



The Impact of Incorporating a Collaborative Podcast Project into a Broadcasting and Hosting Art Course on Student Performance

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Abstract

Background and Aim: With the rapid growth of internet technology and artificial intelligence, students in broadcasting and hosting programs face several challenges. They often lack practical skills, making it hard to apply theoretical knowledge in real-world communication. The changing media landscape also requires them to adapt to new formats, but their ability to use and integrate new technologies is limited. Platforms like TikTok and Red Book dominate content distribution. While they provide entertainment, they may weaken students' critical thinking skills. This can create information echo chambers, making deep analysis and creative content production more difficult. This study explores the impact of collaborative podcast projects in broadcasting and hosting courses. It applies podcast technology in an educational setting, using ideas from constructivist, humanistic, and connectivist learning theories. A quasi-experimental design is used to assess students' Mandarin tone and broadcast pronunciation, creativity, writing, post-production, and overall performance. Student feedback is also collected to examine the benefits of podcast technology in this field. The findings aim to help educators improve teaching methods, enhance course design, and support better learning outcomes.

Materials and Methods: This study uses a quasi-experimental design. The participants are 120 first-year students majoring in broadcasting and hosting arts at Shanghai Lida College. The study examines the impact of collaborative podcast creation on student performance in this course. The sample size is 64 students. The experiment includes a treatment group and a control group to compare differences in key variables. A lottery sampling method is used to randomly select two classes. One class is assigned to the control group and the other to the treatment group. Both groups take a pre-test and a post-test. An independent t-test is conducted using Jamovi to analyze the data. At the end of the course, an open-ended questionnaire is given to the treatment group. The responses are analyzed using NVivo 15, focusing on attitudes toward podcast technology and learning motivation. This helps to explore the factors affecting student performance in collaborative podcast projects. The intervention was an eight-week collaborative podcast project, where students worked in teams to produce and distribute podcasts.

Results: The findings indicate that while the improvement in Mandarin tone and broadcast pronunciation did not reach statistical significance, collaborative podcast projects have the potential to enhance student performance in creativity, production skills, and writing skills. The analysis of open-ended responses suggests that learning motivation in the podcast project was driven by creativity, emotional engagement, a sense of achievement, and collaboration. Additionally, students' attitudes toward podcast technology were largely positive, with frequent mentions of its role in diversifying professional knowledge and expanding future career opportunities.

Furthermore, the results highlight that although students perceived learning new technology as a challenge, completing the project gave them a strong sense of achievement and increased confidence in their technical skills. These findings support the integration of podcast projects as a valuable instructional approach in broadcasting and hosting education.

Conclusion: Integrating collaborative podcast projects into broadcasting and hosting courses has the potential to improve students' creativity, post-production skills, and writing abilities. The process of podcast creation involves deep learning cycles, including collaboration, emotional engagement, creative learning, a sense of achievement, and self-directed learning, all of which positively influence learning motivation. As a learning tool, podcast technology diversifies professional knowledge and expands future career opportunities.

Keywords: Broadcasting and Hosting Arts Courses; Student Performance; Technology Acceptance Model; Collaborative Podcast Project; Project-Based Learning (PBL)



Introduction

With the rapid development of internet technology and digital media, broadcasting and hosting education are undergoing significant changes. However, traditional teaching methods often fail to adapt to the evolving media landscape. They focus primarily on theoretical instruction, with limited opportunities for practical learning. As a result, students face difficulties in applying their knowledge in real-world media environments, integrating emerging technologies, and adapting to new media formats.

Podcasting, first introduced as a built-in application on Apple devices by Steve Jobs, has since grown into a major broadcasting platform. It has filled the gap left by declining traditional radio audiences. Major broadcasters such as the BBC and NPR have launched podcast versions of their programs, while independent media creators combine podcasts with video content on platforms like YouTube and Spotify. Despite this growth, podcasting has not yet been integrated into traditional broadcasting courses in China. Collaborative podcast projects can introduce students to diverse professional knowledge while serving as an innovative teaching method. Through practical experience, teamwork, and technology application, they offer new possibilities for improving learning outcomes.

This study examines the impact of integrating collaborative podcast projects into broadcasting and hosting courses, using multiple learning theories as a foundation. Constructivism (Vygotsky, 1978) argues that knowledge is actively constructed through experience and interaction. In podcast projects, students engage in brainstorming, scriptwriting, hosting discussions with guests, post-production editing, and online distribution. By completing these tasks collaboratively, they gain practical experience and gradually build professional skills. Humanistic Learning Theory (Rogers, 1969) emphasizes a student-centered learning approach, focusing on autonomy, creativity, and motivation. In podcast production, students choose topics, draw inspiration from personal and emotional experiences, write scripts, select background music, and edit content. These creative processes help develop problem-solving skills and enhance intrinsic motivation.

Project-Based Learning (PBL) provides a structured model in which students engage in real-world projects as the core of their learning. PBL encourages problem-solving, teamwork, and knowledge application to support deep learning. Podcast production aligns with this model, requiring students to plan, record, edit, and publish content while developing essential broadcasting skills such as creativity, post-production, hosting, and writing. In this study, the experimental group is divided into eight teams, each consisting of four students with assigned roles: planning, post-production, hosting, and scriptwriting. Through brainstorming, topic selection, interviews, script collaboration, recording, and editing, each team produces a complete podcast project. This project-driven learning model enables students to enhance their professional skills and teamwork abilities by solving problems throughout the process.

Additionally, Experiential Learning Theory (Kolb, 1984) explains how students acquire knowledge through experience, reflection, and experimentation. In the podcast project, students first gain hands-on experience, then reflect on their production process, develop new strategies, and apply improvements in future projects. Connectivism (Siemens, 2005) highlights the role of digital networks in learning. Through podcast creation, students interact with digital tools, online platforms, and audience feedback, improving their ability to access, integrate, and apply information in media environments. Furthermore, podcast platforms provide new sources of inspiration and knowledge, contributing to cognitive development.

Objectives

This study examines the effectiveness of collaborative podcast projects through the following research Objectives:

To determine the difference between incorporating collaborative podcast projects and traditional teaching methods in enhancing students' Mandarin pronunciation and articulation, creativity, writing skills, and post-production abilities.

To determine the impact of collaborative podcast projects on students' learning motivation.

To determine the influence of podcast technology as a learning tool on students' interest in learning.





A quasi-experimental design is employed to compare the experimental and control groups. The study evaluates key competencies, including Mandarin tone and broadcast pronunciation, creativity, writing, post-production, and overall performance. Additionally, student feedback is collected to analyze attitudes toward podcast technology and its impact on learning motivation and interest. The findings will provide educators with insights into effective teaching strategies, curriculum optimization, and the educational value of podcast technology in broadcasting and hosting education.

