESP classrooms, flipped learning also creates opportunities for profession-oriented speaking activities such as role plays, simulations, and case-based discussions that resemble authentic workplace communication (Wakefield et al., 2023; Kusuma et al., 2025).

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Despite these advantages, empirical findings regarding the effectiveness of flipped learning for speaking development remain inconclusive. Some studies suggest that students struggle to convert pre-class preparation into fluent oral performance when classroom interaction lacks structured feedback and reflective follow-up activities (Ngo & Luu, 2023; De Ruyck et al., 2024). Other research indicates that flipped learning may unintentionally encourage passive content consumption if learners are not actively guided to reflect on and improve their communicative performances (Almutawa, 2025; Chambers & Broadbent, 2025). These findings imply that flipped instruction alone may be insufficient to support sustainable speaking development without complementary reflective and formative learning mechanisms.

E-portfolios have increasingly been proposed as pedagogical tools capable of addressing these limitations because they facilitate formative assessment, reflective learning, and continuous documentation of student progress. Unlike conventional assessments that evaluate isolated performances, e-portfolios position learning as an ongoing process involving planning, performance, feedback, revision, and reflection (Lam, 2024; Li & Lam, 2025). In language learning contexts, e-portfolios enable students to record speaking performances, revisit feedback, and evaluate their own communicative development over time (Al-Hawamleh et al., 2022; Kusuma & Waluyo, 2023). Several studies further report that portfolio-based learning contributes positively to learner autonomy, self-regulation, and communicative confidence because students become more actively involved in monitoring their learning processes (Ayaz & Gök, 2023; Guo & Li, 2024). Nevertheless, scholars argue that e-portfolios may lose pedagogical value when they function merely as digital storage spaces without meaningful feedback cycles and authentic communicative tasks (Ebrahimi & Ebadi, 2024; Li & Luo, 2025). In addition, some learners perceive portfolio activities as administratively demanding when reflective guidance and instructional support are insufficient (Bozorgian et al., 2024). Consequently, the effectiveness of e-portfolios depends not only on technological accessibility but also on how portfolio activities are pedagogically integrated into language learning practices.

Recent studies specifically examining e-portfolios in speaking instruction reveal both promising outcomes and continuing pedagogical challenges. Research demonstrates that digital portfolios can support speaking fluency, reflective engagement, and learners' willingness to communicate because students are able to repeatedly rehearse and revise oral performances (Kusuma & Indrayani, 2026; Rezadoust Siah Khaleh Sar et al., 2024). Positive learner perceptions have also been reported in studies involving speaking assessment through e-portfolios because students value the flexibility and continuity of digital learning environments (Ngo & Luu, 2023; Wu, 2023). Similarly, social media-assisted and online portfolio systems appear to encourage collaborative interaction and self-efficacy development in speaking courses (Barrot, 2025; Wang-Hiles, 2025). However, much of the existing literature focuses primarily on quantitative learning outcomes such as achievement scores, self-efficacy levels, or attitude measurements, while giving less attention to how e-portfolios are implemented within classroom practices and how learners experience the process of reflective speaking development. Furthermore, relatively few studies have examined e-portfolio implementation in healthcare-oriented ESP settings where speaking tasks involve professional communication demands and authentic interactional pressures. This limitation indicates the need for more context-sensitive qualitative investigations into the pedagogical implementation of e-portfolios in nursing ESP classrooms.

