

From open feeds to closed platforms: the rise and retreat of educational podcasting

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Abstract: Over its two decades of history, podcasting has undergone a profound transformation into a commercial productive practice. Once celebrated as an open, learner-driven format ideal for asynchronous education, in teaching and learning environments it has largely been absorbed into closed institutional platforms, particularly in the wake of the COVID-19 pandemic. This article provides a critical examination of the development of educational podcasting, charting its progression from an initially decentralized audio format designed for low-bandwidth contexts to its contemporary function as a broad descriptor for digital audio content integrated within Learning Management Systems (LMSs). Drawing on ongoing research that integrates a literature review of educational podcasting with analyses of Google Trends and Google Ngram Viewer data, this paper critically explores how advancements in technological infrastructure, mobile accessibility, and educational policies have reshaped both the practice and conceptualization of podcasting within educational settings.

Keywords: educational podcasting; rss feeds; platformization

1. Introduction

In the early 2000s, podcasting emerged as a grassroots innovation with significant educational potential (Campbell, 2005). By relying on the emerging technology of open RSS feeds (Hammersley, 2003), podcasting services enabled automatic background downloads through feed aggregators and facilitated mobile access via portable devices such as the newly launched iPods. These features rendered podcasting an effective means of delivering serialized educational content to students, even across diverse contexts and time zones.

Since Internet connections in those years were often still slow and unreliable, and in many areas private users had access to pay-as-you-go subscriptions rather than flat rates, podcasting came at the right time to solve a fundamental limitation: the difficulty of multimedia streaming. Users could subscribe to a feed, schedule downloads via their aggregator software, and enjoy offline listening at their convenience—without the need for a continuous Internet connection. These characteristics made podcasting particularly attractive to various categories of students, such as lifelong learners, commuters, and anyone facing limitations due to network infrastructure (van Zanten, 2008).

Educational institutions quickly adopted this model (Harris & Park, 2008; McGarr, 2009; Moretti & Morini, 2020), and several universities launched podcasting



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services to publish open lecture series as podcasts, in line with the broader open education movement (Conole, 2012). At this stage, podcasting was defined not only by its audio format but also by its syndication method—automatically delivered via RSS feeds and accessible to anyone.

Thus, in its early years podcasting was a tool for universities and other educational institutions not only to distribute material to their students (and even to have them develop it themselves), but also to “showcase” their contributions and make them accessible on the Internet in the spirit of sharing (Betella & Lazzari, 2007).

However, in recent years, educational podcasts—meant as serialized, RSS-based audio products—have seen a sharp decline. This shift is reflected in usage patterns, as well as in the evolving semantics of the term “podcast” itself, which is now frequently used in academic contexts to refer to any form of audio content, regardless of its method of distribution. This paper argues that the very technological improvements that could have strengthened podcasting—faster internet, ubiquitous mobile devices, and easy-to-use platforms—have instead contributed to the erosion of its distinctive educational potential.

2. Materials and Methods

The reflections summarized in this paper are inspired by two strands of research currently underway:

1. We exploited data from Google Ngram Viewer (2004 to 2022) and Google Trends (from 2004 to present) to analyze global interest in podcasting-related search terms. We extracted and plotted data for keywords such as *podcast*, *podcasting*, and *RSS feed* to assess how searches for them changed over time. Our analysis of these datasets is providing insight into the public's interest in podcasting over time and highlights the fluctuating visibility of podcasting in public discourse.

2. We developed a literature review using Scopus, going through a corpus of scholarly publications from 2005 to 2024, retrieved and selected by applying the PRISMA method (Page et al., 2021) starting from the keywords *podcast*, *education*, *learn* and *teach* combined through the appropriate use of Boolean operators. This review is giving us an insight into how educational podcasting has been represented in academic publications over the last two decades, with particular focus to terminological drift.

These sources allow for both quantitative and qualitative analysis on the evolving role of podcasting in education.

3. Results

3.1 Trends in the use of the terms in question

Our progressively refined investigation into the evolution of interest in podcasting commenced with an analysis of the Google Books corpus, accessed via the online tool Ngram Viewer. This platform facilitates the graphical representation of term frequency over time, allowing for the comparative visualization of one or multiple lexical items.