Literature review

The integration of collaborative podcast projects into broadcasting and hosting courses is examined through multiple learning theories, each emphasizing different aspects of the learning process. Constructivism highlights active learning and social interaction, Humanistic Learning Theory focuses on emotional engagement and intrinsic motivation, and Connectivism emphasizes the construction of digital knowledge networks. Project-based learning (PBL) promotes learning through real-world tasks and problem-solving, while Experiential Learning Theory underscores learning through direct experience, reflection, and application. By synthesizing these perspectives and incorporating the practical process of podcast production, this study provides a comprehensive theoretical foundation for podcasting as an instructional tool.

Constructivism Learning Theory

Constructivist learning theory emphasizes that learning is an active, experiential, and social process in which students construct knowledge through interaction and practice. Ng'ambi & Lombe (2012) found that integrating podcasts into a constructivist learning environment enhances learning effectiveness. According to Perkins (1999), constructivist learning involves active participation, social collaboration, and creative problem-solving, making it highly relevant to podcast-based learning.

Podcast production engages students in brainstorming, scriptwriting, guest interviews, post-production editing, and online distribution. These activities allow them to consolidate existing knowledge and construct new knowledge through collaboration (Bartle et al., 2019). Constructivist learning also emphasizes the role of social interaction in cognitive development. Campbell (2008) suggests that podcasting promotes learning by integrating individual cognition with group discussions and audience feedback. Students apply prior knowledge, share insights, and reflect on feedback to improve their work. This reflective process, particularly in editing and content distribution, fosters active participation and skill development, which are essential for success in broadcasting education.

Humanistic Learning Theory

Humanistic learning theory emphasizes the importance of self-expression, emotional engagement, and intrinsic motivation in the learning process. Johnson (2013) argues that when learning content holds personal meaning, students develop a stronger sense of self-awareness, values, and emotional involvement. In podcast production, students exercise autonomy by selecting topics, planning episodes, writing scripts, and shaping their style during recording. These processes involve emotional engagement, which enhances self-directed learning and intrinsic motivation.

Collaborative podcast projects also support interdisciplinary knowledge integration, allowing students to learn from teamwork, express opinions, and improve communication skills (Bartle et al., 2019). Effective communication is essential in broadcasting education, and Crebert et al. (2004) highlight its importance across different fields. Through group discussions, peer feedback, and podcast interviews, students expand their thinking and develop a sense of teamwork. Additionally, Peppler & Solomou (2011) suggest that creative projects involving collaboration encourage continuous reflection, leading to improvements in creativity and critical thinking.

Project-Based Learning (PBL) and Experiential Learning

The collaborative podcast project aligns with Project-Based Learning (PBL), which promotes learning through real-world problem-solving and teamwork (Thomas, 2000). PBL immerses students in authentic tasks, requiring them to research, design, and execute projects with practical applications. In



broadcasting education, podcast production serves as a project-based task where students plan, record, edit, and distribute content, integrating both technical and creative skills.

Additionally, Experiential Learning Theory (Kolb, 1984) explains how students acquire knowledge through hands-on engagement, reflection, and iterative practice. Kolb's Experiential Learning Cycle consists of four stages: Concrete Experience – Students actively produce podcasts, engaging in real-world media creation. Reflective Observation – They evaluate their work, identifying successes and areas for improvement. Abstract Conceptualization – Students derive new insights, connecting theoretical broadcasting concepts to practical applications. Active Experimentation – They refine and apply new techniques in subsequent podcast projects. This cyclical learning process ensures that students not only master content knowledge but also develop adaptive problem-solving abilities and technical competencies in audio production, media distribution, and audience engagement.

Technology Acceptance Model

Examining students' attitudes toward podcast technology is an important factor in evaluating its effectiveness as a teaching tool. The Technology Acceptance Model (TAM) provides a framework for analyzing students' acceptance of new technologies. Davis (1989) introduced the concept of Perceived Ease of Use, which influences student engagement and long-term adoption of technology in learning environments. When students perceive technology as easy to use, they are more likely to integrate it into their learning process.

Since collaborative podcast projects rely on digital tools, this study uses open-ended questionnaires to assess students' perceptions of key factors, including the impact of podcast technology on learning motivation, Challenges faced during podcast production, Advantages and disadvantages of podcasts as a learning tool, Students' willingness to continue using podcast technology in the future. Understanding these factors helps determine whether podcasting can be effectively integrated into broadcasting education and how students engage with this digital learning method.

Connectivism Learning Theory

Web 2.0 platforms, including podcast applications, serve as interactive learning communities, allowing students to engage with experts, share knowledge, and collaborate on content creation (Goldie, 2016). In the context of collaborative podcast projects, connectivism provides a framework for understanding how students acquire knowledge through networked learning environments. This study applies connectivism principles to analyze the role of podcasts as a learning tool in broadcasting education. The course design incorporates multiple strategies to enhance digital knowledge acquisition and professional skill development. In the classroom, students are exposed to professional podcast productions, analyzing case studies of media professionals' work and production strategies. They are assigned listening tasks to explore industry-created podcasts, gaining insights and identifying preferred styles. Additionally, students receive technical training on RSS formatting, learning how to create and upload their podcasts. Once their projects are complete, they interact with listeners, peers, and industry professionals to gather feedback, fostering a deeper understanding of audience engagement and content distribution.

To assess the effectiveness of this digital learning ecosystem, this study compares the overall broadcasting production scores of the experimental and control groups. By evaluating students' performance before and after their participation in the collaborative podcast project, the study examines whether learning within a podcast-based digital environment enhances their broadcasting and media production competencies.



Hypotheses

Table 1 List of Hypotheses in the Study

Hypotheses (Null and Alternative)	Statement	Literature Support
H ₀₁	There is no difference in Mandarin tune and broadcast pronunciation between the experimental group and the control group.	(Ma, 2022)
Ha1	There is a difference in Mandarin tune and broadcast pronunciation between the experimental group and the control group.	
H ₀₂	There is no difference in Creativity between the experimental group and the control group.	(Walia, 2019)
Ha2	There is a difference in Creativity between the experimental group and the control group.	
H ₀₃	There is no difference in post-production skills between the experimental group and the control group.	(Cohen, 2021)
Ha3	There is a difference in post-production skills between the experimental group and the control group.	
H ₀₄	There is no difference in Writing skills between the experimental group and the control group.	(Gautam, 2019)
Ha4	There is a difference in Writing skills between the experimental group and the control group.	
H ₀₅	There is no difference in the Total Score between the experimental group and the control group.	(Sonoda et al, 2018)
Ha5	There is a difference in the Total Score between the experimental group and the control group.	

