



INNOVATION, TECHNOLOGIES,
EDUCATION & COMMUNICATION

INNOVATION, TECHNOLOGIES, EDUCATION & COMMUNICATION

N° 12

INCLUSIVE EDUCATION AND INNOVATIVE TECHNOLOGIES

Issue Coordinator Editor

Isam Mrah

SEPTEMBER 2026



Unité de recherche labellisée CNRS
COMMUNICATION, EDUCATION, DIGITAL USAGE
AND CREATIVITY LABORATORY

URL CNRS 19

ISSN : 2737-8195

Issue 12 of *Revue ITEC*, entitled “*Inclusive Education and Innovative Technologies*,” brings together a collection of scholarly contributions that explore emerging approaches, policies, practices, and innovative technologies that contribute to creating more inclusive, accessible, and learner-centred educational environments. At a time when educational systems are undergoing profound transformations, the intersection between inclusion and technological innovation has become increasingly significant.

Inclusive education extends beyond ensuring access to learning; it encompasses the creation of equitable educational environments that recognise learner diversity, reduce barriers to participation, and respond to different needs, abilities, and backgrounds. At the same time, the rapid development of digital and emerging technologies is creating new possibilities for enhancing teaching and learning, expanding access to educational resources, and responding to diverse learner needs.

The contributions in this issue address a range of topics, including inclusive education, special needs education, innovative pedagogies, teacher education and professional development, as well as the role of emerging technologies in expanding learning opportunities and addressing the diverse needs of learners. Collectively, the articles underscore the importance of combining pedagogical innovation with inclusive practices to promote equity, active participation, learner empowerment, and lifelong learning.

By bringing together perspectives from different disciplines and educational contexts, **Issue 12** seeks to contribute to current discussions on how innovation and technology can be harnessed to address contemporary educational challenges and foster more inclusive and learner-centred educational environments.

Editorial Board

Dr. Isam Mrah || FLSH, Mohammed I University, Oujda ||

Dr. Khalid Chaouch || FLSH, Sultan Moulay Slimane University, Beni Mellal ||

Dr. Hanane Darhour || FLAHS, University Ibn Zohr, Ait Melloul- Agadir ||

Dr. Abdellah Elboubekri || FLSH, Mohammed I University, Oujda ||

Dr. Naoual Derraz || FLSH, Mohammed I University, Oujda ||

Dr. Karim El Hiani || Abdelmalek Essaadi University, Tétouan ||

Dr. Mohammed Guamguami || ESEF, Mohammed I University, Oujda ||

Dr. Mohammed Zerioush || ENS, Moulay Ismail University, Mekness ||

Dr. Youssef EL Kaidi || FLSH, Sidi Mohamed Ben Abdellah, Fés ||

Dr. Nassira Houat || ENCG, Mohammed I University, Oujda ||

Dr. Mourad Benali || CRMEF, Oujda ||

Dr. Mohamed DIHI || CRMEF, Oujda ||

Dr. Aziz Askitou || FP, Mohammed I University, Nador ||

Dr. Abdelhafid Jabri || FSJES, Mohammed I University, Oujda ||

Beyond Lectures: Evaluating Podcasts as a Medium for Inclusive Learning in Higher Education

Ayah Dadi¹, Dr. Nassira Houat²

¹ Mohammed I University, Oujda, Morocco
Email: baazizayadad@gmail.com

² Mohammed I University, Oujda, Morocco
Email: n.houat@ump.ac.ma

Abstract

Podcasting has become an established feature of everyday media consumption, yet its role in higher education remains under-examined, particularly with respect to communication and inclusion rather than content delivery alone. This study investigates the way podcasts function as a medium for educational communication among fifty-four Moroccan university students, using a mixed-methods design that combined a questionnaire, semi-structured interviews with podcast-experienced students, and an experiment built around an original two-episode podcast. Universal Design for Learning (UDL) served as the interpretive framework, and the study asked how podcasts support learner autonomy, motivation, and expressive communication; how they shape engagement, comprehension, and collaboration; and how closely they align with UDL's three core principles. Findings show that most students regarded podcasts as more motivating and accessible than traditional lectures, valued the ability to control pace and revisit content, and reported gains in confidence and collaborative discussion, particularly during group work built around podcast content. A minority, however, struggled with concentration, language comprehension, or the absence of visual cues, underscoring that podcasting works best as a complement to, rather than a replacement for, existing teaching methods. The study extends current understanding of podcasting beyond content delivery, positioning it as a tool for communication, inclusion, and peer learning in higher education.

