

From analysis to practice: The creation of podcasts in special education teacher training

Dall'analisi alla pratica: La creazione di podcast nella formazione dei docenti di sostegno

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Abstract The use of digital technologies in teacher training represents a strategic lever for teaching innovation, especially in the field of educational support. In this context, educational podcasts emerge as effective tools to foster school inclusion and support personalized learning. The present study analyzed the process of selection, evaluation and use of applications for the creation of podcasts, as well as their impact on the training of future special needs teachers. The research was conducted as part of the Support Qualification Course of the University of Palermo, involving 96 students divided between lower and upper secondary schools. During two practical sessions of five hours each, students explored and tested a selection of podcast creation applications, previously evaluated through the Mobile Application Rating Scale (MARS) by three independent evaluators. The results of the MARS evaluation highlighted the best performing applications, thanks to their intuitiveness, stability and quality of audio output.

KEYWORDS Podcast; Inclusive Teaching; Digital Technologies; Teacher Training; Mobile Application Rating Scale (MARS).

Sommario L'uso delle tecnologie digitali nella formazione dei docenti rappresenta una leva strategica per l'innovazione della didattica, specialmente nell'ambito del sostegno educativo. In questo contesto, i podcast educativi emergono come strumenti efficaci per favorire l'inclusione scolastica e supportare l'apprendimento personalizzato. Il presente studio ha analizzato il processo di selezione, valutazione e utilizzo di applicazioni per la creazione di podcast, nonché il loro impatto sulla formazione dei futuri docenti di sostegno. La ricerca è stata condotta nell'ambito del Corso di Abilitazione Sostegno dell'Università degli Studi di Palermo, coinvolgendo 96 corsisti suddivisi tra scuola secondaria di primo e secondo grado. Durante due sessioni di cinque ore ciascuna, gli studenti hanno esplorato e testato una selezione di applicazioni per la creazione di podcast, precedentemente valutate attraverso la Mobile Application Rating Scale (MARS) da tre valutatori indipendenti. I risultati della valutazione MARS hanno evidenziato le applicazioni più performanti, grazie alla loro intuitività, stabilità e qualità dell'output audio.

Parole chiave Podcast; Didattica Inclusiva; Tecnologie Digitali; Formazione Docenti; Mobile Application Rating Scale (MARS).

1. Introduction

The use of podcasts in teaching is a topic of growing interest both nationally and internationally, as they represent a versatile tool capable of improving educational practices and expanding learning opportunities.

In this framework, this contribution is part of the contemporary debate on extended education, understood as the expansion of places, times and methods of learning outside the traditional bounda-

ries of the classroom. Extended education promotes the idea of widespread, accessible and constructed knowledge even in informal and unstructured contexts, in line with a dynamic and inclusive conception of the educational process. In this sense, podcasting represents a practice that is highly consistent with this vision, as it allows students to learn autonomously and flexibly, enjoying educational content at times and environments different from conventional school environments. In addition, in teacher training, the podcast is configured as a tool capable of stimulating pedagogical reflection, shared planning and the activation of professional skills through production and co-creation activities. The experience described here, carried out as part of the Support Qualification Course, aims to enhance these dimensions, placing podcasting at the center of a training approach that fully embodies the principles of extended education.

While the integration of digital technologies into the training process offers numerous benefits, such as the possibility of facilitating the exchange of ideas and creating more engaging educational content, challenges persist related to their practical implementation and pedagogical aspects.

The integration of digital tools into teaching can improve learning, fostering greater interaction and active involvement of students, as Mayer (2009) points out. In particular, podcasting has established itself as an effective methodology to support collaborative learning and communication between students, promoting a more dynamic and critical approach (González Enríquez & Cutuli, 2023).

Starting from these theoretical premises, the present research has focused on two main objectives. First, an analysis of podcast creation applications was conducted, with the aim of identifying those most suitable for educational use. For this assessment, the Mobile Application Rating Scale (MARS) (Stoyanov et al., 2015) was adopted, a tool that allows to measure the quality and usability of digital applications in the educational field. Three independent researchers, experts in educational technologies, analyzed a selection of apps, evaluating them based on criteria of intuitiveness, stability and quality of audio output, in order to identify the most effective solutions to support the production of educational content.

The second objective of the research concerned the practical application of podcasting in the training of support teachers. The survey was conducted in the Support Qualification Course of the University of Palermo, involving 96 students belonging to lower and upper secondary schools. The students, divided into groups, made educational podcasts addressing topics covered in the course. At the end of the course, a questionnaire was administered (Hanson et al., 2023) to collect the participants' perceptions of the effectiveness of podcasting as a learning tool, assessing their level of involvement, satisfaction and any difficulties encountered in the production process.

The analysis of the data collected has shown how podcasting can represent an innovative and stimulating teaching methodology, capable of improving interaction between students and promoting more active and participatory learning. However, the research also highlighted some critical issues, in particular related to technical difficulties in the use of applications and the management of group work. These results suggest the need for greater structuring of the training pathway, so that podcasting can be integrated more effectively into educational contexts.

The results obtained offer important food for thought for the design of educational paths that exploit the potential of podcasting, helping to make learning more inclusive, dynamic and personalized.