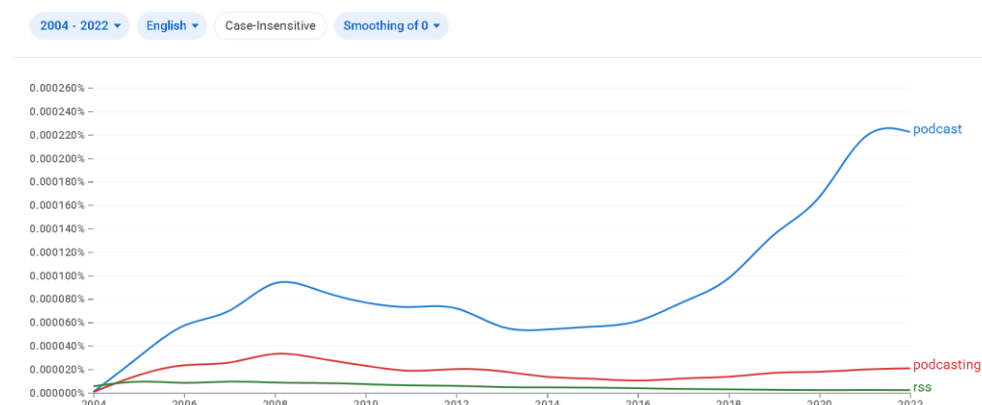
We therefore requested a graph showing the occurrences since 2004—the year the term podcasting first appeared (Hammersley, 2004)—of the terms “podcast”, “podcasting” and “RSS” (the search stops at 2022, the current limit of the database).

The results, illustrated in Figure 1, highlight some macro trends that are recognizable without the need for further in-depth data processing. The term “rss”, which predates “podcast”, exhibits a declining trajectory over the period under consideration. Had the analysis encompassed the years preceding the emergence of podcasting, the “rss” curve would have shown an initial rise culminating in a peak around 2005, followed by that sustained decline that is also evident in Figure 1. The term “podcasting” grew rapidly between 2004 and 2008, subsequently declining to less than one-third of its peak by 2016, before undergoing a modest resurgence. The term “podcast” follows a broadly similar trajectory, with a local peak in 2008, a downturn reaching its inflection point in 2013, and then a pronounced recovery. Notably, the magnitude of interest in “podcast” consistently surpasses that of the other two terms by an order of magnitude.

It is important to emphasize that the post-decline resurgence of “podcast” is significantly more marked than the relatively modest recovery observed for “podcasting”.

A similar pattern also emerges from the query of the Italian corpus of Google Books; however, due to space limitations, these results are not presented in detail.

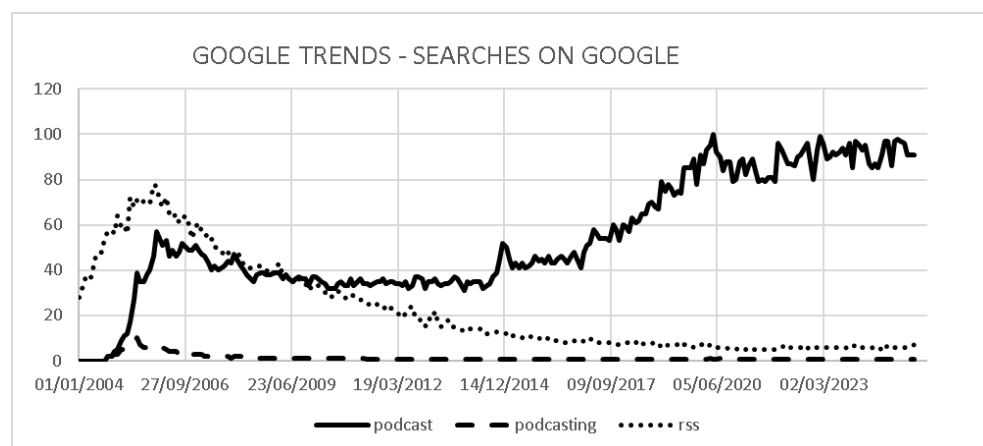
Figure 1. Google Books Ngram Viewer: occurrences from 2004 to present



The second methodological approach, based on Google's databases, involved visualizing search queries submitted to Google's search engine from 2004 to the present for the terms “podcast”, “podcasting”, and “rss”. As illustrated in Figure 2, the search trends for “podcast” and “podcasting” exhibit patterns broadly consistent with those observed via the Ngram Viewer: an initial period of growth, followed by a decline, and subsequently a marked resurgence in interest for “podcast” beginning in 2014—a trend not mirrored by “podcasting”. In contrast to the data derived from Google Books, the term “rss” maintained relatively high user interest until 2005, after which it experienced a progressive decline, ultimately approaching obsolescence.

