



Research Article

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Improving Professional Speech Culture of Prospective Philology Teachers through Digital Technologies

Gulnara Meirbekova*

*PhD Candidate, Khoja Akhmet Yassawi International Kazakh-Turkish University, The Faculty of Philology, The Department of Kazakh philology, Turkestan, Kazakhstan,
Corresponding author**

Assylbek Meiirbekov

PhD, Acting associate professor, International University of Tourism and Hospitality, The school of Language, Turkestan, Kazakhstan

Zharkinbyke Suleimenova

Dr, Professor, Kazakh National Women's Teacher Training University, The Department of the Theory and the Methodology of Kazakh Linguistics, Almaty, Kazakhstan

Gulimzhan Zhylykbaibai

PhD, Associate Professor, Department of Kazakh Philology, Faculty of Philology, Khoja Akhmet Yassawi International Kazakh-Turkish University, Turkestan, Kazakhstan

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Abstract

Higher education places a high priority on helping prospective philologist-teachers develop their professional speech culture, but there is currently little data on scalable, low-cost approaches. This study investigated whether short podcast-style digital-storytelling assignments were associated with improvements across four dimensions of prospective philology teachers' professional speech culture. Parallel intact sections were used in a quantitative, quasi-experimental pretest-posttest design. The control group tackled the same subjects through traditional exercises, while the DS group finished podcast tasks with a concentrated feedback-revision cycle. Two trained raters who were blind to group used a four-criterion analytical rubric to evaluate performance on the baseline and post-test. Additionally, students completed a 12-item self-report questionnaire aligned with the same four components at both time points. Analysis of covariance using the corresponding pre-test scores as covariates showed higher adjusted post-test scores for the experimental group across all four components. The largest effects were observed for Professional Style (partial $\eta^2 = .20$) and Structure (partial $\eta^2 = .18$), followed by Audience Focus (partial $\eta^2 = .08$) and Diction (partial $\eta^2 = .07$). The findings suggest that a lightweight DS workflow may support meaningful improvements in professional speech culture within a single course cycle.

Keywords: Digital storytelling, Podcasting, Professional speech culture, Prospective philologist teachers, Quasi-experimental design.

1. Introduction

The rapid development of modern science and technology is also introducing significant changes into the education system. Today, the formation of the professional culture of future philologist-teachers is one of the key priorities in the national education system. Effective oral communication is esteemed throughout various fields, including higher education contexts (Heron, 2019). Professional culture is the ability of a future professional to effectively use his/her knowledge, skills and value orientation in their professional activity. Professional communication is essential for successful practice, involving both spoken and written forms of interaction. Among other things, normativity, linguistic variety, functional styles, and semantic richness are important aspects of speech culture.

These qualities are supported by Ksenofontova (1999) who identifies professional speech culture as deliberate selection and usage of any language tools that assist efficient exchange of information. This combination of competence and culture directly contributes to the professional growth and personal development of the specialist. Within professional culture, professional speech culture occupies a central place: mastery of oral and written language norms: pronunciation, stress, lexical accuracy, grammatical and stylistic adequacy and their purposeful use for clear, appropriate, and persuasive communication (Danilova, 2020). Thus, professional speech culture acts as a key marker of a specialist's professionalism.

According to R.Syzdyk (2014), oral speech, in addition to meeting the general requirements of language culture, entails adherence to norms specific to spoken communication. Therefore, according to R. Syzdyk (2014), such rules as pronouncing words correctly and maintaining a voice rhythm during speech are among the main requirements of speech culture (Syzdyk, 2014). This view aligns with recent research in pronunciation, which highlights that prosodic organization in oral delivery – i.e., stress, intonation, phrasing, and rhythm – functions as a key meaning-making system in speech and is crucial for comprehensibility, thereby underscoring its central role in effective spoken communication (Skarnitzl & Bořil, 2024).

In professional contexts, speech culture is an important indicator of a specialist's competence. It refers to mastery of the norms of oral and written language, which includes pronunciation, word stress, appropriate lexical choice as well as adherence to grammatical and stylistic conventions and the ability to apply these resources in accordance with communicative intentions and the situation. Thus, speech culture can be understood as the ability to express oneself correctly, appropriately, clearly and effectively.

Likhachev (2001) makes a distinction between defining speech culture as a teacher's mastery of speech – the ability to choose the best linguistic resources for a particular communicative situation – and seeing it as adherence to language rules. According to this viewpoint, speech culture encompasses an individual's ability to effectively apply a wide range of linguistic means in communication, including the capacity to generate new knowledge on a subject.

An essential element of a professional culture is speech culture, and its high level of development is crucial for establishing effective and productive interaction (Syzdyk, 2014). The content of speech culture includes not only a deep understanding and confident mastery of the modern language system but also the ability to carry out scientifically informed and reasoned speech activities based on these factors. Mastering an advanced level of speech culture enables the philologist-teacher to influence the interlocutor in a positive way, fostering their personal development and assisting in the successful resolution of educational tasks.