2. From digital technologies to educational innovation: The podcast as a tool for transformation

In recent years, digital technologies have profoundly transformed the education sector, introducing innovative approaches to teaching and learning. The integration of educational technologies goes

beyond the mere digitization of materials, fostering interactive, flexible, and accessible learning environments that enhance student engagement and improve educational quality (Clark-Wilson et al., 2020; Mayer, 2009). The adoption of digital tools in childhood and adolescence is progressively redefining the ways in which knowledge is acquired, influencing the entire education system (Clark-Wilson et al., 2020; Colella, 2016).

Among digital resources, educational podcasts are increasingly recognized as innovative tools that promote flexible and student-centered learning approaches. In particular, student-generated podcasts have been shown to enhance subject understanding, peer connection, and academic performance, fostering active learning and knowledge construction (Hernandez-Lopez & Mendoza-Jimenez, 2025).

The use of podcasts in teacher training has been widely investigated, with studies demonstrating their effectiveness in enhancing student engagement and supporting deeper content understanding (Heilesen, 2010). The asynchronous nature of podcasts allows students and teachers to enjoy content in a personalized way, adapting the learning times and rhythms to their needs. In addition, the ability to create and share podcasts gives students a more active role in the learning process, transforming them from mere users to producers of educational content (Hyangsewu, 2024).

Psychological constructivism conceives learning as a dynamic process centered on knowledge construction rather than passive transmission (Vygotsky, 1978), a perspective that continues to inform contemporary digital learning environments (Clark-Wilson et al., 2020).

The use of podcasts in teaching is significant in fact, as it goes beyond the mere transmission of audio content, transforming itself into a means to actively engage students, stimulate critical thinking and promote the personalization of learning. For example, the creation of podcasts by students not only favors the acquisition of technical skills, but leads to a substantial change in their participation in the educational process, making them protagonists of the construction of knowledge.

This approach reflects the idea that technology, like podcasts, must be integrated in a conscious and targeted way, so that it produces profound changes in educational practices and is not limited to superficial adoption. Thus, a school that uses podcasts in an authentically innovative way does not limit itself to “certifying” the presence of technological tools, but integrates them to truly transform the learning experience, stimulating creativity, collaboration and critical thinking.

The use of podcasts in teaching is a topic of growing interest both nationally and internationally. According to Besser et al. (2022), podcasting is taking on an increasingly relevant role in higher education, providing students with more flexible and immersive learning opportunities. In addition, its use is spreading in different educational contexts, promoting greater involvement and improving the quality of teaching.

Despite the benefits of integrating digital technologies into the educational process, such as facilitating the exchange of ideas and creating innovative content, several challenges remain related to their practical implementation and pedagogical aspects. These include technical and accessibility difficulties (Newman et al., 2021), the need for training for teachers (Cecilio-Fernandes et al., 2020), and the challenge of effectively integrating them with traditional methods (Kelly et al., 2022).

Gunderson and Cumming (2023) highlight how podcasting can be integrated into Universal Design for Learning (UDL) to promote more inclusive education, adapting to the diverse needs of students and improving accessibility to learning content.

To address these challenges, the use of podcasts as a teaching tool aims to foster more participatory, dynamic and conscious learning, improving students' critical understanding and communication skills. Moore (2024) points out how podcasting can also be used effectively in specific academic dis-

ciplines, such as planning and social sciences, demonstrating its potential to enrich the educational experience in the university setting.

Inclusive education requires the adoption of strategies and tools that make it possible to respond to the needs of students with Special Educational Needs (SEN), providing accessible and customizable materials. According to Oforji and Whitnall (2025), podcasts are particularly effective tools for school inclusion as they allow you to overcome the traditional barriers of face-to-face teaching, offering learning methods that are more adaptable to individual needs.

Several studies have shown that podcasts can improve participation and understanding of content by students with learning difficulties, allowing them to listen to the materials again, take advantage of auditory support and facilitate understanding through the use of clear and structured language. According to Abubakar et al. (2025), podcasting can enhance teaching effectiveness by allowing students to review content multiple times and adapt the pace of learning to their needs. Similarly, Indahsari (2020) highlights that podcasts can offer up-to-date content and authentic native voices, improving learning comprehension and accessibility. In addition, several studies have highlighted how podcasting can strengthen listening and comprehension skills, supporting more effective knowledge acquisition (Besser et al., 2022; Gunderson & Cumming, 2023).

The ability to create multimedia content also helps students with specific learning disabilities (SLD) or special educational needs to express their skills in alternative ways that are better suited to their abilities (Sulaeman et al., 2025).

The use of podcasts in inclusive contexts has been increasingly integrated into teacher education programs, particularly when aligned with Universal Design for Learning principles, as it supports flexible access to content and reflective pedagogical practice (Gunderson & Cumming, 2023).

However, it is important to note that podcasting, as an audio format, presents critical issues in terms of accessibility for students with hearing disabilities. To ensure that this tool can truly support inclusive education, it is necessary to provide forms of compensation, such as transcribing content, inserting subtitles or supporting supplementary visual materials. The adoption of these strategies makes it possible to extend the benefits of podcasting to a wider audience, ensuring equal access to learning even in the presence of sensory disabilities.

3. Research methodology

The present study aims to analyze the impact of the use of podcasting in the training of future support teachers, evaluating both its effectiveness in the creation of educational content and the perception of students with respect to this methodology. The research aims to provide a detailed picture of the potential of podcasting in inclusive teaching, examining the most suitable applications for the production of educational content, the degree of involvement of students in podcast creation activities and the perceived effectiveness of this tool in teaching.