A comparable trajectory is observable in the search data originating from Italy; again, as with Ngram Viewer, due to space constraints, these regional trends are neither presented nor discussed in detail.

Figure 2. Google searches from 2004 to present



3.3 Evidence from the literature

The second phase of the investigation consisted of a literature review conducted using the PRISMA method, starting with a query of the Scopus bibliographic database. In this initial stage of our research, aimed at preliminarily assessing the validity of the hypotheses, it was deemed unnecessary to consult additional databases (such as Web of Science), which might have provided some additional information but were unlikely to substantially alter the results. For the same reason, at this stage of the research, we have not yet worked thoroughly on all the full texts, or on a subset of them, but only on a stratified sample of abstracts.

Scopus was queried using the following search string:

TITLE (podcast*) AND ABS (education* OR learn* OR teach*)

which means “look for the documents whose title contains podcast* and whose abstract contains education* or learn* or teach*”.

The use of the asterisk (*) symbol allowed for capturing not only plural forms of terms, which are already accounted for by default in Scopus, but also morphological derivatives such as “educational”, “learning”, or “teacher”.

This initial query yielded 1,224 results. After excluding documents written in languages other than English (Portuguese, Spanish, Italian, etc.), 1,158 remained. Subsequently, documents classified by Scopus as *review*, *short survey*, *editorial*, *errata*, and *retracted article* were removed, leaving 1,113 records. At this point, a decision was made to exclude books as well: given their nature of summarizing phenomena developed over time, they could potentially be misleading for the purposes of this research. Consequently, 1,100 documents remained (notably, there were only 13 books: one from 2007; one from 2010; one from 2017; and the remaining ten published from 2020 onwards).

At this point, we downloaded the abstracts of the 1,110 documents identified from Scopus, and a text-mining approach was applied to identify thematic structures within them: text-mining is increasingly applied in educational research to reveal discourse patterns and thematic trends (Fesler et al., 2019; Ferreira-Mello et al., 2019). The analysis used *term frequency-inverse document frequency* (TF-IDF) weighting, *truncated singular value decomposition* (SVD), and *K-Means clustering* to group semantically related

texts. This combination is widely recognized for its reliability in large-scale text analysis (Aggarwal & Zhai, 2012; Sebastiani, 2002; Steinberger & Ježek, 2004).

The clustering process identified six sub-themes, among which the original documents are distributed as shown in Table 1.

Table 1. The six clusters and the distribution of abstracts among them

Sub-theme	Count	% of Total
Media & Communication in Education	306	27.8%
Student Engagement & University Learning	207	18.8%
Educational Technology & Design	207	18.8%
Medical & Health Education	155	14.1%
Language Learning & ESL Education	123	11.2%
Experimental & Quantitative Studies	102	9.3%

As anticipated, in order to proceed with a rapid analysis of the abstracts, it was decided to work on a representative subset of them. To this end, a stratified sampling procedure was employed, wherein the predefined clusters served as strata and simple random sampling was conducted within each cluster, applying a reduction ratio of 1:20. The extraction process was facilitated by a random number sequence generator. In order to minimize potential discrepancies across subsets—particularly given their limited size, as indicated in Table 2—the analysis at this stage was restricted to abstracts of documents classified by Scopus as **article**, that is, peer-reviewed journal articles.

Table 2. The decimated clusters and their cardinality

Sub-theme	Count
Media & Communication in Education	15
Student Engagement & University Learning	10
Educational Technology & Design	10
Medical & Health Education	8
Language Learning & ESL Education	6
Experimental & Quantitative Studies	5

The corpus comprising 54 abstracts was systematically analyzed through a descriptive categorical methodology. Each abstract was coded according to its predominant thematic orientation, using a predefined framework encompassing three categories: podcast production (involving the authors or their students as producers); podcast evaluation (not necessarily involving podcasts produced by the authors); and theoretical discussion (addressing the foundations, historical development, and future perspectives of educational podcasting). This classification process was executed via a Python script within the Google Colab environment and subsequently validated by an independent researcher who reviewed the textual content.

The overall distribution of the abstracts reveals a marked predominance of evaluative research, with 44 studies (81%) incorporating some form of assessment, measurement, or analytical investigation of podcasts. This trend indicates that contemporary scholarship in educational podcasting is largely empirical and out-

come-focused, emphasizing the effectiveness, reception, or impact of podcasts rather than their conceptual underpinnings.