Conceptual Framework

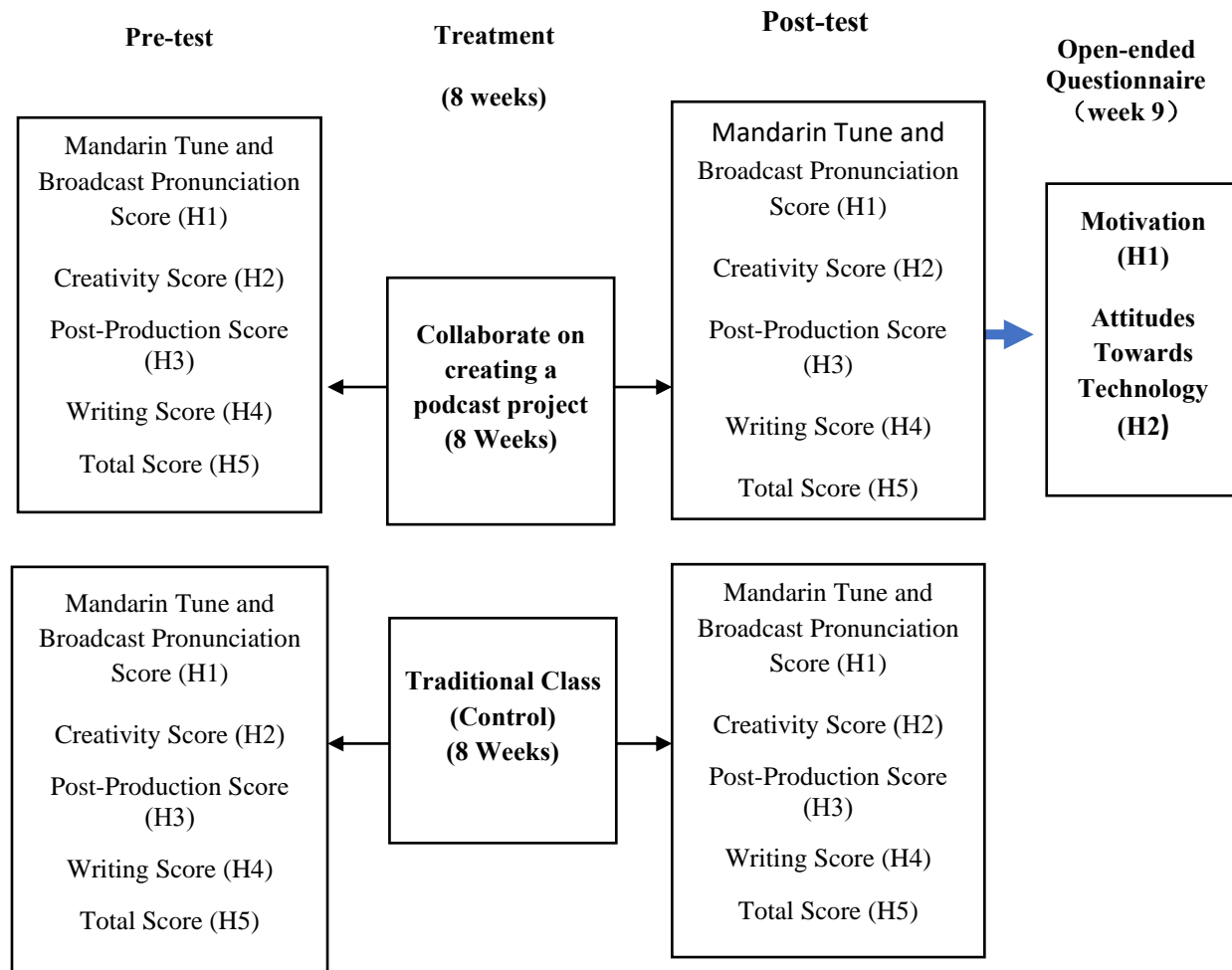


Figure 1 Conceptual framework

The conceptual framework of this study (Figure 1) is based on the literature review and the assessment standards of the Broadcasting and Hosting Arts program at Shanghai Lida College. It follows a two-phase quantitative research design to examine the impact of collaborative podcast creation on students' learning performance in broadcasting and hosting arts courses.

The first phase consists of an eight-week quasi-experimental study conducted from Week 1 to Week 8. Using random sampling through a lottery method, 64 first-year students were randomly selected from 120 students at Shanghai Lida College and assigned to either the experimental group ($n = 32$) or the control group ($n = 32$). The experimental group participated in podcast technology training, case studies of professional podcast productions, task assignments, group formation, role distribution, topic planning, brainstorming discussions, guest invitations, podcast recording, and podcast uploading and distribution. In contrast, the control group followed a traditional broadcasting production course, focusing on theoretical training in conventional broadcasting methods.

Both groups took a pre-test in Week 1 and a post-test in Week 8, in which they were required to produce a radio audio program. The course structure was identical for both groups, with each group completing 24 sessions of the same duration and frequency. Student performance was assessed across five dimensions: Mandarin pronunciation and articulation, writing skills, creativity, post-production skills, and



overall performance. After the intervention, pre-test and post-test scores were compared, and statistical significance (p-value) analysis was conducted to measure learning progress.

The second phase took place after Week 8, where an open-ended questionnaire was distributed to students in the experimental group to evaluate their learning motivation and attitudes toward podcast technology. The questionnaire was administered before the end of Week 8 and collected in Week 9. This phase aimed to explore factors influencing students' learning performance after participating in the collaborative podcast project. The findings provide valuable insights into the applicability and pedagogical value of collaborative podcast creation in broadcasting and hosting arts education.

Methodology

Population and sample

The study was conducted on 120 first-year students majoring in broadcasting and hosting arts at Shanghai Lida College. This study aims to explore the applicability of students' collaborative creation of podcasts in the broadcasting and hosting arts course.

According to Rajic (2013), podcasts are a hybrid of traditional broadcasting and new media and are a kind of portable broadcasting. Learning podcast production requires starting with the basic knowledge of broadcasting and hosting. First-year students of this major have passed the art exam before starting undergraduate courses. These students have basic knowledge of broadcasting and hosting and certain aesthetic abilities.

This study investigates whether there are differences in Mandarin tone and broadcast pronunciation, creativity, post-production skills, writing skills, distribution skills, and overall performance between a collaborative podcast creation teaching model and a traditional teaching approach in a Broadcasting and Hosting Arts course. To explore this, the research selected two first-year classes from the Broadcasting and Hosting Arts department at Shanghai Lida College's Media School. These students have some 43 experiences in media, language arts, and basic language skills, which align well with the study's goals.

The sample size for this study is 64 participants. The experiment includes a treatment and a control group to determine the differences in variables between the two groups. Ideally, statistical power and effect size should exceed 0.8 (Cohen, 1988), with a large effect size ($d=0.8$) for t-tests and a significance level of 0.05. According to G-Power software 3.1, the required sample size for achieving a statistical power and effect size of 0.8 is 42 participants. Therefore, the sample size of this study exceeds 42, ensuring sufficient statistical power.