The selected sample is non-probabilistic, consisting of 96 students enrolled in the Specialization Course for Support Activities (IX cycle) at the University of Palermo. This sampling methodology was adopted by virtue of the availability and accessibility of the participants, while acknowledging the limitations in terms of generalizability of the results.

A first objective of this research is to identify and evaluate the applications for the creation of podcasts most suitable for educational use, with particular reference to the context of teacher training. To ensure a methodologically rigorous selection, the applications were analyzed by three independent

researchers, experts in educational technologies, through the Mobile Application Rating Scale (MARS), a widely used tool to assess the quality of digital applications in education. The MARS analysis made it possible to identify the apps with the best characteristics in terms of accessibility, ease of use, quality of information provided and educational impact, thus allowing the selection of the most suitable ones for the production of educational podcasts.

A second objective is to examine the impact of podcasting as a practical activity in the training of support teachers. The students participating in the research worked in groups to create an educational podcast, lasting 8-10 minutes, using the selected applications. The activity made it possible to explore the ways in which podcasting can stimulate creativity, collaborative work and active involvement in the construction of knowledge. In addition, the design and implementation of audio content aimed at teaching students with Special Educational Needs (SEN) has made it possible to reflect on the potential of this tool with a view to school inclusion.

At the same time, a further objective of the study concerns the analysis of students' perception of the use of podcasting in teaching and its usefulness in the training of support teachers. To collect data on this, a structured questionnaire was administered, based on an instrument validated in previous research (Hanson et al., 2023). The questionnaire included 20 multiple-choice questions and three open-ended questions, aimed at collecting information on the ease of use of the applications, the level of involvement in the activity and the perceived usefulness of podcasts for inclusive teaching. The analysis of the answers will allow to better understand the role of podcasts in teacher training and to identify any critical issues in the use of this tool in training contexts.

Finally, the research aims to develop practical guidelines for the integration of podcasting into inclusive teaching, offering indications for the effective use of this technology in the training of special needs teachers. Through the analysis of the results obtained from the MARS evaluation and the questionnaire, it will be possible to define strategies to optimize the use of podcasts in teaching and suggest ways to integrate the production of audio content into teachers' training paths.

3.1. Search and selection criteria for podcast applications

Before proceeding with the evaluation of applications with the Mobile Application Rating Scale (MARS), it was necessary to identify and select the most suitable tools for creating podcasts in the educational field. To identify the best free solutions for creating podcasts, a preliminary analysis was conducted that involved not only the mobile applications available on digital stores, but also web platforms that allow the recording, editing and publication of podcasts without the need to download a dedicated application.

Research included:

- 1) Google Play Store (for Android devices)
- 2) Apple App Store (for iOS devices)
- 3) Free web platforms accessible via browser, selected for their ease of use and available features.

To get a wide and up-to-date selection, several key search terms were used:

- 1) "Podcast Editor"
- 2) "Podcast Recording"
- 3) "Create Podcast"
- 4) "Podcast App for Beginners"
- 5) "Free Online Podcast Maker"

The analysis produced a total of 896 apps on the Google Play Store and 854 apps on the Apple App Store. In addition, 15 web platforms have been identified that offer free tools for creating and editing podcasts.

To ensure that only the most suitable applications and platforms were included in the evaluation phase, the following exclusion criteria were applied:

Table 1. List of Exclusion Criteria.

Exclusion Criteria	Description
Lack of compatibility	Excludes apps that are only available for one operating system (iOS only or Android only). Keep only cross-platform or browser-accessed apps.
High costs	Excludes apps with mandatory subscription. Only free or freemium apps with essential functions are kept in the free version.
Not enough reviews	Excludes apps with less than 100 total reviews, as they are poorly tested by users.
Low review score	Excludes apps with less than 3.5 out of 5 stars. Only those with a minimum of 4.0 stars are maintained.
Incomplete features	This excludes apps that did not offer at least three essential features (recording, editing, exporting). Keep only those with advanced editing tools.
Access restrictions	Spotify for Podcasters excluded due to the need for Spotify accounts. We only include platforms that allow the creation of podcasts without the obligation to register.
Language not accessible	Excludes apps that are only available in English without an intuitive interface. Keep only those with support in English or simple interface.
Obsolescence	Excludes apps that haven't been updated for more than two years. Only those updated from 2023 onwards have been maintained.

After applying the selection criteria, the total number of applications and web platforms has been reduced to 12 solutions, which will be evaluated with the Mobile Application Rating Scale (MARS) to identify those most suitable for educational use in the context of the training of support teachers.

The research update has made it possible to include not only mobile apps, but also online platforms that offer advanced tools for creating podcasts without the need to download specific software.

While the exclusion criteria applied ensured the selection of applications that were stable, accessible, and supported by a sufficient degree of user validation, a potential limitation remains. Emerging or niche solutions, although potentially valuable for educational use, may have been excluded due to a limited number of reviews, recent updates, or still limited uptake.

Although this approach increased the reliability of the selection process, it may affect the generalizability of the results, as the apps analyzed represent only a fraction of the rapidly evolving landscape of educational podcasting tools.