A proficient philologist-teacher is anticipated to be a comprehensive professional – exhibiting not only extensive academic knowledge, practical skills, and experiential insight – but also adeptly utilizing scholarly terminology; teaching skills; demonstrating an understanding of global history, culture, and regional studies; applying diverse stylistic techniques in literary composition; executing comparative and analytical examinations of linguistic components;

identifying principal ideas and themes; correlating facts, events, and concepts; investigating cultural and historical data pertaining to various nations; formulating outlines to reconstruct read or auditory material; and producing clear and effective notes (Chala et al., 2021). Therefore, philologist-teachers' professionalism is best understood as an integrated set of linguistic, pedagogical, analytical and cultural competencies that ensure high-quality educational and communicative practice.

In their work on professional speech culture, scholars (Karaman & Karaman, 2007) have identified four main competencies that are deemed necessary parts of speech culture. They are: linguistic, speech, socio-cultural and functional-communicative. Building on this view that professional speech development integrates linguistic, speech, socio-cultural and functional-communicative competencies, this study operationalized these components into four assessable criteria for speech culture. Linguistic competence was reflected in diction and accurate use of professional style; speech competence was captured through professional style and structure, socio-cultural competence was represented by audience focus and appropriateness of register; functional-communicative competence was expressed through coherent delivery and listener oriented organization. The study evaluates professional speech culture using an analytical rubric, the construct was broken down into four components; Table 1 provides their operational definitions.

Table 1. Operational definitions of the four components of professional speech culture.

Components of professional speech culture	Definition
Professional Style	Consistent use of academic register and discipline-appropriate terminology with objective, neutral tone and precise wording suitable for professional contexts.
Structure	Clear overall organization (introduction–development–conclusion) with coherent progression of ideas, effective signposting, and logically connected arguments.
Audience Focus	Clear communicative purpose and adaptation to the listeners' needs; maintains relevance and engagement through appropriate tone, clarity, and examples.
Diction	Accurate articulation, standard pronunciation and stress patterns, natural intonation and fluent pacing that support intelligibility and professional delivery.

Having clarified the key components that constitute professional speech culture in this study, the next step is to consider how innovative pedagogical technologies can support their development in higher education. Innovative technology is a set of pedagogical and psychological instructions that increase the skill of the teacher, give a new direction to the learning process and the search for knowledge, contribute to the development of creativity and personality, determine the type and methods of teaching, and the model. And the use of innovative technologies in teaching a subject is carried out in a certain system, within the framework of goals and objectives (Koshkarbekov, 2007). Thus, the effectiveness of educational innovations depends not on the

technology itself but also on the purposeful, methodologically grounded integration into the course and learning outcomes.

The use of innovative technologies in the modern educational process is becoming the main tool for effectively forming the professional culture of future philologist teachers. Innovative methods and information technologies allow students to develop their creative potential, self-education, increase their linguistic and cultural competence. At the same time, they create conditions for their formation as competitive specialists in the conditions of globalization. Today, when society's demand for creative, comprehensively developed and professionally competent specialists is increasing, the introduction of modern innovative technologies into the educational process plays an important role in forming the professional culture of future philologist-teachers.

Digital tools are impacting modern education to a growing extent and are creating more dynamic as well as accessible methods for student interaction (Wang et al., 2024). Research in technology-enhanced learning shows that these tools can strengthen key affective factors, such as learner engagement, autonomy and motivation (Hashemifardnia et al., 2021; Lai et al., 2022). Positive communication experiences can boost students' confidence and motivate them to continue oral tasks, while perceived challenges can make them less likely to participate (de Rooij, 2022).

In this broader context, podcast-based tasks are relevant to the improvement of professional speech culture as they enhance diction, prosodic organization and clarity of oral presentation while facilitating repeated practice (König, 2020).

Digital storytelling (DS) provides a robust instructional framework for this methodology. Digital storytelling is a teaching method that engages students by combining storytelling with curricular content (Wu & Chen, 2019). Prior research indicates that DS can enhance student empowerment, boost motivation and augment engagement in the educational process (Niemi & Multisilta, 2015). In the present study, this pedagogical logic is implemented in a podcast-style DS format, in which students create short audio-based academic narratives aligned with course topics in order to support the development of professional speech culture.

Among these tools, podcasting – broadly, the creation and distribution of audio content for on-demand access – has gained traction in higher education for its potential to enhance engagement, motivation, and knowledge acquisition (Morris & Tomasi, 2020). Podcasts function as a flexible learning medium that extends teaching process beyond classroom while supporting self-paced, learner-centered interaction.

The cooperative act of planning and making podcasts contributes to the entertaining aspect of the teaching – learning process. It also transforms subject content into worthwhile knowledge for students, achieving higher levels of motivation for learning, improving the understanding of contents as well as developing specific attitudinal competencies, such as autonomy in decision making to generate content (Edirisingha & Salmon, 2007; Carvalho et al., 2009). Based on studies, educational podcasting can boost students' confidence in their knowledge and help them comprehend the course material more deeply (O'Connor et al., 2020).