Google Drive has emerged as an accessible and collaborative platform for implementing e-portfolios because it allows cloud-based storage, flexible sharing, and ongoing interaction between students and instructors. Previous studies indicate that Google Drive facilitates peer feedback, collaborative learning, and continuous documentation of learning progress in higher education contexts (Bozorgian et al., 2024; Karim & Saud, 2025). In language classrooms, cloud-based portfolio systems also enable students to upload speaking recordings, revisit instructor comments, and revise performances in iterative learning cycles (Fathali, 2024; Gebrekidan & Zeru, 2023). These affordances are particularly relevant to speaking instruction because reflective oral practice requires opportunities for repetition, monitoring, and feedback integration over time. Moreover, combining Google Drive–based e-portfolios with flipped learning potentially creates a cyclical learning process in which students engage with instructional input before class, practice communicative tasks during class, and continue reflective speaking development outside class through digital portfolio activities. Such

integration aligns with constructivist and formative assessment perspectives that view learning as an active, socially mediated, and continuously evolving process (Nguyen & Nguyen, 2026; Zuba Prokopetz, 2026). Despite this theoretical potential, empirical evidence explaining how this integration operates in actual nursing ESP classrooms remains limited.

Although previous studies have separately examined flipped learning, authentic assessment, and e-portfolios, limited research has explored how Google Drive–based e-portfolios are pedagogically implemented within flipped English classrooms for nursing students. Existing studies predominantly emphasize measurable outcomes such as speaking scores, learner attitudes, or self-efficacy while paying less attention to instructional processes, learner experiences, reflective engagement, and classroom interaction dynamics (Kusuma & Waluyo, 2023; Bozorgian et al., 2024). In addition, few studies investigate how flipped learning and e-portfolio practices collectively support authentic speaking development in healthcare-oriented ESP environments where communication tasks involve professional and interactional complexity. This methodological and contextual gap is important because the success of technology-enhanced instruction depends not only on the digital tools employed but also on how pedagogical activities, feedback practices, and reflective learning opportunities are organized throughout the instructional process. Therefore, this study seeks to answer the following research question: How do nursing students experience the implementation of Google Drive–based e-portfolios in a flipped English classroom, and how does the implementation support speaking development and reflective learning?

The novelty of this study lies in its qualitative exploration of the integration between flipped learning, Google Drive–based e-portfolios, and authentic speaking assessment within nursing ESP education. Unlike many previous studies that focus primarily on quantitative effectiveness measurements, this study investigates the instructional implementation process, learner interaction, reflective practices, and contextual learning experiences that emerge during technology-enhanced speaking instruction. The study also contributes to current discussions on authentic assessment by examining how low-cost and accessible digital platforms can support formative speaking development in professionally oriented communication contexts (Ajjawi et al., 2024; Nieminen & Boud, 2025). Furthermore, by focusing specifically on nursing students, this research extends e-portfolio scholarship into healthcare-oriented ESP environments where communicative competence is closely related to professional preparedness and patient-centered interaction. Consequently, the study offers a more contextualized understanding of how digital portfolio practices can support reflective and authentic speaking instruction in higher education.

This study is significant both theoretically and practically. Theoretically, it contributes to the growing body of research on technology-enhanced ESP instruction, authentic assessment, and reflective learning by examining how flipped pedagogy and e-portfolios interact to facilitate speaking development in professional education settings (McArthur, 2023; Vlachopoulos & Makri, 2024). Practically, the findings may assist nursing educators and language instructors in designing speaking activities that integrate formative feedback, reflective engagement, and authentic communication practice through accessible digital technologies (Nor et al., 2026; Vanconcelos, 2025). The study may also provide insights into the opportunities and challenges associated with implementing Google Drive–based e-portfolios in flipped classrooms, particularly in contexts where institutional resources and technological infrastructures are limited. In addition, understanding students' experiences may help educators design more supportive and learner-centered speaking environments that encourage communicative confidence and sustained oral practice (Esmaeilee, 2024; Wu, 2023). Ultimately, the study seeks to support the development of more meaningful, reflective, and professionally relevant ESP-speaking instruction for nursing students.