3.2. Mobile Application Rating Scale (MARS)

The evaluation of the selected applications and web platforms was conducted using the Mobile Application Rating Scale (MARS), a standardized tool designed to provide a reliable and reproducible assessment of the quality of mobile applications.

The MARS is a multidimensional rating scale, developed to measure the quality of mobile applications, initially in healthcare (Stoyanov et al., 2015) and later adapted to educational contexts. MARS enables structured and reproducible evaluation of applications,

Table 2. List of selected applications and platforms.

Name	Type	Platform	Accessibility	Main functions
Soundtrap	Web-based (browser)	Online	Free	Recording, editing, publishing
Anchor (ex Spotify for Podcasters)	App	iOS/Android	Free with restrictions	Registration and publication
Podbean	App/Web-based	iOS/Android/Online	Free	Recording, editing, hosting
Spreaker Studio	App/Web-based	iOS/Android/Online	Free	Recording, sound effects, live streaming
Dolby On	App	iOS/Android	Free	High-quality audio recording
Easy Voice Recorder	App	iOS/Android	Free	Basic recording and simple editing features
GarageBand	App	iOS/MacOS	Free	Recording, advanced music editing
Audacity (Web version)	Web-based (browser)	Online	Free	Advanced audio editing and multitrack capabilities
Zencastr	Web-based (browser)	Online	Free	Audio/video recording for interviews
Hindenburg Journalist	App/Web-based	iOS/Android/Online	Free	Advanced editing for professional podcasts
Riverside.fm	Web-based (browser)	Online	Free	High-quality recording, automatic editing
Castbox Creator Studio	App/Web-based	iOS/Android/Online	Free	Recording, distribution podcasts

Table 3. Structure of the Mobile Application Rating Scale (MARS).

Category	Description
Engagement	Is the app inspiring and engaging for users? Does it have interactive or customizable elements?
Functionality	Is the app stable and bug-free? Is navigation intuitive and smooth?
Aesthetics	Does the app have a clear and visually appealing layout? Is the design consistent and professional?
Information Quality	Is the information provided accurate, reliable and well-structured? Are there tutorials or learning materials?
Subjective Quality	How useful and enjoyable do users find the app? Would they recommend the app to other users?

The MARS scale consists of 5 main categories, each with sub-dimensions rated using a 5-point Likert scale (1 = Very Bad, 5 = Excellent) (Table 3).

Each application receives an overall MARS score derived from the average of the ratings assigned in each category.

3.2.1. Evaluation methodology

The evaluation was conducted by three independent researchers, experts in educational technologies, selected to ensure consistency and reliability in the application of the MARS scale.

Before performing the assessments, the assessors were provided with specific training on the MARS scale, in order to ensure a thorough understanding of the evaluation criteria and a consistent application of the tool. This step ensured greater inter-rater reliability between evaluators.

- 1) Each evaluator downloaded and installed the 12 selected applications and platforms. The Evaluators tested each app and site following a standardized protocol:
 - Recording a short audio
 - Editing and applying effects
 - File export
 - Interaction with any advanced features
- 2) After testing each app, the evaluators filled out the MARS card, assigning a score from 1 to 5 for each category.
- 3) The scores were aggregated and analyzed to obtain the final average score for each app.

3.2.2. Results of the MARS assessment

To collect data in a structured way, each evaluator compiled a MARS evaluation grid for each application tested.

Table 4 shows the average score obtained from the three evaluations for each application, ensuring a reliable indication of the overall quality of the selected apps.

For the purposes of the practical activity planned with the trainees, the five applications with the highest average MARS score were selected: GarageBand, Soundtrap, Dolby On, Audacity Web and Riverside.fm. The choice was based on two criteria: the achievement of an average score equal to or greater than 4.45, corresponding to an “excellent” or “very good” quality level according to the MARS score interpretation criteria reported in Table 5; the free or freemium availability of the applications, in order to ensure accessibility to all participants.

This targeted selection had a concrete impact on the laboratory phase of the intervention: the trainees, divided into groups, were able to choose from the five recommended applications based on their preferences and technical skills. The use of tools already validated in the preliminary phase facilitated collaborative work, reduced technical difficulties and improved the quality of the final products, as also noted in the subsequent subjective evaluation. In addition, the possibility of comparing different user experiences has contributed to increasing critical awareness with respect to the digital tools available for teaching.

Table 4. Average scores assigned according to the MARS instrument.

Application/Platform	Engagement	Functionality	Aesthetics	Information Quality	Average MARS score
Soundtrap	4.5	4.7	4.6	4.8	4.65
Podbean	4.2	4.3	4.5	4.7	4.43
Spreaker Studio	4.0	4.2	4.3	4.5	4.25
Dolby On	4.3	4.6	4.8	4.2	4.47
GarageBand	4.6	4.9	4.7	4.6	4.7
Audacity (Web)	4.2	4.8	4.4	4.5	4.47
Zencastr	4.1	4.5	4.3	4.6	4.38
Hindenburg Journalist	4.0	4.7	4.5	4.7	4.48
Riverside.fm	4.3	4.5	4.6	4.5	4.48
Castbox Creator Studio	4.2	4.4	4.3	4.6	4.38
Easy Voice Recorder	3.9	4.0	4.2	4.3	4.1
Anchor (ex Spotify for Podcasters)	3.8	4.1	4.0	4.2	4.03

Table 5. Criteria for interpreting MARS scores.