According to recent research, podcasting is a powerful tool for scholarship and dissemination that provides engaging, innovative learning opportunities (Cox et al., 2023). At the same time, this collaborative production format positions learners as active creators, strengthening ownership of learning and supporting the gradual development of reflective and responsible academic participation. Although there is a growing body of research on podcasting in higher education little is known about whether brief, course-integrated digital storytelling tasks that mimic podcasts result in quantifiable improvements in professional speech culture. With ANCOVA controlling for baseline performance, this study offers three contributions: (a) an operationalized model of professional speech culture for students; (b) a short, scalable digital storytelling intervention in the form of a podcast that is incorporated into a regular course; and (c) evidence from two aligned outcome measures: blinded rubric ratings and a parallel self-report

questionnaire.

The impact of brief, course-integrated podcast assignments – which are perceived as digital storytelling in the style of podcasts – on prospective philology teachers' professional speech culture is still poorly understood, especially when it comes to analytical standards like audience focus, structure, professional style and diction. In order to fill this gap, the current study assesses a brief digital storytelling intervention in the form of a podcast in an undergraduate philology course. We examine whether students who complete podcast tasks perform better than their peers who participate in traditional activities using a four-criterion analytical rubric and analysis of covariance to account for pretreatment differences. In light of this gap, the present study addresses the following research questions:

- RQ1: Is participation in brief podcast-style digital-storytelling tasks associated with greater improvements in students' professional speech culture than traditional coursework?
- RQ2: Which dimensions of professional speech culture show the strongest gains under the digital storytelling workflow: professional style, structure, audience focus, diction?
- RQ3: After controlling for baseline performance, does the digital-storytelling group demonstrate higher adjusted post-test scores than the control group across the four rubric components?

2. Literature review

Previous research on professional speech culture and associated competences encompasses (a) pragmatic and functional analyses of teacher discourse, (b) discourse-focused methodologies highlighting self-regulation and comprehensive professional skills and (c) phonostylistic error-centric evaluations of oral performance. Nonetheless, this literature is limited and studies examine scalable interventions in undergraduate philology settings and even fewer employ transparent performance criteria in conjunction with aligned self-report measures to assess changes in academic oral tasks.

A primary perspective defines professional speech as pragmatic and functional performance within instructional discourse. Research on speech acts and functional language use illustrates how teacher discourse fulfills communicative objectives and influences classroom dynamics (Pangemanan et al., 2025), whereas investigations of directive speech acts elucidate how educational aims are embedded in the formal and functional characteristics of discourse (Faturrochman et al., 2021).

In this context, functional-communicative competence is defined as the capacity to choose language resources suitable for various functional styles (Chala et al., 2021). Collectively, these research elucidate the role of professional communication in context; yet, they infrequently convert these constructs into clear performance metrics that can monitor progress over time in higher education oral assignments.

A secondary strand transcends structural descriptions, focusing on discourse-oriented and competence-integrative models. Discourse-oriented methodologies advocate for the enhancement of self-regulatory, cultural, ethical and self-educational aspects of professional competence, as opposed to primarily depending on structured training (Skrypyuk, 2021). Supporting this perspective, categorizations of frequent oral-production deficiencies offer diagnostic insight by delineating prevalent error categories (e.g., logical, ethical, communicative) pertinent to professional speech advancement (Larionova et al., 2018). Research on scientific speech competency emphasizes that academically focused oral production is crucial for engagement in scholarly activities and can be enhanced through specialized training programs (Tortchynska & Torchynskyi, 2022).

This study endorses a multi-faceted perspective on professional speech culture, while offering limited quasi-experimental data that connects a particular, scalable teaching framework to quantifiable improvements in brief academic oral presentations.

A third aspect emphasizes phonostylistic variety and prosodic control as significant elements in the pedagogy of professional speech. Methodological proposals for incorporating phonostylistics underscore that proficient professional delivery necessitates adaptable management of pronunciation, stress, intonation and stylistic selections across various communicative contexts (Kuznetsova et al., 2025). This line is frequently seen as a methodological suggestion rather than assessed using corresponding evaluation frameworks (e.g., rubric + self-report) that measure alterations in diction and prosodic delivery during course-based treatments.

Notwithstanding these advances, four deficiencies persist prominently. Intervention studies focused on prospective philology teacher education are scarce. Secondly, measurement frequently lacks transparency – few studies provide clearly defined criteria that facilitate replication and monitoring of progress. Third, there is a paucity of quasi-experimental data utilizing brief academic oral tasks. Fourth, the triangulation of observed performance and learners' self-assessments is infrequently executed. This study addresses existing gaps by testing a concise podcast-style digital storytelling workflow and assessing changes through blinded rubric evaluations and a corresponding self-report questionnaire focused on the same four components.

3. Materials and methods

The study was conducted during the 2024-2025 academic year at International Kazakh-Turkish university named after Khoja Akhmet Yassawi in Turkistan, Kazakhstan. A total of 80 third-year undergraduate students (N = 80; 44 female, 36 male) majoring in Kazakh philology took part in the six-week study. Third-year students were specifically chosen because this stage of the program marks the shift from core linguistic study to intensive professional specialization.