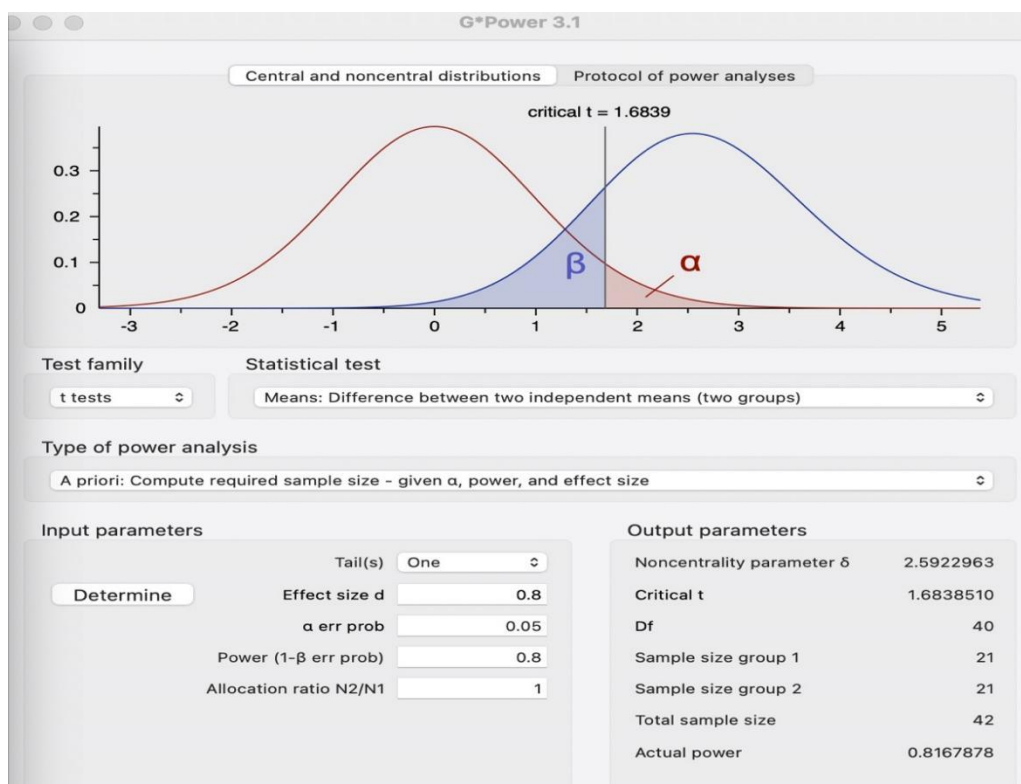


Figure 2 Sample Size

Sampling Techniques

This study employs the simple random sampling method, which is widely used in quantitative research to enable researchers to randomly and unbiasedly select participants, ensuring fairness and representativeness (Noor et al., 2022). This approach minimizes the influence of confounding factors and must meet three criteria: random selection, sample representativeness, and equal selection probability for each unit in the population.

The participants in this study are first-year Broadcasting and Hosting Arts students at Shanghai Lida College. Since freshmen are randomly assigned to classes upon admission, they are considered a homogeneous group. A lottery sampling method was used for random selection, where the four class monitors participated in the draw. They were randomly selected from four numbered strips, with the class drawing number 1 assigned to the control group and the class drawing number 2 assigned to the experimental group. This procedure ensures that all students in the four classes have an equal opportunity to participate in the study.

Treatment

The experimental group integrated podcast technology and collaborative podcast projects into the traditional broadcasting creation course. The 32 students were divided into groups, assuming roles such as host, planner, post-production specialist, scriptwriter, and distributor. By Shanghai Lida College's assessment criteria, students' performance was evaluated across four dimensions: Mandarin pronunciation and broadcasting articulation, creativity, post-production skills, and writing ability.

Each group's planner led the topic selection meeting, guiding discussions based on interests, expertise, and societal observations to determine appropriate podcast topics. Once finalized, the team defined the program format, key events, and interviewees, which included experts, officials, and individuals involved in the events. The group then planned the recording logistics, including location and scheduling. The scriptwriter developed the interview script, the host conducted interviews and recordings, and the post-



production specialist edited and produced the final podcast. The distributor was responsible for publishing the podcast, monitoring play counts and audience feedback, and managing the podcast's online presence.

To acquire podcast production skills, students in the experimental group were trained in both hardware and software tools. The required hardware included Windows or Mac computers, microphones, headphones, and, optionally, MP3 players. The software utilized included Audacity for recording and editing, LAME/iTunes for MP3 encoding, Smart FTP for file transfers, and RSS feed generation tools for podcast publication. Mastery of these technical competencies was essential for students to successfully create and distribute podcasts.

This study employed two primary data collection methods: performance tests and an open-ended questionnaire. Descriptive analysis was conducted to examine the central tendency and dispersion of the scores obtained from the performance tests and questionnaire responses.

For inferential analysis, quantitative data were collected through tests and analyzed using SPSS 23.0. An independent samples t-test was performed to compare the pre-test and post-test scores of the experimental and control groups. The mean, standard deviation, and p-value were reported to assess whether collaborative podcast creation enhanced students' learning performance in broadcasting and hosting arts courses.

For the open-ended questionnaire, 32 students from the experimental group responded to five structured questions designed to explore learning motivation and attitudes toward technology. Data analysis was conducted using NVivo 15, involving data cleaning, response coding, and thematic analysis to extract meaningful insights. This approach provided a deeper understanding of the factors influencing students' learning performance, particularly after integrating collaborative podcast creation into broadcasting courses.

Research instruments

This study utilized two research instruments: performance tests and an open-ended questionnaire. The performance tests aimed to evaluate learning outcomes in both the experimental and control groups, focusing on Mandarin pronunciation, broadcast articulation, creativity, post-production skills, writing ability, and overall performance. Both groups took a pre-test in Week 1 and a post-test in Week 8, where they were required to produce a radio audio program. The experimental group incorporated collaborative podcast creation into their coursework, while the control group followed traditional broadcasting teaching methods. Despite differences in instructional approach, both groups completed the same course tasks and were assessed using identical evaluation criteria.

The grading system followed the assessment framework of Shanghai Lida College's existing practical courses, ensuring alignment with institutional standards. The final evaluation was conducted by three faculty members specializing in broadcast production, hosting, and new media education, with the final score being the average of all individual component scores.