Average MARS score	Application quality level
4.5 - 5.0	Excellent – Highly recommended application for educational and didactic use.
4.0 - 4.4	Good – Recommended application with some minor limitations.
3.5 - 3.9	Acceptable – Application with some shortcomings that can limit the user experience.
3.0 - 3.4	Mediocre – Application with several limitations, recommended only in specific cases.
< 3.0	Not recommended – Application with significant issues that make it difficult to use for education.

3.2.3. Analysis of the results

An analysis of the scores shows that GarageBand (4.7), Soundtrap (4.65), and Dolby On (4.47) are the three highest-rated platforms, thanks to their combination of high-quality audio output, advanced features, and an intuitive interface.

- GarageBand scored the highest in functionality and aesthetics, standing out for its professional interface and extensive editing options.
- Soundtrap was particularly suitable for collaborative teaching, thanks to the ability to work on shared tracks in real time.
- Dolby On was rated positively for its audio quality and ease of use, making it a great choice for users with no experience in podcast production.

On the other hand, platforms like Anchor (4.03) and Easy Voice Recorder (4.1) scored lower and fall into the “Good” category, as they have some limitations:

- Less advanced editing than top-rated applications.
- Fewer customization options for creating learning content.
- Limited features in the free version.

As mentioned in the previous paragraph, only the applications with the highest MARS scores were used in the lab phase, ensuring consistency between the initial assessment and the actual user experience. This choice allowed the trainees to work with reliable and qualitatively validated tools, promoting more effective learning and active involvement in the podcast creation process.

3.3. Practical activity: creation of podcasts by the trainees

After the selection and evaluation of applications with the Mobile Application Rating Scale (MARS), the trainees participated in a practical activity aimed at directly experiencing the process of creating and using podcasts in the educational field.

The activity was conducted within the Specialization Course for Support Activities (IX cycle) of the University of Palermo, involving 96 students, divided between lower secondary school (58 participants) and upper secondary school (38 participants).

The activity has been designed with a dual purpose:

- To encourage an active deepening of one of the topics studied during the course.
- Create an archive of audio content to be used to review the other topics covered by the other groups, in view of the final exam.

The activity was developed through a path structured in two sessions lasting five hours each (for a total of ten hours), during which the trainees worked in groups to design and create an educational podcast. The process was divided into several phases, with the aim of allowing active and

collaborative learning, using podcasting both as a tool for in-depth study and consolidation of the knowledge acquired.

In the initial phase, the trainees were introduced to the use of the selected applications through the MARS scale, with an analysis of their functionalities and the differences between the platforms. After this initial familiarization phase, each group chose the app that best suited their needs, based on the characteristics evaluated and the preferences of the participants.

Subsequently, in the design and in-depth phase, the students were divided into groups of five to seven participants. Each group was assigned a topic studied during the course, which had to be developed and deepened through the creation of the podcast. The activity had a dual purpose: on the one hand, to allow the students to study and rework their topic in a communicative key, and on the other, to encourage collective revision by listening to the podcasts made by the other groups, in view of the final exam. In this phase, the podcast outline was also defined, structuring the content, assigning the narrative voices and organizing the speech to ensure a clear and coherent flow.

The recording and editing phase represented the practical moment of the activity, during which the students used the apps to record the podcast, improve the quality of the audio through editing tools and possibly insert sound effects to make the final product more effective. Once the processing process was complete, the podcasts were exported and shared with the other groups.

Listening and collective review constituted a further moment of learning: each group presented their podcast to the class, while the other trainees had the opportunity to listen and take notes on the topics covered. This has fostered an active discussion, allowing a comparison on the contents that emerged and strengthening understanding through the sharing of knowledge.

Finally, the evaluation of the activity was conducted through a structured questionnaire adapted from Hanson et al. (2023) to investigate trainees' experiences and their level of satisfaction with the use of podcasting as a teaching tool. The questionnaire made it possible to collect data on students' perceptions of the effectiveness of podcasting in their learning process, highlighting strengths and possible critical points.

This experience has shown how podcasting can be not only an innovative teaching method, but also an effective tool to promote collaboration, autonomous content reworking and shared revision, offering students an active and engaging learning experience.

3.3.1. Data analysis

The analysis of the data collected in the questionnaire was conducted through a descriptive quantitative approach, with the aim of examining the perceptions and experiences of the trainees relating to the use of podcasts in teaching. The survey was structured according to a non-experimental and transversal methodology, based on numerical data collected in a single moment in time.

The quantitative analysis was developed through descriptive statistics, which made it possible to summarize and present the data clearly and effectively. For each variable investigated, absolute and relative frequencies were calculated, and the results were represented by bar and pie charts, facilitating the interpretation of the trends that emerged.

The use of the 5-point Likert scale made it possible to assess the degree of agreement or perception of the participants on key aspects of the survey, such as the perceived effectiveness of podcasts for review, their usefulness compared to reading texts and the impact on collaboration in group work. However, this approach provides a detailed picture of participants' opinions and experiences, which is

useful for identifying significant trends and patterns in the context of podcast-supported teaching.

The questionnaire administered to the students was taken from the research by Hanson et al. (2023), entitled “Examining University Student Podcasts and Evaluating Apps Using the Mobile App Rating Scale (MARS)”, and translated into Italian by two experts independently in order to ensure semantic and cultural adherence to the reference context.