This curricular positioning makes third-year students an appropriate cohort for studying changes in professional speech culture: they have enough disciplinary knowledge to produce academically oriented oral texts, but they are still actively developing professional communicative competencies before graduation. The purpose of the study was to examine whether participation in podcast-style digital-storytelling tasks was associated with improvements in prospective philology teachers' professional speech culture. The study employed a quantitative, quasi-experimental pretest-posttest design with control and experimental groups. Changes in professional speech culture were measured by two complementary outcomes: (1) rubric-based performance scores from recorded oral tasks and (2) a 12-item self-report questionnaire aligned with the same four components.

A quasi-experimental pretest-posttest design with two parallel intact course sections was used (N= 80; n=40 per section). One section served as the control group (traditional tasks) and the other as the experimental group (podcast-style digital storytelling tasks). Assignment of sections to conditions was determined by administrative scheduling. The same instructor taught both sections using the same syllabus, course topics, readings, classroom time, and assessment schedule. The experimental section completed six 3–4minute podcast-style digital storytelling tasks, whereas the control section completed traditional tasks on the same topics. Students were evaluated using a four-criterion analytical rubric (1–5 scale). Each recording was double-rated by two blinded raters. Rubric-based outcomes were analyzed using separate component-level ANCOVAs and independent-samples t-tests on change scores.

The content coverage remained consistent between groups. Table 2 delineates the six instructional themes covered during the intervention; both groups engaged with the same themes, changing solely in task style.

Table 2. Six-week instructional themes and main focus.

Week	Instructional theme	Main focus (what was trained)
1	Normative and stylistic proficiency in academic and professional discourse	Academic register and neutrality; lexical clarity; genre suitability for an academic mini-presentation.
2	Compositional-logical structure of scientific oral discourse	Introduction, development, conclusion; coherence and cohesion; signposting and rhetorical markers.
3	Communicative-pragmatic orientation and audience adaptability	Communicative objectives and significance; techniques for clarity (illustrations/definitions/reformulations); participation while preserving an academic tone
4	Orthoepic and phonostylistic proficiency in professional presentation	Articulation; conventional pronunciation and emphasis; academic intonation patterns; tempo, pauses, and fluency for clarity.
5	Terminological culture and definitional methodology	Choosing discipline-specific terminology; succinct definitional methodology; uniformity and prevention of terminological ambiguity
6	Practice of reflexive and evaluative discourse	Self-evaluation employing rubric terminology; intentional revision choices; feedback comprehension (transforming input into tangible modifications)

At the diagnostic stage, each student delivered a 3–4-minute oral talk, which was recorded and scored with the four-criterion rubric on a 1 to 5 scale. During the six-week intervention, the experimental group completed six podcast-style digital storytelling tasks on course topics, while the control group completed traditional tasks on the same topics. At post-test, all students delivered a new 3–4 minute oral performance on a matched prompt. These performances were assessed using a four-criterion analytical rubric (1–5 scale). Baseline comparisons showed that the experimental and control groups started at approximately the same level.

At the formative stage, the experimental group first developed a short narrative aligned with the assigned topics by preparing a written script. Script preparation followed a fixed template provided by the instructor: opening statement of purpose, 2–3 key points, concluding statement.

Students uploaded the script draft to Google Classroom platform and received brief written feedback from the instructor using the rubrics. Students then completed one revision of the script addressing the feedback and recorded 3–4-minute audio version in Spotify for Podcasters. Final recordings were uploaded under anonymous participant codes for assessment. The control group covered the same topics via traditional in-class oral presentations, they received brief rubric-aligned instructor feedback after delivery.

At the summative stage, all participants completed a post-test 3–4-minute speech on a fresh but comparable prompt. Performances were scored using the same four-criterion analytical rubric.

Raters and the process of scoring. All student recordings were assessed by two separate raters using the four-criterion analytical rubric (1–5 scale). Before formal scoring, raters underwent a quick training and calibration process in which they practiced on eight pilot recordings that were excluded from the study dataset, went over the rubric descriptors, and talked about scoring benchmarks. All audio files were de-identified and labeled with anonymous participant codes during the scoring phases.

Each recording was scored independently by both raters, who were blind to the measurement time (pre-test vs. post-test) and group membership (control vs. digital storytelling). The mean of the two raters' scores for each criterion was used to calculate the final criterion-level rubric scores included in the component-level analyses. Before averaging, any recording for which the two ratings differed by two or more points on at least one criterion was independently reviewed and re-scored by both raters. Inter-rater reliability was excellent (ICC = 0.92, 95% CI [0.88, 0.95]), indicating a high level of scoring consistency and reducing the likelihood that the observed differences were attributable to rater disagreement.

Data analysis. No data were missing; all 80 participants provided complete pre- and post-test recordings and questionnaires. Rubric component scores were analyzed using separate ANCOVAs, with group (control vs. DS) as the fixed factor and the corresponding pre-test component score as the covariate ($\alpha = .05$). ANCOVA assumptions were met: residuals were normally distributed (Shapiro–Wilk tests for control and DS post-test residuals: $W_s > .96$, $ps > .20$); Levene's tests confirmed homogeneity of post-test variances ($F(1,78) < 1.2$, $p > .27$); and homogeneity of regression slopes held (Group $\times$ Pre: $F_s < 1.5$, $ps > .22$). Unadjusted pre–post gains were summarized descriptively, and between-group differences in change scores were examined using independent-samples t-tests. Questionnaire responses were analyzed descriptively at the component and composite levels, and within-group pre–post changes in questionnaire composite scores were examined using paired-samples t-tests. Questionnaire reliability was good (Cronbach's α pre/post: .82–.89 overall; .76–.85 per subscale).