Additionally, an open-ended questionnaire was distributed to 32 students in the experimental group. The questionnaire contained five questions, focusing on learning motivation and attitudes toward technology use, aiming to assess the impact of the collaborative podcast project on student performance. Participants were informed that they should provide detailed responses, that their identities would remain anonymous, and that the data would be accessible only to the researchers. The questionnaire was administered at the end of Week 8 and collected in Week 9 via wjx.cn, ensuring an organized and systematic data collection process. To establish the validity of the questionnaire, four experts in new media and podcast technology reviewed the items, with content validity measured using the Content Validity Index (CVI) following Polit and Beck (2006). The results indicated that all items met the CVI threshold ($I-CVI = 1.00$), confirming their suitability for research. To ensure the accuracy and consistency of the translation, the research instruments were translated by two certified professionals, using forward and backward translation methods to maintain alignment between the original and translated versions.



Table 2 The results ratings on a 5-item Scale by Four Experts: Items Rated 3 or 4 on a 4-point Relevance Scale

Item	Expert 1	Expert 2	Expert 3	Expert 4	Number in Agreement	Item CVI
1	4	4	4	4	4	1.00
2	4	3	4	4	4	1.00
3	4	4	4	3	4	1.00
4	4	4	4	4	4	1.00
5	3	4	4	4	4	1.00
Proportion Relevant:	1.00	1.00	1.00	1.00	Mean I-CVI = (1+1+1+1+1)/5 = 1.00	

Results

Demographic information

The demographic data of the sample was obtained from students enrolled in the Broadcasting Creation Fundamentals Course, with a total of 64 students participating. Regarding age, 60 students were between the ages of 20 and 22, accounting for 93.75% of the total sample, while four students were over the age of 22, accounting for 6.25%. In terms of gender, the class consisted of 5 male students (7.8%) and 59 female students (92.18%). All students in the sample were first-year undergraduates enrolled in the top-up bachelor's degree program. The detailed information is presented in Table 3.

Table 3 Demographic Information of Samples

Variable	Category	Frequency	Percentage
Gender	Male	5	7.8%
	Female	59	92.18%
	Total	64	100%
Age	20-22	60	93.75%
	Above 22	4	6.25%
Year of Study	First Year	64	100%

Performance test results

To ensure the reliability of the experiment, independent sample t-tests were conducted to compare the pre-test scores of the experimental and control groups, verifying their equivalence at the study's outset. The analysis covered Mandarin pronunciation and broadcasting articulation, creativity, writing skills, and post-production skills, with results summarized in Table 4.

Table 4 Means Summary for Students' Pre-test Scores

	Group	N	Mean	SD
Pre-test Mandarin tune and broadcast pronunciation	1	32	80.2	7.55
	2	32	79.4	2.49
Pre-test Creativity	1	32	77.3	7.94
	2	32	77.0	5.03





	Group	N	Mean	SD
Pre-test Writing Skills	1	32	76.8	7.69
	2	32	78.5	4.68
Pre-test Post-production Skill	1	32	72.4	8.44
	2	32	71.6	4.77
Pre-test Total score	1	32	76.7	7.30
	2	32	76.6	3.52

The t-test results indicated no significant differences between the two groups across all measured variables. Specifically, the significance values for Mandarin pronunciation ($p = 0.611$), creativity ($p = 0.822$), writing skills ($p = 0.302$), post-production skills ($p = 0.611$), and total score ($p = 0.957$) were all above the 0.05 threshold, confirming comparable baseline abilities. Additionally, the small mean differences further validate that both groups had equivalent proficiency levels before the intervention.

Table 5 T-tests for Pre-test Scores Between the Two Groups

	Sig.	Mean Difference
Pre-test Mandarin tune and broadcast pronunciation	0.611	0.7188
Pre-test Creativity	0.822	0.3750
Pre-test Writing Skills	0.302	-1.6563
Pre-test Post-production Skill	0.611	0.8750
Pre-test Total score	0.957	0.0781

The t-test results indicated no significant differences between the two groups across all measured variables. Specifically, the significance values for Mandarin pronunciation ($p = 0.611$), creativity ($p = 0.822$), writing skills ($p = 0.302$), post-production skills ($p = 0.611$), and total score ($p = 0.957$) were all above the 0.05 threshold, confirming comparable baseline abilities. Additionally, the small mean differences further validate that both groups had equivalent proficiency levels before the intervention.

Table 6 Means Summary for Students' Total Score Improvement

Group	N	Mean	SD
Experimental group	32	84.2	2.84
Control group	32	81.3	2.97

Table 7 T-tests for Students' Total Score Improvement Between the Control Group and Experimental Group

	Sig.	Mean difference
Control and Experimental	< .001	2.90

An independent samples t-test was conducted to compare the effectiveness of incorporating a collaborative podcast creation project into the broadcasting and hosting course. As presented in Table 5 and



Table 6, the results indicated that there was a statistically significant difference in total scores between the experimental group ($M = 84.2$, $SD = 2.84$) and the control group ($M = 81.3$, $SD = 2.97$), with the experimental group achieving higher overall performance ($p < 0.001$). The mean difference of 2.90 suggests that the intervention positively influenced student outcomes. The standard deviations indicate comparable score variability across both groups, though the control group exhibited slightly greater variability ($SD = 2.97$) than the experimental group ($SD = 2.84$).

The findings suggest that integrating the collaborative podcast project into the broadcasting and hosting curriculum can significantly enhance students' academic performance.

Hypotheses Testing

This research examined the effectiveness of collaborative podcast creation projects in enhancing students' Mandarin pronunciation and enunciation, creativity, writing skills, post-production abilities, and overall academic performance in a Broadcasting and Hosting course. The mean scores of the pre-test and post-test were compared for analysis.

The null hypothesis and the research hypothesis are as follows.

Hypothesis 1

H_01 : There is no difference in Mandarin tune and broadcast pronunciation between the experimental group and the control group.

H_{a1} : There is a difference in Mandarin tune and broadcast pronunciation between the experimental group and the control group.

Table 8 Means Summary for Students' Mandarin tune and broadcast pronunciation Score Improvement.

	N	Mean	SD
Experimental group	32	83.5	2.11
Control group	32	82.5	1.93

Table 9 T-tests for Students' Mandarin tune and broadcast pronunciation Score Improvement Between the Control Group and Experimental Group

	Mean difference	Sig.
Control and Experimental	0.969	0.060

The independent samples t-test was conducted to compare improvements in Mandarin tune and broadcast pronunciation between the experimental and control groups. The results showed no statistically significant difference, though they were close to the significance threshold ($t(62) = 1.915$, $p = 0.060$). Therefore, the null hypothesis was retained. While the experimental group performed slightly better, the difference was not strong enough to confirm the effectiveness of the intervention.

The Broadcasting Production Fundamentals course is primarily theory-based, aiming to develop hosting, interviewing, editing, planning, and production skills. Over the eight weeks, the control group received theoretical instruction and pronunciation training, but this did not lead to significant improvement. Possible reasons include insufficient training time, imbalanced distribution between theory and practice, and students' existing Mandarin proficiency, which may have reduced their motivation for achieving highly precise pronunciation.