The questionnaire, administered to 96 students of the Support Qualification Course of the University of Palermo, consisted of 20 multiple-choice questions and 3 open questions.

The main sections investigated included:

- General perception of the activity (engagement and involvement);
- Usefulness of podcasting for revision (ease of access, storage of content);
- Learning preferences (podcasts vs. traditional methods);
- User experience of the selected applications (functionality, stability, ease of use).

The questionnaire was administered online, at the end of the activity with a moment dedicated to compilation, in order to ensure wide participation and collect representative data on the experience of the trainees.

Importantly, the data collected is self-reported in nature and reflects the subjective perceptions of participants. While this type of data offers useful information on the degree of involvement and individual preferences, it does not allow us to objectively measure the real effects of the activity on performance or on the acquisition of skills. In the future, the integration of quantitative assessment tools (such as pre- and post-activity tests or benchmarking) could strengthen the analysis of the educational impact of podcasting.

The sample was mainly composed of women (65 participants, equal to 68%), while there were 30 males (31%) and 1 trainee preferred not to specify gender (1%) (Figure 1).

The mean age of the participants was 37.8 years, with a range of 25 to 62 years. The most represented group was between 30 and 45 years old, in line with the typical age of the trainees of the specialization courses for support (Figure 2).

Subsequently, a survey was conducted to explore the level of awareness of students regarding the use of podcasts in education. To the question “Before this experience, did you know that podcasts could be used in teaching?” (Figure 3), the responses highlighted the following distribution:

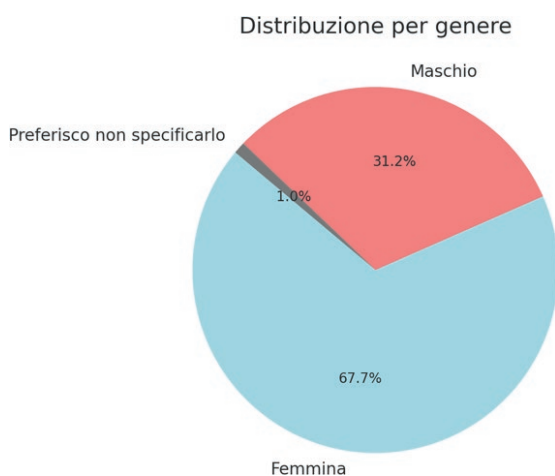


Figure 1. Distribution by gender.

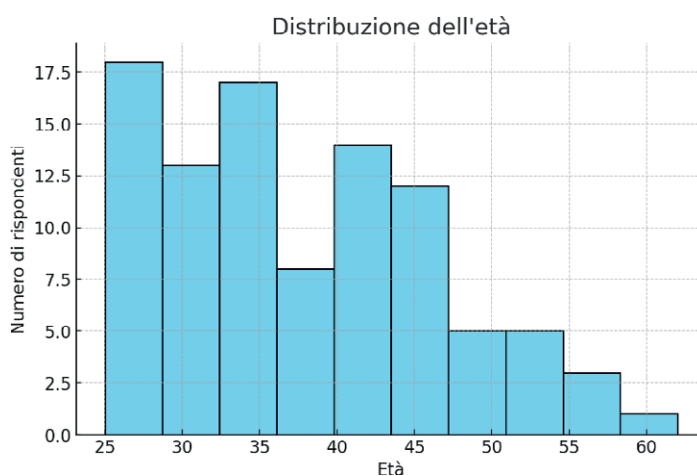


Figure 2. Age distribution.

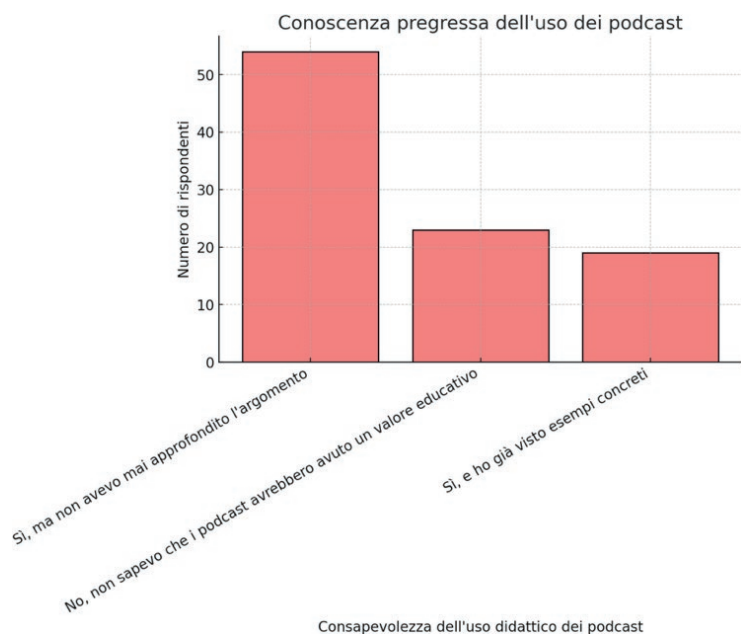


Figure 3. Awareness of the educational use of podcasts.