Conversely, podcast production—whether conducted by researchers, educators, or students—is documented in only 11 studies (20%). Furthermore, there are no instances wherein production occurs absent accompanying evaluation; every study referencing podcast creation also integrates an evaluative or analytical component. This pattern suggests that podcast production is generally instrumental and undertaken within the context of a learning experiment, teaching innovation, or empirical study, rather than as an object of creative or methodological reflection in its own right.

The theoretical examination of educational podcasting is evident in twelve studies (22%), frequently intersecting with empirical evaluation (four studies) or, less commonly, encompassing both production and evaluation (two studies). This limited yet consistent theoretical engagement indicates that a portion of researchers is actively involved in conceptual development, model construction, or pedagogical reflection concerning podcasting; however, such scholarly efforts constitute a minority compared to applied evaluative research.

Only four abstracts (7%) were unclassifiable within the three primary categories, demonstrating that the classification framework effectively encompasses the majority of conceptual variation within the dataset.

Furthermore, RSS—the fundamental technology facilitating podcast distribution—is explicitly referenced in merely three instances. This near-absence suggests that the technical foundation of podcasting (including syndication mechanisms, infrastructure, and standards) has largely been omitted from contemporary research discourse, potentially due to podcasting's normalization as an established medium rather than a novel technological innovation requiring elucidation, or because podcasts are increasingly disseminated through means other than RSS feeds.

4. Discussion

4.1. Podcasting's original affordances

The educational promise of early podcasts was determined by scarcity and limitations: with the limited bandwidth and slow Internet connections of the time, streaming multimedia files was impractical. On the contrary, the reason for the podcast's success lay in the fact that recorded episodes could be automatically downloaded in the background via aggregators and then played offline on portable devices such as iPods, allowing users to close their connection once the batch download of updates from all the services of interest had been completed. Users were therefore not obliged to keep their connection open while checking whether one or other of the services had any new content. This model was not only convenient, but also gave users more power, allowing students to access content without being tied to institutional platforms or a continuous connection.

In the early 2000s, podcasting's open distribution model made it an ideal companion for early open education initiatives: teachers were able to produce content facing minimal technical barriers and release it to a global audience through a model that was decentralized, asynchronous, and learner-controlled.

Furthermore, podcasting fostered a participatory culture, as learners could remix, respond to, or create their own podcasts—particularly in domains such as language

learning, digital communication, and journalism. This strengthened podcasting both as a medium and as a method of student-centered pedagogy (Lazzari, 2007).

4.2. *The paradox of technological progress*

Paradoxically, improvements in technology weakened the core logic of podcasting. As broadband access, smartphones, and on-demand streaming platforms proliferated, the need for downloaded, serialized content diminished. Why subscribe to a feed when one can stream any episode, anytime, anywhere?

On one side, podcasting continued to grow in entertainment and journalism, moving away from the original distribution model based on single podcasting services: a phenomenon arises that we can call “platformization” (or even “spotifyzation”), with reference to the way in which digital platforms are reshaping the digital communications sector, influencing its structure and production, and consequently its consumption.

This transformation can be read as part of a broader process of platformization in education (van Dijck, Poell, & de Waal, 2018). As teaching practices and digital resources are progressively integrated into institutional platforms, the open infrastructures that once sustained podcasting—particularly RSS syndication—lose their relevance. The result is a form of technical and discursive enclosure, in which educational audio circulates within controlled environments rather than through the open web. The near absence of RSS references in the analyzed corpus thus becomes a meaningful indicator of this infrastructural shift: it marks the transition from an open, decentralized, networked medium to a closed, platform-bound modality, increasingly dominated by large platforms, such as Acast, Apple Podcasts or Spotify, which control the distribution and access to content and the monetization of its use (Wade Morris, & Hoyt, 2021). Although platforms offer advantages, such as the ability to reach a wider audience and thus generate greater revenue, they also raise concerns about losing the early ethos of educational podcasting, when learners could not only listen but also remix, recontextualize, and even publish their own audio content.

On the other side, if we consider the use of podcasting in education, its distinctiveness has been fading. Audio content has not vanished—but it has been increasingly embedded within LMSs, shared via private links, or uploaded directly to institutional repositories, whose access is usually restricted to accredited users. These files could also be labelled as “podcasts”, but they lacked the structure, accessibility, and openness of the early examples. Contemporary practices tend to position audio as one among many media types embedded in managed learning ecosystems, primarily serving institutional purposes of content delivery and assessment. The notion of podcasting as a *coherent series of episodes* contributing to a continuing public dialogue is, in this sense, being replaced by an understanding of podcasting as a *discrete digital object*.