Digital Tools used in the Study include: Google Classroom, online learning environment where students can turn in given tasks, Spotify for Podcasters, a podcasting platform used to record digital stories.

The methodological framework of the experiment was based on the integration of the following approaches:

Competency-based approach. It established what professional speech implies for this study: Professional style, Structure, Audience focus, Diction and linked activities and assessments to these aims.

Communicative approach. It was used to view speech as purposeful communication, students produced texts for genuine audience and context, which in turn promoted precision, register control and relevancy.

Task-based learning. It focused on short digital narrative products. This enabled students to organize, select sources, structure arguments and submit a final piece, directly training the skills evaluated by the rubric.

The four-criterion analytical rubric (1–5 scale) was created to operationalize the study

construct (Professional Style, Structure, Audience Focus and Diction) and it is consistent with the course learning outcomes and competency-based framework above. Prior to data collection, two subject-matter experts (teaching staff) assessed the rubric criteria and level descriptors for clarity and construct alignment and made changes based on their feedback. To ensure transparent and consistent scoring, Table 3 presents the performance-level descriptors (1-5) used for each rubric criterion.

Table 3. Performance Level Descriptors (1-5) for the Professional Speech Rubric.

Criterion	1 – Very Low	2 – Low	3 – Satisfactory	4 – Good	5 – Excellent
1. Professional Style	Speech informal, conversational, lacking academic tone	Attempts academic register but frequent lapses in precision and tone.	Generally maintains a professional manner; some stylistic inconsistencies.	Mostly accurate and clear professional expression with occasional errors.	Consistently uses academic, precise, and professional language appropriate to the context.
2. Structure	Ideas disorganized; lacks clear structure.	Limited organization with unclear flow of ideas.	Basic structure present but uneven or repetitive.	Well-organized with logical transitions and coherent argumentation.	Highly coherent, smooth flow; ideas connected persuasively with clear progression.
3. Audience Focus	Fails to address or engage the listener.	Minimal adaptation to audience; tone occasionally inappropriate.	Attempts to engage the audience but lacks consistency.	Addresses the audience appropriately; maintains interest.	Effectively engages and adapts message to listeners with confident delivery.
4. Diction	Poor articulation; frequent pronunciation and stress errors.	Speech somewhat clear but lacks fluency and natural intonation.	Generally intelligible; minor pronunciation or fluency issues.	Clear, expressive speech with good rhythm and articulation.	Excellent diction, intonation, and articulation; professional-level fluency and clarity.

Alongside the performance-based rubric assessment, students' perceived advancement in professional speech culture was evaluated through a 12-item self-report questionnaire corresponding to the study's construct model and rubric elements: Professional Style (Items 1–3), Structure (Items 4–6), Audience Focus (Items 7–9) and Diction (Items 10–12) (Table 4). Items were rated on a 5-point Likert-type scale (1-strongly disagree to 5-strongly agree) and administered at two time points (pre-test and post-test) under identical conditions. Higher

scores indicated stronger perceived competence.

Composite questionnaire scores were calculated as the mean of all 12 items, while component scores were calculated as the mean of the three corresponding items. Cronbach's alpha was used to assess internal consistency for both pre- and post-test total scale and each of its components. Questionnaire responses were analyzed descriptively at the component and composite levels, and within-group pre-post changes in self-reported scores were examined using paired-samples t-tests.

Table 4. Questionnaire Items

Scale	Item No	Items	Rating (1-5)
Scale A: Professional Style	1	I use an academic/professional register when speaking about my discipline.	1 2 3 4 5
	2	I select discipline-appropriate terminology accurately and use it consistently.	1 2 3 4 5
	3	My speech is objective and neutral (I avoid overly emotional or casual wording in academic contexts).	1 2 3 4 5
Scale B: Structure	4	I can organize a short talk with a clear introduction, development, and conclusion.	1 2 3 4 5
	5	My ideas progress coherently and are logically connected (e.g., cause-effect, claim-evidence).	1 2 3 4 5
	6	I use signposting expressions (e.g., "First...", "Next...", "In conclusion...") to guide listeners.	1 2 3 4 5
Scale C: Audience Focus	7	I adapt my explanation to the listeners' needs (clarity, level, and relevance).	1 2 3 4 5

	8	I maintain engagement by using clear examples and/or brief clarifications when needed.	1 2 3 4 5
	9	I keep a clear communicative purpose and stay relevant to the topic and audience.	1 2 3 4 5
Scale D: Diction	10	I articulate words clearly and maintain intelligible pacing while speaking.	1 2 3 4 5
	11	I follow standard pronunciation and stress patterns in my speech.	1 2 3 4 5
	12	My intonation sounds natural and supports clear meaning (not monotone or confusing).	1 2 3 4 5

Therefore, the study blended a competency-based construct model with a communicative, task-based instructional design delivered via a six-week quasi-experimental intervention. The impact of the podcast-style digital storytelling format was assessed using two complementary measures: (1) performance-based rubric scores obtained through blinded double-rating of pre and post-test recordings and (2) a parallel self-report questionnaire linked with the same four components. Analytically, separate component-level ANCOVAs with the corresponding pre-test scores as covariates were used to estimate between-group differences in rubric-based performance while controlling for baseline variation. Questionnaire responses were analyzed descriptively and supplemented by within-group pre-post comparisons.