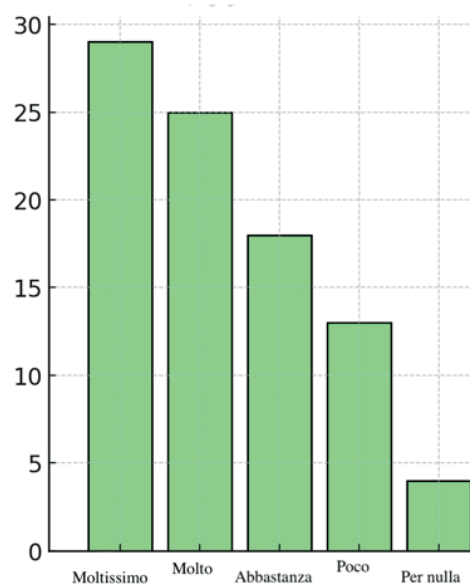


Figure 4. Podcast Vs. Learning text.

- 56% of the trainees knew about the didactic use of podcasts but had never delved into the topic.
- 24% of the trainees were unaware of their educational value.
- 20% of the students had already seen concrete examples of the didactic application of podcasts.

One of the objectives of the questionnaire was to compare podcasting with traditional methods of study, in particular reading texts (Figure 4). The responses collected outlined the following picture

- 30% of the students said they prefer podcasts “a lot” over written texts.
- 26% of students rated the usefulness of podcasts as “enough”.
- 19% of the students indicated a low preference for audio over text.
- 14% of the students rated the podcast as “Very useful” compared to the written text.
- 4% of the trainees said they do not find learning through podcasts useful.

This data suggests that while the majority of students find podcasting useful, there is a significant portion that continues to prefer written texts, highlighting the need for blended approaches that combine multiple learning modalities.

A central aspect of the survey was to assess whether the podcast had been an effective method for reviewing and memorizing course content (Figure 5). The replies revealed the following breakdown:

- 35% of the students considered that the podcast was “quite” useful for revision.
- 30% of the trainees expressed a “very” positive opinion.
- 26% of the students rated the podcast as “very” useful.
- 2% of the trainees selected “Not at all”, indicating that the podcast was not useful for revision.
- 5% of the students chose “Poco”, considering it useful to a limited extent.

These results confirm that podcasting was perceived as a valuable tool for reviewing course content, improving understanding and consolidation of information.

The use of podcasting was also evaluated in terms of collaboration between trainees, given that the creation of audio content requires coordination and sharing of tasks (Figure 6). The answers reported the following breakdown:

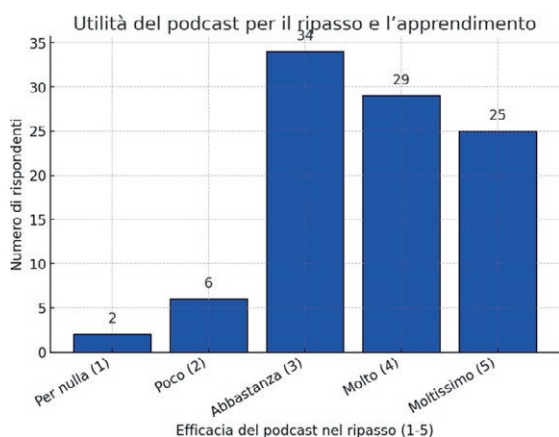


Figure 5. Effectiveness of Podcasts in revision.

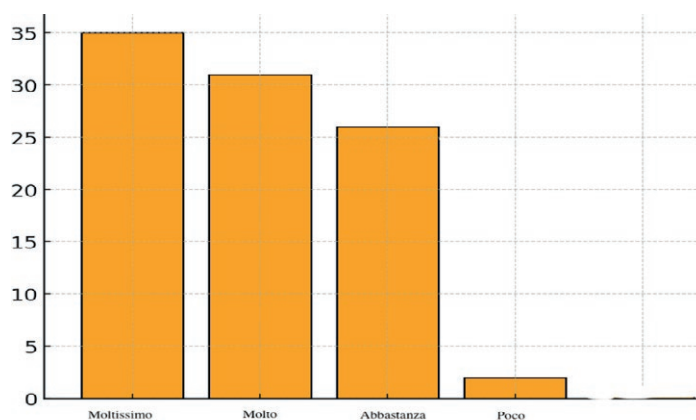


Figure 6. Impact of podcast on collaboration.

- 36% of respondents said podcasting had “very” favored collaborative work.
- 32% of the trainees found it “quite useful” for collaboration.
- 27% of the trainees evaluated the activity positively, but with less enthusiasm.
- 2% of the trainees felt that the activity had no positive impact on collaboration.

These data suggest that the creation of podcasts can be an effective educational activity to encourage collaborative work, albeit with some critical issues related to the organization of group work.

The analysis of the questionnaire confirms that the experience of creating and using the podcasts had a positive impact on the learning of the trainees.

In particular, podcasting was considered a valid tool for revision, helping to improve the understanding of the contents covered. The data collected also shows that 56% of participants were already aware of the educational use of podcasts, although only 20% had had direct experience of using them in an educational setting.

As for the comparison with traditional study methods, 30% of students said they found the podcast more effective than reading written texts, while 26% considered it “somewhat” useful. Finally, the use of podcasting encouraged collaboration in group work, facilitating the active involvement of students and promoting greater interaction between trainees.

However, some trainees reported technical and coordination difficulties, suggesting the need for a more structured guide for the creation and management of podcasts in the educational field.