For the experimental group, despite integrating the collaborative podcast project, there was a lack of focused discussions and open exchanges on pronunciation practice. Analysis of students indicated that those with weaker pronunciation also exhibited communication difficulties.

Previous research (Pegrum et al., 2011; Bartle) suggests that podcast creation promotes deep learning, enhances scientific communication skills, and increases learning motivation. The researcher proposes that if podcast production were specifically focused on Mandarin pronunciation, student



performance in this area might show significant improvement. However, narrowing the study scope might limit creativity and planning skill development, making this an area for further research.

Hypothesis 2

H₀2: There is no difference in creativity between the experimental group and the control group.

H_a2: There is a difference in creativity between the experimental group and the control group.

Table 10 Means Summary for Students' Creativity Score Improvement

	Mean	N	SD
Experimental	85.3	32	3.25
Control	81.9	32	2.90

Table 11 T-tests for Students' Creativity Score Improvement Between the Control Group and Experimental Group

	Mean difference	Sig.
Control and Experimental	3.469	< .001

The independent samples t-test was calculated to compare students' creativity score improvement between the control group and the experimental group. The t-test was significant, $t(62) = 4.503$, $p < .001$. Thus, the null hypothesis was rejected. The result indicated that the students' creativity score improvement among the control group was significantly different.

Table 12 T-tests for Students' Creativity Score Improvement Between the Control Group and Experimental Group

	Mean difference	Sig.
Control and Experimental	3.469	< .01

The independent samples t-test was calculated to compare students' creativity score improvement between the control group and the experimental group. The t-test was significant, $t(62) = 4.503$, $p < .001$. Thus, the null hypothesis was rejected. The result indicated that the students' creativity score improvement among the control group was significantly different.

Hypothesis 3

H₀3: There is no difference in post-production skills between the experimental group and the control group.

H_a3: There is a difference in post-production skills between the experimental group and the control group.

Table 13 Means Summary for Students' Post-production Skills Score Improvement.

	Mean	N	SD
Experimental group	82.3	32	3.28
Control group	77.4	32	6.97

Table 14 T-tests for Students' Post-Production Skills Improvement Between the Control Group and Experimental Group

	Mean difference	Sig.
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Control and Experimental	4.906	< .001
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The independent samples t-test was calculated to compare students' post-production skills improvement between the control group and the experimental group. The t-test was significant, $t(62) = 3.604$, $p < .001$. Thus, the null hypothesis was rejected. The result indicated that the students' creativity score improvement among the control group was significantly different.

Hypothesis 4

H₀₄: There is no difference in writing skills between the experimental group and the control group.

H_{a4}: There is a difference in writing skills between the experimental group and the control group.

Table 15 Means Summary for Students' Writing Skills Score Improvement

	Mean	N	SD
Experimental group	85.9	32	3.08
Control group	83.3	32	3.23

Table 16 T-tests for Students' writing skills Improvement Between the Control Group and Experimental Group

	Mean difference	Sig.
Control and Experimental	2.63	0.001

The independent samples t-test was calculated to compare the students' writing skills improvement between the control group and the experimental group. The t-test was significant, $t(62) = 3.33$, $p = 0.001$. Thus, the null hypothesis was rejected. The result indicated that the students' creativity score improvement among the control group was significantly different.

Hypothesis 5

H₀₅: There is no difference in total score between the experimental group and the control group.

H_{a5}: There is a difference in total score between the experimental group and the control group.

Table 17 Means Summary for Students' Total Score Improvement

	Mean	N	SD
Experimental group	84.2	32	2.84
Control group	81.3	32	2.97

Table 18 T-tests for Students' Total Score Improvement Between the Control Group and Experimental Group

	Mean difference	Sig.
Control and Experimental	2.90	< .001

The independent samples t-test was calculated to compare students' Total score improvement between the control group and the experimental group. The t-test was significant, $t(62) = 3.9921$, $p < .001$. Thus, the null hypothesis was rejected. The result indicated that the students' creativity score improvement among the control group was significantly different.

Qualitative Data Analysis

Open-ended questionnaires are designed to elicit participants' authentic thoughts, enabling a deeper understanding of their ideas, emotions, and experiences (Stantcheva & Ferrario, 2022). In this study, an open-ended questionnaire was utilized to explore the experimental group's attitudes toward the use of podcasting technology as a learning tool, as well as to assess the impact of collaborative podcast projects on their academic performance. The questionnaire, which was developed based on the experimental



process, consisted of five questions spanning two dimensions: learning motivation, which included three questions, and attitudes toward technology use, which included two questions. A total of 32 questionnaires were distributed and collected, ensuring a full response rate. The qualitative data were analyzed using NVivo 15 software and subjected to thematic analysis, with the results presented below.

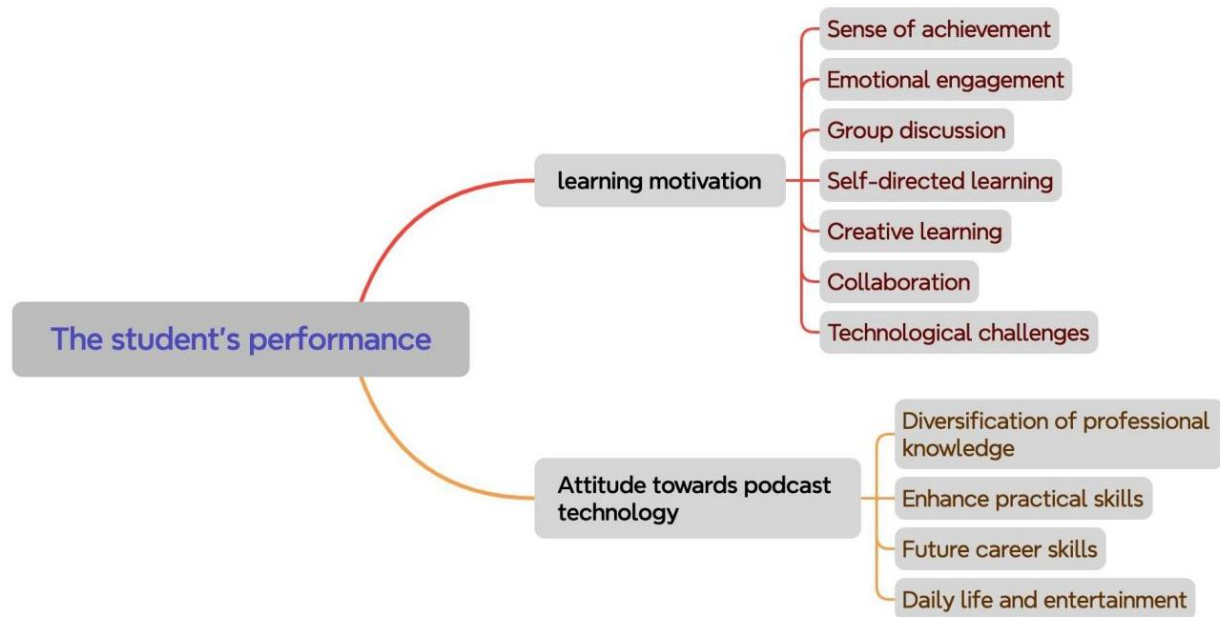


Figure 2 Mind Map of Qualitative Research.