It should not sound strange or even coincidental that the event that revitalized podcasting, the launch of the investigative journalism podcast “Serial” in 2014, is more or less contemporary with the release of the first television series produced by Netflix (House of Cards, in 2013) and the beginning of Spotify's tumultuous growth, which went from 40 to 640 million users between 2014 and 2024: the new era of podcasting is developing alongside the boom of commercial platforms for the distribution of multimedia content (Bonini, 2015).

A decisive step forward in the direction mentioned above towards the incorporation of podcasts into LMSs was prompted by the COVID-19 pandemic, which accelerated the adoption of online teaching on an unprecedented scale. Most teachers

around the world, even those most reluctant to use digital technologies, have recorded lessons and experimented with short audio content. However, these resources were rarely distributed as podcasts in the traditional sense of the term. Instead, they were hosted on platforms such as Moodle, Edmodo, Google Classroom, Microsoft Teams or on institutions' proprietary portals, available only to enrolled students (Bozkurt et al., 2020).

At the same time, the literature on educational podcasting has expanded, as documented by our Scopus-based review. However, many publications use the term “podcast” to describe any (instructional) audio material, regardless of whether it adhered to the serialized, subscribable format, as evidenced by the disappearance of references to RSS technology in publications.

This terminological shift signifies a profound integration of multimedia communication within institutional frameworks and practices; within this revised conceptualization, the term “podcast” acquires a novel meaning, no longer being perceived solely as a distribution mechanism but rather as a discrete content format—specifically, a static audio file that is not necessarily part of an episodic series. This redefinition bears considerable implications, supplanting the original characteristics of educational podcasts—namely openness, remixability, and learner autonomy—with the operational paradigms of educational platforms characterized by restricted access, compartmentalized content, and reduced public visibility. Consequently, the designation podcast(ing) ceases to inherently connote public accessibility, syndication, or learner-centered design principles.

This transformation transcends mere linguistic modification and reflects a shift in pedagogical priorities: educational audio files have transitioned from serving as reusable learning objects to becoming predominantly context-dependent, temporally limited in availability, and subject to digital access restrictions. This evolution intimates that the decline in prominence of educational podcasting may not be attributable solely to waning interest but rather to its incorporation into alternative digital pedagogical modalities. Furthermore, it is important to acknowledge that as podcasts lose their status as distinct open media forms, they concurrently become obscured as objects of scholarly inquiry.

This development aligns with broader trends toward the post-COVID platformization of education, wherein instructional delivery is increasingly mediated through corporate platforms that emphasize data monitoring, learning analytics, and access regulation.

5. Conclusion: toward a reclaimed podcasting ethos

Podcasting originated as a response to limitations, with its foundational principles—automated downloads, open distribution, and offline accessibility—providing a learner-centered framework that promoted both access and autonomy.

However, as technological abundance has replaced scarcity, many of the initial technical advantages associated with podcasting have decreased in importance and urgency.

Our investigation shows that over time there has been a semantic shift such that the term “podcast” is less and less perceived as an episode of a series made available through a distribution open to all and based on RSS feeds, to become increasingly synonymous with an audio recording, albeit perhaps part of a series, to be downloaded from a site, whether open or closed.

Even within educational settings, the medium has largely been assimilated into institutional frameworks, and the term “podcast” itself has broadened to denote digital audio content in general.

Nevertheless, the essential infrastructure that supports authentic podcasting remains intact, provided that technologies such as RSS feeds, open licences and public repositories that enable the dissemination of serialised, accessible and reusable educational resources continue to be supported.

The future will tell us whether the trend that undermines podcasting's distinctive educational potential as a tool for knowledge production (Cox et al. 2023) and open cultural dissemination will continue, or whether there could be a return to its origins.

The primary requirement is not the development of novel technologies but rather a reinvigorated dedication to principles of openness and learner autonomy, and a critical examination of media history. By critically engaging with the origins of podcasting, educators and scholars can gain deeper insights into both the elements that have been lost and those that remain recoverable.

Our future work will primarily focus on furthering the literature review, moving from abstracts to full texts, to verify the accuracy of the analyses carried out expeditiously and on a sample basis. This, in turn, will enable a productive examination of how platform and institutional integration are transforming not only the technological infrastructures of educational podcasting, but also its conceptual contours—namely, the evolving meanings that educators and researchers ascribe to the terms “podcast” and “podcasting”.

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