The integration of podcasting into university teaching represents an opportunity to foster more inclusive and personalized learning, but its success depends on the availability of adequate tools and the training of teachers on the use of digital technologies.

4. Limitations of the study and prospects for improvement

Despite the positive results that emerged from the analysis, the use of podcasts in university teaching presents some critical issues that must be considered for a more effective and conscious integration within training practices. One of the main limitations concerns the technical difficulties encountered by some trainees in the process of creating and managing podcasts. The lack of familiarity with audio editing tools and recording platforms represented an obstacle for some of the students, highlighting the need for a more structured training on the use of digital technologies. To overcome this difficulty,

it would be advisable to introduce specific training moments before the start of the activity, providing practical tutorials and selecting intuitive and accessible tools that facilitate the creative process.

Another critical aspect that emerged concerns the differentiation in learning preferences. While many students appreciated the podcast as a tool for revision and in-depth study, some students continued to prefer traditional reading, considering it more effective for their learning style. This suggests that podcasting, while a valuable educational tool, cannot be considered a universal solution for all students. For this reason, it would be useful to adopt a multimodal teaching approach, in which the podcast is accompanied by written and visual materials, allowing students to choose the format that best suits their needs.

A further limitation encountered concerns the management of group work. Although the creation of the podcast has fostered collaboration among the trainees, some have reported, through the questionnaire administered at the end of the course, difficulties in organizing work and dividing tasks. The indications provided at the beginning of the activity left the groups a wide margin of organizational autonomy: each group was in fact invited to structure itself freely, distributing tasks on the basis of the skills, individual propensities and strengths of the individual participants. This approach, aimed at stimulating self-management and empowerment, has however highlighted some critical issues, especially in groups less accustomed to collaborative work. Some trainees reported moments of uncertainty in the definition of roles and in the management of timing. In view of future implementations of the activity, it would be appropriate to combine this initial flexibility with more detailed operational guidelines, which offer examples of possible roles (such as coordinator, content manager, audio technician, reviewer) and a clear sequence of work phases (brainstorming, drafting, recording, editing). The use of shared digital tools (such as Google Docs) could also facilitate the planning and monitoring of the process. Such measures would make it possible to better support the groups, while maintaining organizational freedom.

Finally, a methodologically relevant and potentially limiting aspect concerns the evaluation of the effectiveness of podcasting on learning. The analysis conducted was based exclusively on self-reported data, obtained through a questionnaire administered to the trainees at the end of the activity. While this approach has made it possible to gather useful information about individual perceptions, it does not allow us to accurately determine the actual impact of podcasting on skills development or learning outcomes. This absence of objective measurement represents an important criticality, which reduces the robustness of the results and limits their generalizability. To strengthen the validity of the data, future studies should integrate more rigorous assessment methods, such as pre- and post-activity learning tests, comparisons with control groups, or analyses of academic achievements. These tools would make it possible to evaluate the effectiveness of podcasting more accurately, going beyond the perceived dimension alone and offering more solid evidence to support the integration of these tools into university teaching.

In conclusion, while showing promising results, the integration of podcasting into teaching needs further improvements to overcome technical difficulties, adapt to different learning preferences, optimize the management of group work and deepen the evaluation of its actual impact. In particular, it seems a priority to combine teaching support tools with more solid evaluation methodologies, capable of objectively detecting the benefits of the training activity. The introduction of more flexible teaching strategies, multimodal supplementary materials and standardized measurement tools could facilitate the adoption of podcasting as an innovative, reflective and inclusive learning method.

5. Conclusions

The analysis conducted highlighted the educational potential of podcasting in university teaching, highlighting how this tool can promote revision, knowledge consolidation and collaborative work among students. The results obtained confirm that the creation and listening to podcasts represented a stimulating and useful activity for the trainees for learning, with a good part of them evaluating the experience positively. However, the study also highlighted some critical issues that require careful reflection to improve the effectiveness of this methodology.

A central aspect that emerged from the survey concerns the perceived effectiveness of the podcast for revision and learning. The majority of the students felt that this activity improved their understanding of the contents covered in the course, offering a more dynamic and accessible study method. However, the analysis showed that a portion of students continued to prefer traditional reading, suggesting that the podcast cannot be considered a universal method, but rather a complementary resource within multimodal teaching strategies. For this reason, it would be wise to adopt approaches that combine podcasts with written and visual materials, in order to respond to the different needs and learning styles of students.

Another significant element concerns group work. The data confirm that the creation of podcasts has fostered collaboration between trainees, strengthening discussion and shared work. However, some organisational difficulties limited the full effectiveness of the activity, particularly with regard to the division of roles and time management. In order for podcasting to be used more effectively within teaching, it is necessary to provide support tools for the management of collaborative work, providing clear and structured guidelines for the assignment of responsibilities within groups.

From a methodological point of view, an important limitation of the study concerns the fact that the evaluation of the impact of podcasting on learning was conducted exclusively through subjective perceptions, without tools for direct measurement of the results obtained. For future research, it would be useful to integrate objective assessment methods, for example through pre- and post-activity comparative tests, or by comparing the results of students who used the podcast with those who followed more traditional teaching approaches.

In conclusion, the results obtained suggest that podcasting can represent an innovative and effective tool for university learning, especially if integrated with flexible teaching strategies and adequate tools for the management of group work.

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