The researchers conducted a thematic analysis of the experimental group's open-ended questionnaire responses using NVivo 15 to explore the impact of collaborative podcast creation on students' learning performance in the broadcasting production course. The analysis focused on two key dimensions: learning motivation and attitudes toward podcasting technology. High-frequency codes were categorized, forming a mind map to present key themes.

Regarding learning motivation, students reflected on enjoyable learning moments, sources of inspiration, and challenges faced. The analysis identified key themes such as self-directed learning, sense of achievement, creative learning, podcast dialogue, emotional engagement, group discussion, collaboration, and technical challenges. The findings suggest that the collaborative podcast project significantly enhanced students' learning motivation, particularly in self-directed learning, sense of achievement, group discussion, and overcoming technical challenges.

Table 19 Table of codes related to learning motivation

Codes Related to Learning Motivation	Frequency
Task-based learning	2
Creative learning	3
Collaboration	2
Inspired by short videos	2
Learning Community	1
Group discussion	10
Emotional engagement	4
Knowledge construction	1



Codes Related to Learning Motivation	Frequency
Host	10
Listener	1
Metacognition	2
Challenges in collaboration skills	2
Post-production	3
Technical challenges	8
Scriptwriting	4
Challenges in Mandarin pronunciation skills	2
Conceptual challenges	2
Planning	4
Creative learning	4
Collaboration	3
The process of dialogue	2
Emotional engagement	2

An interesting and noteworthy code that emerged from the students' responses is emotional engagement, which was mentioned four times. When asked what sparked their inspiration, several students referred to emotional engagement as a key factor. The following is a detailed analysis of this code:

Respondent 1: Using a designed questioning approach to understand others' views on this topic resonated with me and inspired my creativity.

Respondent 8: The stories of others, the unexpected beauty I stumbled upon, touched me deeply.

Respondent 30: I have seen many heartwarming and impactful short video stories on my phone, which inspire me to reflect on my own experiences and incorporate them into my creative work.

Respondent 21: These heartwarming short videos and microfilms online inspired me to reflect on my own experiences and incorporate them into my creations.

Respondent 6: An emotional experience in life can spark my inspiration. A specific example is immersing myself in the character and mindset while filming a movie.

When asked what inspired their ideas, students cited "group discussion" as a key factor. The responses are presented below:

Respondent 4: The brainstorming session felt great.

Respondent 5: Brainstorming or pooling ideas.

Respondent 7: Interactions with team members occasionally lead to new ideas.

Respondent 1: Conversations with classmates.

Respondent 13: After communicating with my teammates or experiencing little moments in life, inspiration is often sparked.

Respondent 20: The interaction with my team members is where we generate ideas together.

The responses from the students above indicate that a significant number of students believe that group discussions within the collaborative podcast project are the most effective in sparking their inspiration. After engaging in discussions with classmates or interviewees involved in the project, new ideas often emerge through group conversations that build upon the original topic. This process has contributed to an enhancement of their learning motivation.

The students' responses suggest that the collaborative podcast project, including topic design, group discussions, and the use of podcast applications, encouraged students to reflect on their life experiences and emotions, integrating them into the podcast creation process. By resonating with other podcast content, students were able to recall personal emotional experiences and transform them into original content. This supports both constructivist and humanistic learning theories, while the collaborative process and post-project reflection align with Project-Based Learning (PBL) and Experiential Learning Theory.



This process not only enhanced students' learning motivation, stimulated creativity, and increased the authenticity and depth of the podcast content but also improved the overall quality of the final product. These findings indicate that the collaborative podcast project functions as a multidimensional deep-learning cycle, fostering continuous engagement, creative development, and knowledge construction.

For the theme of attitudes towards the use of technology, the experimental group was asked about perceived usefulness and future willingness to use podcast technology. The treemap generated through NVivo 15 software analysis reveals that students perceive podcast technology as enhancing career prospects, improving practical skills, and diversifying their professional knowledge. Regarding future intentions to use podcasts, most students cited potential applications in media-related careers and daily life entertainment, while some indicated they would use it as a search engine. Additionally, it is noteworthy that some students believe podcast technology will be integrated with AI in the future.

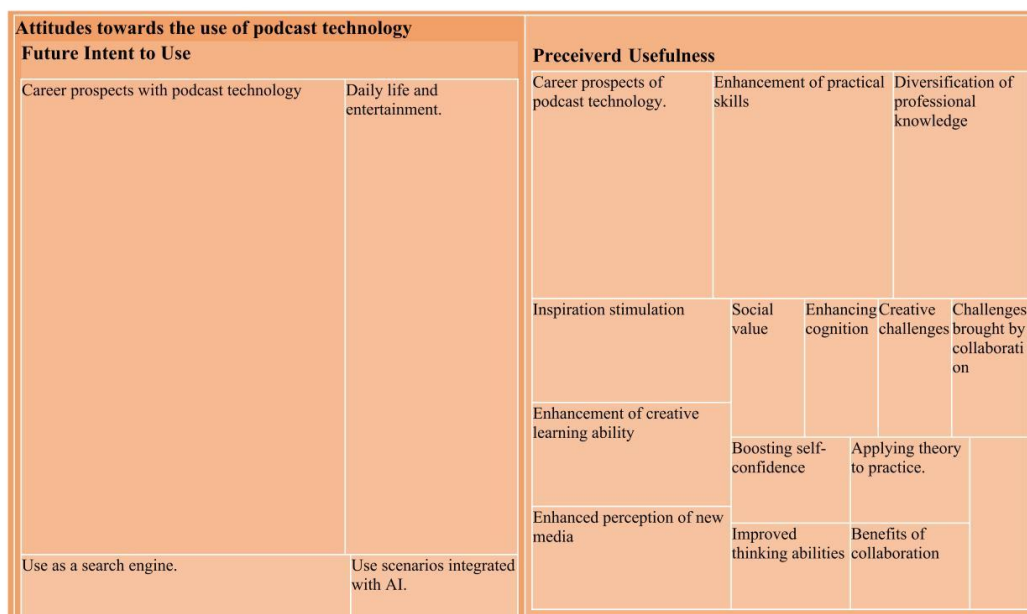


Figure 3 Tree map of students' responses regarding the theme of attitudes toward the use of technology

Regarding the future scenarios in which podcast technology will be used, the most frequently mentioned by students were daily life entertainment and future career development. The students' responses under this topic are as follows:

Respondent 4: What situations do you foresee using podcast technology in the future?