METHOD

This study employed a qualitative research design to investigate the implementation of a Google Drive–based e-portfolio in a flipped English classroom for nursing students. A qualitative approach was considered appropriate because the study aimed to explore instructional processes, learner experiences, reflective engagement, and contextual factors influencing speaking development rather than statistically measuring causal relationships. Previous studies on e-portfolio assessment emphasize that understanding learners' experiences, reflective practices, and interactions with digital learning environments requires context-sensitive qualitative inquiry rather than purely outcome-oriented measurement (Hanukaev, 2023; Li & Lam, 2025). In addition,

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qualitative approaches have increasingly been used in technology-enhanced language learning research to examine how pedagogical practices shape learner autonomy, communication development, and formative assessment experiences in authentic classroom settings (Le et al., 2024; Mohammadi et al., 2026).

The study specifically focused on examining how flipped learning and Google Drive–based e-portfolios were pedagogically implemented in an ESP-speaking classroom for nursing students. Rather than evaluating instructional effectiveness solely through numerical achievement scores, the study investigated how students interacted with speaking tasks, feedback processes, and reflective portfolio activities throughout one academic semester. This focus aligns with recent e-portfolio scholarship arguing that portfolio-based assessment should be examined not only as an assessment product but also as a developmental learning process involving reflection, revision, and communicative practice (Al-Hawamdeh et al., 2023; Li & Lam, 2025). Therefore, qualitative inquiry enabled a deeper understanding of how speaking development emerged through classroom interaction, digital portfolio use, and reflective learning activities.

The study was conducted in an English for Specific Purposes (ESP) course designed for nursing students at a private college of health sciences in Central Java, Indonesia. The participants were third-semester diploma nursing students enrolled in a speaking-oriented ESP course that implemented flipped learning and Google Drive–based e-portfolio activities during one academic semester. The course emphasized professional communication skills relevant to nursing practice, including explaining medical procedures, giving care instructions, conducting patient interviews, and responding to patient concerns in English.

Participants were selected using purposive sampling because the study required students who actively experienced the implementation of flipped learning and digital portfolio assessment. The selection criteria included: (1) being enrolled in the ESP speaking course, (2) participating in Google Drive–based e-portfolio activities, and (3) regularly completing speaking assignments and reflective tasks throughout the semester. A total of 20 students were selected for in-depth qualitative analysis. Purposeful participant selection is considered appropriate in qualitative educational research because it enables the researcher to obtain rich and contextually relevant information regarding instructional implementation and learner experiences (Hanukaev, 2023; Mohammadi et al., 2026).

Before the study began, students had completed foundational English courses introducing basic nursing vocabulary and communication expressions. All participants were informed about the objectives of the study, confidentiality procedures, and their voluntary participation rights. Pseudonyms were used in reporting qualitative findings to protect participant identities and maintain ethical standards throughout the research process.

The instructional implementation was conducted over one academic semester using a flipped classroom model integrated with a Google Drive–based e-portfolio system. The instructional design was developed to create a cyclical speaking-learning process consisting of pre-class preparation, in-class communicative interaction, and post-class reflective portfolio activities. This design reflects recent perspectives on portfolio-based language assessment emphasizing iterative learning cycles involving performance, feedback, reflection, and revision (Li & Lam, 2025; Mohammadi et al., 2026).

During the pre-class stage, students accessed learning materials uploaded to Google Drive, including nursing-related vocabulary lists, speaking prompts, model nurse–patient dialogues, and short instructional videos explaining target language expressions and communicative functions. These materials allowed students to familiarize themselves with speaking topics before classroom meetings. The flipped learning structure was intended to shift classroom time away from passive content delivery and toward communicative interaction and speaking practice.

The in-class phase focused on interactive speaking activities such as role plays, simulations, pair discussions, and task-based communication practices reflecting authentic nursing situations. Students practiced taking patient histories, explaining procedures, giving health instructions, and responding to simulated patient questions. The lecturer monitored interactions and provided immediate formative feedback related to fluency, pronunciation, vocabulary use, communicative appropriateness, and clarity of expression. Such communicative activities are consistent with recent ESP-speaking studies emphasizing authentic and interaction-oriented speaking instruction in technology-enhanced learning environments (Kusuma et al., 2025).