4. Results

Across the formative period, the experimental group completed six podcast-style digital storytelling tasks (3–4 minutes each), each followed by brief feedback–revision cycle. The control group covered the same topics using traditional assignments and feedback. Table 5 presents pre- and post-test means, SDs, and gains (Δ) for each rubric component by group; both groups improved, but the DS group showed larger gains across all four components.

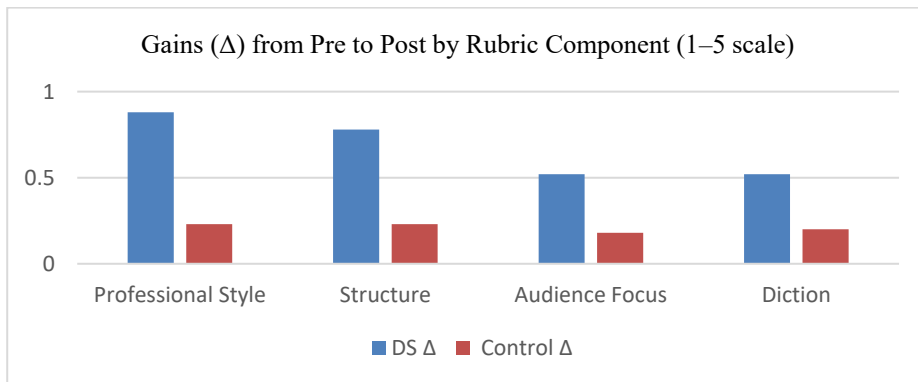
Table 5. Pre/post rubric means and Δ .

Criterion	Control Pre M (SD)	Control Post M (SD)	Δ Contr ol	DS Pre M (SD)	DS Post M (SD)	Δ DS	Between- group p (Δ)
1. Professional Style	3.05 (0.35)	3.28 (0.36)	+0.23	3.04 (0.34)	3.92 (0.38)	+0.88	< .01
2. Structure	3.02 (0.36)	3.25 (0.37)	+0.23	3.00 (0.33)	3.78 (0.40)	+0.78	< .01
3. Audience Focus	3.12 (0.32)	3.30 (0.34)	+0.18	3.10 (0.31)	3.62 (0.35)	+0.52	< .05
4. Diction	3.14 (0.33)	3.34 (0.35)	+0.20	3.16 (0.34)	3.68 (0.36)	+0.52	< .05

Note. Δ = post–Pre. Between-group p values for Δ were calculated using independent-samples t tests on change scores.

To visualize the pre-post changes across rubric components, Figure 1 presents the gain scores (Δ) for both groups.

Figure 1. Pre-post gains (Δ) by rubric component for both groups.



Gains (Δ) by rubric component (1–5 scale) between the pre- and post-test. The digital-storytelling (DS) group showed larger unadjusted gains than the control group across all four components, with the greatest gains observed in Professional Style and Structure.

Note. Δ = post – pre (unadjusted).

The main between-group effects were examined using separate component-level ANCOVAs, with the corresponding pre-test scores entered as covariates. Adjusted post-test means and model statistics are reported in Table 6. ANCOVA assumptions held as detailed in the Methods section.

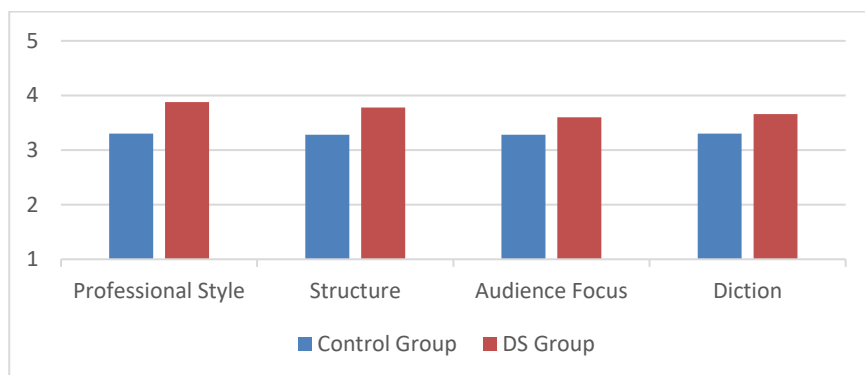
Table 6. Component-level ANCOVA results.