Respondent 12: Work requirements and personal interest in production.

Respondent 15: Attempting to become a podcast KOL (Key Opinion Leader).

Respondent 18: I believe podcasts will go viral online, and ordinary people can also create podcasts to share their stories.

Respondent 21: In future work or daily life, whenever inspiration strikes.

In future careers.

Respondent 29: When talking about topics of interest with friends, I will use podcasts to document life.

These responses reflect students' broad envisioning of the future applications of podcast technology, encompassing various dimensions from career development to personal interests and from professional fields to daily life. This highlights the wide adaptability and creative potential of podcast technology in a future society.



The findings were derived from an in-depth analysis of open-ended responses from the experimental group. In summary, the integration of the collaborative podcast project into the broadcasting creation curriculum significantly enhanced students' learning motivation. Moreover, podcast technology as a learning tool fostered students' self-directed learning abilities and improved their overall performance.

Discussion

The results indicate that both traditional teaching methods and collaborative podcast creation can enhance students' learning performance. However, compared to traditional instruction, the collaborative podcast project model had a significantly greater impact on students' academic achievement and overall performance, as supported by test data. Based on Project-Based Learning (PBL) and Experiential Learning Theory, the collaborative podcast teaching model not only diversifies professional knowledge but also equips students with valuable podcasting skills, which are applicable in the new media job market.

These findings align with previous research. Rajic (2013) identified two primary applications of podcasts in education: as instructional materials and as creative learning tools. When used as instructional materials, podcasts serve as supplementary resources, allowing students to review and reinforce knowledge before or after class. When used as creative learning tools, podcasts transform students from passive recipients of knowledge into active knowledge creators. Students can produce their podcasts, sharing their learning experiences with peers and students from other institutions. Successfully creating a podcast requires a deep understanding of subject content, encouraging students to critically evaluate prior learning materials. Additionally, this process fosters digital literacy (IT skills), enabling students to create and manage digital media (McGarr, 2009).

Pegrum et al. (2011) found that podcast creation promotes deep engagement with content, improves scientific communication skills, and increases learning motivation. These findings are consistent with the thematic analysis of open-ended questionnaire responses in this study. The most frequently mentioned themes in student reflections included group discussions, a sense of achievement, self-directed learning, emotional engagement, and creative learning. A notable finding of this study is that, unlike previous research, collaborative podcast creation significantly enhanced students' sense of achievement. Additionally, emotional engagement emerged as a key factor in learning motivation. Group discussions stimulated creative learning behaviors while completing a podcast fostered a sense of achievement. Furthermore, listening to peers' podcasts contributed to emotional engagement. The entire collaborative podcast creation process established a deep learning cycle, strengthening students' overall competencies.

Limitations and Future Research

One limitation of this study is that the eight-week duration may be insufficient for assessing language learning and project-based learning outcomes, particularly in Mandarin pronunciation. Extending the study to 16 weeks could provide a more comprehensive evaluation. Additionally, implementing the collaborative podcast project in the second year of the Broadcasting and Hosting Arts program may yield better results. With a foundation in media studies, post-production software, and communication theories, second-year students may engage more flexibly with podcast technology and production, leading to stronger learning outcomes.

Conclusion

This study examines the impact of integrating a collaborative podcast project into an introductory broadcasting course using a quasi-experimental design. It compares the performance of the experimental and control groups in areas such as Mandarin pronunciation, creativity, post-production, and writing. The findings indicate that the experimental group demonstrated significant improvements in several key areas, particularly in creativity and post-production skills. Although the experimental group also showed progress in Mandarin pronunciation, these changes were not statistically significant, potentially due to factors such as the limited duration of the experiment and students' varying levels of interest in standard Mandarin.



Analysis of the experimental group's open-ended responses highlights the positive impact of the podcast project on self-directed learning, creative learning, and emotional engagement. Many participants reported that collaboration with peers not only enhanced their technical skills but also fostered creativity and increased motivation. Furthermore, students expressed stronger emotional connections and empathy throughout the process, which significantly contributed to their learning motivation.

The study further finds that utilizing podcast technology facilitates the development of professional skills and better prepares students for future career opportunities. A majority of students indicated their intention to continue using podcasts in both professional and personal contexts. These findings support the notion that podcasting serves as a powerful tool for fostering collaboration, deep learning, and creative engagement, reinforcing the social and creative nature of podcast production.

Despite the observed improvements in student learning, factors such as sample size, cultural background, and variations in students' technical proficiency may have influenced the results.

In conclusion, the findings suggest that collaborative podcast projects can effectively enhance academic performance in broadcasting courses while promoting emotional engagement, creativity, and self-directed learning. These results provide valuable insights for educators and future researchers in the field of broadcasting and media studies.

Recommendation

Encourage the Integration of Collaborative Podcast Creation Projects into the Curriculum

As a next-generation broadcasting medium, podcasts align with the evolving trends of new media and communication technologies. Experiential learning theories, such as Kolb's (1984) experiential learning model and BPL (project-based learning), support the integration of collaborative podcast creation into curricula. Kolb's theory suggests that students achieve optimal learning outcomes through concrete experience, reflective observation, abstract conceptualization, and active experimentation. Podcast production, which involves ideation, scripting, recording, editing, and publishing, closely aligns with this process.

BPL-based learning structures assign students to specific roles within a team, allowing them to collaborate on a final product. It is recommended that roles rotate throughout the semester so that students develop multiple skills. Teachers provide guidance and problem-solving support at each stage, ensuring that students refine their skills and deepen their understanding. Integrating collaborative podcast projects into broadcasting and hosting courses not only represents an educational innovation but also enhances students' comprehensive skills. This approach has been shown to improve academic performance, increase learning motivation, and strengthen teamwork. The collaborative nature of podcasting encourages group discussions, fostering the exchange of diverse perspectives, which deepens students' understanding of broadcasting while cultivating creativity and critical thinking skills.

Promote Podcast Platforms as Key Learning Communities

The rapid spread of online information has led to the growing issue of "information bubbles," limiting students' exposure to diverse viewpoints and weakening their critical thinking and independent reasoning abilities. Compared to short-video platforms like TikTok and Kuaishou, which primarily offer fragmented and entertainment-focused content, podcast platforms provide more in-depth discussions and structured knowledge acquisition. As a decentralized medium, podcasts serve as an effective tool for expanding students' cognitive frameworks, stimulating intellectual curiosity, and enhancing academic engagement through continuous exposure to high-quality content.

Given the increasing prevalence of misinformation in digital spaces, it is essential to cultivate students' ability to critically assess and produce reliable content. Researchers suggest embedding digital literacy components, such as media fact-checking and broadcasting ethics, into podcast-based curricula.

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