A central component of the implementation was the use of a Google Drive–based e-portfolio system as a platform for documenting speaking development. Each student maintained an individual digital portfolio containing audio or video recordings of speaking assignments submitted throughout the semester. Students were encouraged to revise recordings after receiving peer and lecturer feedback and to write reflective comments describing difficulties, learning strategies, and perceived improvements. This reflective process aligns with previous studies suggesting that e-portfolios facilitate learner autonomy, reflective engagement, and self-regulated language learning through continuous performance documentation and revision (Al-Hawamdeh et al., 2023; Ebrahimi & Ebadi, 2024). In several activities, students also used digital tools such as automated transcription and AI-assisted language support to organize and improve speaking scripts before recording, reflecting emerging trends in technology-assisted portfolio development in language classrooms (Le et al., 2024).

To obtain a comprehensive understanding of the instructional implementation and students' speaking development, data were collected from multiple qualitative sources, including speaking samples, semi-structured interviews, classroom observations, reflective portfolio entries, and surveys. The use of multiple data sources enabled triangulation and strengthened the credibility of the findings by allowing cross-verification across different forms of evidence.

Speaking samples consisted of students' recorded speaking assignments uploaded to their Google Drive e-portfolios during the semester. The recordings included individual speaking performances, nurse–patient role plays, and instructional explanation tasks. Initial and final recordings were compared to identify observable changes in fluency, vocabulary use, pronunciation, grammatical accuracy, and communicative organization. Portfolio-based speaking documentation has been widely recognized as an effective source for examining longitudinal speaking development because it captures iterative learning processes rather than isolated performances (Zapata & Banda, 2026; Mohammadi et al., 2026).

Semi-structured interviews were conducted with ten selected students to explore their experiences using flipped learning and Google Drive–based e-portfolios. The interview questions focused on students' perceptions of speaking activities, reflective learning experiences, feedback practices, technological accessibility, and challenges encountered during implementation. Interviews were conducted in Indonesian to allow participants to express their perspectives freely and naturally. All interviews were audio-recorded and transcribed for analysis.

Classroom observations were conducted systematically throughout the semester to document student participation, interaction patterns, speaking engagement, and classroom responses to portfolio-based learning activities. Observation field notes focused particularly on communicative interaction, peer collaboration, feedback exchanges, and students' use of Google Drive during instructional activities. Observation data were important for understanding how flipped learning and e-portfolio activities functioned in actual classroom practice rather than relying solely on self-reported perceptions.

In addition, all students completed surveys consisting of Likert-scale and open-ended questions regarding their perceptions of the flipped classroom model, the usefulness of Google Drive–based portfolios, and the benefits and difficulties experienced during speaking activities. The survey responses provided broader contextual insights supporting the qualitative interpretation of the findings.

The qualitative data were analyzed using thematic analysis to identify recurring patterns related to the implementation of Google Drive–based e-portfolios and students' speaking-learning experiences within the flipped classroom environment. Thematic analysis was considered appropriate because it allows researchers to interpret patterns across multiple forms of qualitative data while maintaining close engagement with participants' experiences and contextual realities.

The analysis began with a familiarization stage in which all speaking recordings, interview transcripts, reflective entries, observation notes, and survey responses were repeatedly reviewed to obtain an overall understanding of students' engagement, speaking development, and learning experiences. Initial coding was then conducted by identifying meaningful segments of data related to classroom participation, reflective learning, feedback experiences, communicative confidence, technological challenges, and speaking improvement. Coding was conducted manually to allow detailed interaction with the data and deeper interpretive analysis.

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The initial codes were subsequently grouped into broader categories and themes representing recurring patterns across participants and data sources. Throughout this process, the researcher continuously compared emerging themes to ensure conceptual consistency and analytical coherence. The analysis was informed by previous qualitative studies on e-portfolios and reflective language learning that emphasize iterative interpretation, contextual understanding, and learner-centered analysis in technology-enhanced educational settings (Hanukaev, 2023; Li & Lam, 2025).