Outcome	Adjusted Post Mean – Control (SE)	Adjusted Post Mean – DS (SE)	F (1,77)	p	partial η^2
Professional Style	3.30 (0.07)	3.88 (0.07)	19.2	< .001	.20
Structure	3.28 (0.07)	3.78 (0.07)	16.8	< .001	.18
Audience Focus	3.28 (0.06)	3.60 (0.06)	7.1	.009	.08
Diction	3.30 (0.06)	3.66 (0.06)	6.2	.015	.07

Note. Adjusted post-test means were obtained from separate ANCOVA models using the corresponding pre-test component score as the covariate. Two-tailed p values are reported. Partial η^2 indicates effect size.

To visualize the adjusted post-test differences across rubric dimensions, Figure 2 presents the component-level adjusted means for the control and digital-storytelling groups.

Figure 2. Adjusted Post-test Means by Rubric Component and Group



To triangulate the performance-based findings with the students' self-perceptions, we next analyzed the 12-item questionnaire aligned with the same four components of professional speech culture. Questionnaire internal consistency was acceptable. Paired-samples t-tests of the self-report questionnaire composite scores indicated increases in both groups (control: $t(39) = 3.45$, $p = .001$; DS: $t(39) = 7.23$, $p < .001$), with a descriptively larger increase in the DS group. Descriptive pre-post results by group are reported in Tables 7 and 8.

Table 7. Questionnaire descriptives: control group.

Scale	Pre Mean (SD)	Post Mean (SD)	Gain
Professional Style	3.01 (0.80)	3.40 (0.81)	+0.39
Structure	3.20 (0.73)	3.48 (0.83)	+0.28
Audience Focus	3.21 (0.66)	3.56 (0.85)	+0.35
Diction	3.19 (0.77)	3.18 (0.74)	-0.01
Questionnaire composite	3.15 (0.74)	3.40 (0.81)	+0.25

Table 8. Questionnaire descriptives: DS group.

Scale	Pre Mean (SD)	Post Mean (SD)	Gain
Professional Style	3.22 (0.70)	3.89 (0.74)	+0.67
Structure	3.10 (0.88)	4.05 (0.63)	+0.95
Audience Focus	3.30 (0.92)	3.61 (0.79)	+0.31
Diction	3.32 (0.83)	3.83 (0.85)	+0.51
Questionnaire composite	3.23 (0.83)	3.84 (0.75)	+0.61

The self-report questionnaire results (M, SD) for the control and DS groups are shown in Tables 7 and 8, respectively. Both groups reported mid-range levels for all components at baseline, roughly 3.0-3.3. After the intervention, the control group's self-report questionnaire composite score increased by +0.25 (3.15 → 3.40), while Professional Style (+0.39), Structure (+0.28), and Audience Focus (+0.35) showed only slight increases. Diction (-0.01) showed virtually no change.

The experimental group, on the other hand, showed greater improvements in all areas, especially in Professional Style (+0.67, 3.22 → 3.89) and Structure (+0.95, 3.10 → 4.05), while Audience Focus showed a smaller but positive change (+0.31, 3.30 → 3.61), Diction also increased (+0.51, 3.32 → 3.83). In comparison to the control condition, the experimental group's self-report questionnaire composite score improved by +0.61 (3.23 → 3.84), indicating a stronger sense of self-improvement.

5. Discussion

Audience focus, structure, diction, and professional style were the four components of professional speech (1-5) that were evaluated. Following the intervention, students' scores increased across all four components; the largest gains were observed in Structure and Professional Style, while Audience Focus and Diction also showed improvement. The larger mean gains observed in the experimental group support the interpretation that participation in the DS workflow was associated with improvements across all four rubric components.

The findings suggest that brief podcast-style digital-storytelling exercises may support the development of professional speech culture among prospective philologist-teachers. Component-level results showed larger gains in the DS group than in the control group across all four rubric dimensions. These findings indicate that DS may be used as a brief, repeatable and low-burden classroom activity to support the development of field-relevant oral communication skills.

Component-level ANCOVA analyses, using the corresponding pre-test scores as covariates,

showed that the digital-storytelling group had higher adjusted post-test scores than the control group across all four rubric dimensions. The largest between-group effects were observed for Professional Style ($F(1,77) = 19.2$, $p < .001$, partial $\eta^2 = .20$) and Structure ($F(1,77) = 16.8$, $p < .001$, partial $\eta^2 = .18$), followed by Audience Focus ($F(1,77) = 7.1$, $p = .009$, partial $\eta^2 = .08$) and Diction ($F(1,77) = 6.2$, $p = .015$, partial $\eta^2 = .07$). These findings suggest that participation in the digital-storytelling condition was associated with improvements across all four dimensions of professional speech culture, with the strongest differences observed in academic register and coherent organization.

The pattern of gains is consistent with the study's instructional logic and rubric structure: scripting combined with time-bound delivery may have supported improvements in diction and orthoepy; a communicative focus on the audience may have contributed to audience adaptation; and the workflow may have supported the development of professional style, structure and logical organization.

The observed gains in the experimental group are consistent with the pedagogical principles of podcast-style digital storytelling: students devise a brief spoken presentation, create a timed recording and subsequently enhance it through criterion-referenced feedback. This workflow may encourage intentional planning and practice while facilitating self-assessment through the review of students' own speech. These processes may contribute to improvements in academic register, coherence and clarity of expression.