To enhance trustworthiness, triangulation was applied by comparing findings across speaking samples, interviews, observations, reflective entries, and survey responses. Convergence among these data sources strengthened the credibility and confirmability of the findings. In addition, an audit trail documenting coding decisions, analytical reflections, and theme development was maintained throughout the analysis process to improve dependability and transparency. Prolonged engagement over one semester also enabled the researcher to observe changes in students' participation and speaking development over time, contributing to richer contextual interpretation.

The themes were reviewed and refined iteratively to ensure that they accurately represented participants' experiences and were adequately supported by empirical evidence. Representative excerpts from interview transcripts, reflective entries, observation notes, and speaking samples were selected to illustrate each theme and maintain closeness between interpretation and participants' voices. Detailed descriptions of the instructional context and implementation procedures were also provided to support transferability and enable readers to evaluate the applicability of the findings in similar ESP and nursing education contexts.

RESULTS AND DISCUSSION

This section presents and discusses the findings of the study derived from a qualitative thematic analysis of multiple data sources, including transcribed students' speaking recordings, semi-structured interviews, classroom observations, and survey responses. Integrating results and discussion allows for a deeper interpretation of how a Google Drive–based e-portfolio was implemented within a flipped English classroom and how this instructional model shaped nursing students' ESP speaking development over one academic semester.

Following the thematic analysis procedure, recurring patterns across data sources were identified and organized into four major themes. These themes capture both observable changes in speaking performance and students' experiential responses to the flipped classroom and e-portfolio integration. An overview of the themes and sub-themes is presented in Table 1.

Table 1. *Themes and sub-themes in the implementation of a google drive–based e-portfolio in a flipped English classroom*

Themes	Sub-Themes
Development of ESP Speaking Performance	Improved coherence and organization
	Expanded nursing-related vocabulary
	Increased fluency and grammatical control
Engagement in the Flipped Classroom	Preparedness for in-class speaking tasks
	Active participation in simulations and role plays
	Peer interaction and collaborative learning
Pedagogical Functions of the E-Portfolio	Flexible and repeated speaking practice
	Reflection and self-awareness
	Feedback-supported improvement
Challenges and Adaptation Processes	Adjustment to flipped learning expectations
	Technical constraints
	Time management and workload

Development of ESP speaking performance through e-portfolio–supported flipped learning

Analysis of students' speaking recording transcripts revealed progressive development in ESP speaking performance throughout the semester. Early recordings demonstrated limited discourse organization, restricted vocabulary, and frequent hesitation, particularly when students were required to explain nursing procedures or interact in patient-care scenarios.

For example, one student stated in an early recording:

> "Um… the patient need… need take medicine, because pain."
> (Speaking recording, early stage)

This excerpt reflects common difficulties observed across participants, including fragmented sentence construction, limited lexical resources, and unclear explanation of medical procedures. Such patterns are consistent with challenges commonly reported in ESP speaking contexts, where learners must simultaneously manage linguistic accuracy and professional content.

In contrast, final recordings showed clearer structure, improved coherence, and more appropriate use of nursing-related terminology:

> "Good morning, Mrs. Lina. Today I will explain how to take your medication. You should take one tablet after breakfast to reduce the pain. If you feel uncomfortable, please inform the nurse."
> (Speaking recording, final stage)

The shift from fragmented utterances to structured explanations suggests that students developed greater control over professional discourse. These improvements were not isolated to a few high-performing students but were evident across most participants, indicating a broader instructional impact.

The discussion of these findings highlights the role of iterative speaking practi**ce** facilitated by the e-portfolio. The cycle of recording, feedback, revision, and re-recording allowed students to notice gaps in their speaking performance and address them in subsequent tasks. This process aligns with principles of form-focused reflection and supports previous research indicating that repeated oral production combined with feedback enhances fluency and accuracy in ESP contexts.

Engagement and participation in the flipped English classroom

The second theme concerns changes in student engagement and participation within the flipped classroom environment. Classroom observations and interview data indicated that students became more actively involved in in-class speaking activities compared to traditional lecture-based instruction.

Because instructional content was accessed before class, classroom time was primarily devoted to communicative practice, including role plays and simulations. Students reported feeling more prepared and less anxious during these activities:

> "After watching the video before class, I already knew what to say, so I was more confident during role play."
> (Interview, S9)

This preparedness reflects the pedagogical value of flipped learning in redistributing cognitive load, allowing students to process linguistic input independently and use classroom time for interaction. Observations further revealed increased peer collaboration, with students negotiating meaning, sharing vocabulary, and offering informal feedback during tasks.

From a discussion perspective, these findings align with communicative language teaching principles, which emphasize meaningful interaction and feedback as drivers of speaking development. The flipped classroom created conditions that encouraged participation, even among students who were initially reluctant to speak, contributing to a more supportive and interactive learning environment.

Pedagogical functions of google drive–based e-portfolios

Students' perceptions of Google Drive as an e-portfolio platform formed the third theme. Interview and survey data revealed that students viewed the e-portfolio as more than a submission tool; it functioned as a space for practice, reflection, and feedback.

Flexibility emerged as a key benefit. Students valued the opportunity to record speaking tasks multiple times before submission:

> "I could record again and again until I felt my speaking was better."
> (Interview, S4)

This repeated practice reduced speaking anxiety and supported self-paced learning. Reflection was also enhanced through the requirement to review recordings and respond to feedback:

> "When I watched my video, I noticed my pronunciation mistakes, especially medical terms."
> (Interview, S7)

From a pedagogical standpoint, these findings illustrate how e-portfolios support self-regulated learning, enabling students to monitor their progress, identify weaknesses, and plan improvements. The availability of lecturer and peer feedback further strengthened this process, as students could revisit comments during revision.

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Challenges and adaptation in implementing the instructional model

Despite overall positive outcomes, the implementation process was not without challenges. Several students initially struggled to adapt to the flipped classroom model, particularly the expectation of completing pre-class preparation independently:

> "At first, I was confused because usually the lecturer explains everything in class." (Interview, S2)

Technical issues, such as unstable internet connections and difficulties uploading large video files, were also reported. Time management emerged as another concern, especially during periods of high academic workload.

However, both observation and interview data indicated that these challenges were transitional rather than persistent. As students became more familiar with the instructional model and received clearer procedural guidance, they demonstrated increased autonomy and confidence. This adaptation process suggests that initial resistance or difficulty is a natural part of transitioning to learner-centered, technology-enhanced instruction.

The findings indicate that the integration of a Google Drive–based e-portfolio within a flipped English classroom supported nursing students' ESP speaking development not only at the linguistic level but also in terms of professional communication practices. Students gradually shifted from fragmented and hesitant utterances toward more structured, patient-oriented explanations using nursing-related expressions. This suggests that speaking development extended beyond grammatical improvement into professional discourse socialization. Such findings support previous studies emphasizing that authentic and profession-based speaking activities can strengthen communicative competence in ESP contexts (Wakefield et al., 2023; Kissová & Tengler, 2024). However, unlike studies that mainly report speaking improvement through quantitative achievement scores, the present study demonstrates how communicative development emerged progressively through repeated participation, reflection, and interaction.

The findings further highlight the important role of reflective learning in e-portfolio practices. Through cycles of recording, reviewing, revising, and re-recording speaking performances, students became more aware of pronunciation problems, vocabulary limitations, and discourse organization. This supports arguments that e-portfolios can promote self-regulated learning and learner autonomy (Al-Hawamleh et al., 2022; Ayaz & Gök, 2023). Nevertheless, the findings also suggest that reflective learning did not occur automatically through technology use alone. Several students initially viewed the e-portfolio merely as a submission platform, and reflection became more meaningful only after feedback and revision activities were consistently integrated. This finding aligns with critiques by Bozorgian et al. (2024) and Li and Luo (2025), who argue that e-portfolios may function only as digital storage spaces when reflective scaffolding is insufficient.