The findings correspond with extensive research on higher-education podcasting, indicating that audio production enhances engagement, reflective learning and profound procession of course material by transforming learners into active creators instead of passive listeners. Furthermore, work focusing on discourse-oriented and phonostylistic training underscores that deliberate practice with oral delivery elements (e.g., prosody pace, intonation) can be cultivated when learners are provided with organized instruction and opportunities for reflection. This study contributes to the existing literature by defining professional speech culture through four quantitative components and suggesting that a concise, course-integrated workflow may be associated with measurable improvements within a single instructional cycle.

While the experimental group exhibited enhancements in all components, Audience Focus demonstrated relatively lesser improvements than professional style and structure. Audience adaptation may necessitate more explicit scaffolding than the existing workflow allows (e.g., defining a specific target audience persona, mandating a listener-focused hook or incorporating a rubric checkpoint for examples or clarifications). The podcast format may support clarity and organization; however, audience-focused strategies may require explicit instruction and consistent practice to produce more substantial improvements.

The self-report questionnaire exhibited a consistent overall trend with the performance rubric: the experimental group indicated more pre-post improvements than the control group, especially in Professional Style and Structure. The rubric evaluates observable performance, while the questionnaire assessed perceived competence and strategic awareness; thus, the convergence of the two measures reinforces the interpretation that participation in the DS condition was associated with improvements in both students' speech outcomes and their awareness of professional communication development.

This study employed intact sections with non-random allocation; hence, causal inferences should be drawn with caution, despite baseline comparability and statistical control by ANCOVA. The research was performed at a single university within a brief intervention period and instructor-specific variables may restrict generalizability. Moreover, self-report instruments may be affected by social desirability or heightened knowledge of evaluative factors. Replication employing randomization, various sites and postponed post-tests is essential to investigate durability and applicability to other academic speaking genres.

The intervention is low-cost and scalable within current curricula: teachers can assign 3-4-

minute scripted recordings on relevant prompts, offer concise rubric-aligned feedback and mandate one specific change. To fortify the audience teachers may incorporate a concise audience-persona requirement, an obligatory example or explanation point and a succinct peer-listener verification prior to final submission. This maintains practicality while enhancing the probability of audience-adaptation benefits.

Convergent evidence from the self-report questionnaire and the performance-based rubric suggests that participation in the podcast-style digital-storytelling condition was associated with the development of professional speech culture. According to the questionnaire results, the experimental group displayed the greatest perceived improvements in Structure and Professional Style. These findings are consistent with the requirements of the podcast workflow, which include students planning content, organizing ideas logically and using signposting to maintain clarity in a brief recorded format.

Additionally, repeated drafting and revision emphasize discipline-appropriate language and academic register. The Diction component increased in the experimental group, whereas the control group showed virtually no change. However, compared to other components, Audience Focus increased more modestly, indicating that more explicit instructional scaffolding may be necessary for audience adaptation. A more thorough interpretation of the intervention's effects is made possible by the combination of questionnaire scores that record perceived competence and strategy awareness and rubric scores that represent actual performance.

6. Conclusion

In this quasi-experimental study, we examined whether digital-storytelling tasks were associated with improvements in the professional speech culture of prospective philology teachers compared with traditional tasks. After accounting for baseline performance, component-level ANCOVA analyses showed that the experimental group achieved higher adjusted post-test scores than the control group across all four criteria. The largest between-group effects were observed for Professional Style (partial $\eta^2 = .20$) and Structure (partial $\eta^2 = .18$), followed by Audience Focus (partial $\eta^2 = .08$) and Diction (partial $\eta^2 = .07$). These findings suggest that a lightweight digital-storytelling workflow – consisting of a 3-4-minute scripted recording, one cycle of targeted feedback and criterion-based assessment – may support meaningful improvements in professional speech culture within a single course cycle.

Questionnaire data provided consistent evidence for these findings: the experimental group reported greater pre-post increases in self-perceived professional speech culture than the control group, particularly in Structure and Professional Style, while gains in Audience Focus and Diction were also more pronounced in the experimental group. Combined, the performance-based and self-report findings suggest that participation in the DS condition was associated with improvements in both observable speech performance and learners' awareness of their communicative development.

From a practical standpoint, this approach is low-cost and scalable: it fits seamlessly into the course, aligns assessment with objectives, and facilitates timely formative feedback. Including short DS assignments may support students in using academic language, organizing their arguments and maintaining audience engagement.

Further research should be conducted at several sites with randomization, adding delayed measurements and combining expert assessments with validated automatic speech metrics. It is useful to compare different DS settings (number of iterations, peer assessment format, criterion weights) and test transferability to other academic genres, not just oral presentations.

Overall, short podcast assignments in the format of digital storytelling represent a realistic and pedagogically promising approach to supporting professional speech culture among prospective philology teachers, particularly in relation to academic register and structural

coherence.

AI Declaration

AI tools were used solely for language editing purposes. Specifically, ChatGPT was used to correct grammatical, spelling, and punctuation errors and to improve the clarity and readability of certain sentences.

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