The flipped classroom structure also appeared to contribute to increased participation and communicative confidence. Because students accessed learning materials before class, classroom meetings could focus more on interaction, simulations, and role plays. Many students reported feeling more prepared and less anxious during speaking activities, supporting previous findings that flipped learning can reduce cognitive pressure and increase learner engagement (Kusuma et al., 2025; Taghizadeh & Emam, 2025). However, the study also challenges assumptions that flipped instruction is automatically effective in all contexts. Some students initially struggled to adapt because they were accustomed to teacher-centered instruction. This suggests that the success of flipped learning may depend on students' prior learning culture, technological readiness, and the clarity of instructional guidance.

Another important finding is that speaking improvement occurred differently across participants. Some students demonstrated rapid gains in fluency, while others improved more gradually in confidence, organization, or vocabulary use. This variability indicates that technology-enhanced speaking instruction does not produce uniform outcomes for all learners. The flexibility of the e-portfolio system particularly benefited students with lower speaking confidence because they could rehearse and revise recordings repeatedly before submission. At the same time, excessive dependence on repeated rehearsal may limit spontaneous interactional competence. Some students still showed hesitation during unscripted classroom communication despite improved recorded performances. Therefore, while e-portfolios support reflective and prepared speaking practice, they should be balanced with real-time communicative interaction to develop spontaneous speaking ability.

The findings additionally contribute to discussions on authentic assessment in higher education. Unlike traditional one-time speaking tests, the e-portfolio enabled students to perceive speaking as a developmental process involving feedback, revision, and improvement over time. This supports arguments that authentic assessment should emphasize learning development rather than isolated performance outcomes (Ajjawi et al., 2024; Nieminen & Boud, 2025). However, the findings also indicate that authenticity did not emerge solely from the use of digital technology. Authenticity was strengthened because speaking tasks reflected realistic nursing communication scenarios, such as explaining procedures and interacting empathetically with patients. This supports critiques suggesting that authentic assessment depends more on meaningful task design than on technology itself (Bearman et al., 2023; Quinlan et al., 2025).

Overall, the study demonstrates that integrating flipped learning with Google Drive–based e-portfolios can create a more reflective, interactive, and professionally relevant environment for ESP speaking instruction in nursing education. Nevertheless, the findings also show that the effectiveness of technology-enhanced instruction depends not only on digital tools but also on pedagogical scaffolding, authentic communication tasks, feedback practices, and students' adaptation to learner-centered learning environments.

CONCLUSION

This study demonstrates that the implementation of a Google Drive–based e-portfolio within a flipped English classroom supported nursing students' ESP speaking development through reflective, interactive, and professionally oriented learning activities. The findings show that students improved not only in fluency, vocabulary use, and discourse organization but also in their ability to perform patient-centered communication relevant to nursing contexts. The integration of repeated speaking practice, feedback, reflection, and authentic role-play activities contributed to more active participation and greater communicative confidence.

The study also reveals that the effectiveness of e-portfolio–supported flipped learning depends on pedagogical scaffolding rather than technology alone. While students benefited from flexible practice opportunities and reflective learning, challenges related to adaptation, technological constraints, and time management remained important considerations. Therefore, successful implementation requires structured guidance, meaningful communicative tasks, and sustained feedback practices.

This study contributes to ESP and technology-enhanced language learning research by providing a qualitative understanding of how flipped learning and e-portfolios function in nursing education contexts. The findings suggest that e-portfolios can support not only speaking performance but also the development of professional communication awareness through authentic and reflective learning processes.

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