Keywords: podcasting, higher education, Universal Design for Learning, inclusive learning, academic communication

1. Introduction

Higher education has absorbed a steady stream of digital tools over the past two decades, each promising to loosen the grip of the lecture hall on the way students learn. Podcasts belong to this wave, but their appeal rests on something older than the technology itself: the simple act of listening. A podcast is a digital audio recording that can be streamed or downloaded and consumed whenever and wherever a student happens to be, on a commute, between classes, or while doing something else entirely. That flexibility has made podcasting one of the more durable additions to the higher education toolkit, and its growth has been steep. According to Edison Research's Infinite Dial report, the share of the U.S. population aged twelve and older who have ever listened to a podcast rose from eleven percent in 2006 to an estimated seventy percent in 2025, roughly two hundred million people. This is no longer a marginal medium.

Universities have responded unevenly. Some institutions use podcasts mainly to record and redistribute lectures; others encourage students to produce their own episodes as an alternative form of assessment. Both uses appear regularly in the literature, but most of it treats podcasting

primarily as a content-delivery mechanism, asking whether students retain more from a podcast than from a textbook chapter or a live lecture. Considerably less attention has gone to what podcasting does for communication: whether it changes how students talk to each other, how confident they feel expressing an idea out loud, and how the medium supports learners who do not fit comfortably into a conventional, text-heavy classroom.

This gap intersects with a second, well-established literature: Universal Design for Learning (UDL), a framework built on the premise that inclusive teaching means offering multiple means of engagement, representation, and action and expression, rather than a single format for every student (CAST, 2018; Meyer et al., 2014). Podcasting maps onto these three principles in fairly direct ways. An auditory, on-demand format that can be paused, replayed, and consumed while multitasking speaks to engagement. The option to hear rather than read speaks to representation. The practice of scripting, recording, and producing an episode speaks to expression. Yet despite this apparent fit, few studies have examined podcasting through a UDL lens using actual student data, and fewer still have treated communication, autonomy, and collaboration as outcomes in their own right rather than as by-products of content retention.

This study addresses that gap. It was conducted with fifty-four undergraduate and graduate students in the Department of Communication and Digital Transformation at the University of Mohammed First in Oujda, Morocco, a department whose students are routinely exposed to technology-driven learning environments and are therefore well placed to evaluate a digital medium such as podcasting. Many of the participants had already produced their own podcasts as part of an earlier course assignment, which gave the study access to first-hand accounts of what podcast creation, and not only podcast listening, does to a learner's confidence and communication.

The study asked three questions. First, how do educational podcasts promote student autonomy, motivation, and expressive communication in higher education? Second, in what ways do podcasts enhance academic communication and affect engagement, comprehension, and collaborative learning? Third, how do podcasts support inclusive and flexible learning experiences in line with UDL principles? To answer these questions, the study combined a questionnaire, semi-structured interviews with students who had prior experience producing podcasts as coursework, and a controlled experiment built around an original two-episode podcast on artificial intelligence in education, *TechTalk: AI in Learning*.

The remainder of this article situates these questions within the existing literature on podcasting and UDL, describes the study's methodology, reports and discusses the findings, and closes with the study's limitations and its implications for integrating podcasting into higher education.

2. Literature Review and Theoretical Framework

2.1 Podcasting in higher education: an unsettled picture

Podcasting entered mainstream use once Apple added podcast subscriptions to iTunes in 2005, and its subsequent growth, from a niche hobby to a medium with billions of downloads, has been well documented (Apple Inc., 2016). What has been less settled is its pedagogical value. Hew (2009) and Grunow (2020) both view podcasts favourably, arguing that they let students learn at their own pace and accommodate a range of learning styles. McGarr (2009) is more cautious, warning that flexibility does not guarantee deep learning and that students may listen passively without engaging critically with the material. This tension, between accessibility and passivity, runs through much of the literature and is one reason podcasting research has produced mixed results on outcomes such as academic performance (Heilesen, 2010; Hew,

2009), even as it consistently shows benefits for review habits, personalized feedback, and student-instructor connection (Cooper, 2008; Hill et al., 2012).

A recurring explanation for why universities adopt podcasting is institutional rather than pedagogical. Harris and Park (2008) describe three overlapping motives: education, in the sense of improving understanding through flexible, auditory methods; support, in the sense of accommodating working students, students with disabilities, and other non-traditional learners; and promotion, in the sense of demonstrating institutional innovation. These motives are not mutually exclusive, but they do help explain why podcasting can be embraced enthusiastically at an institutional level while its classroom effectiveness remains empirically uneven. Comparative studies bear this out. Research at the University of Cape Town, for instance, found that engineering students used podcasts daily as a faster and more engaging alternative to textbook review, valued the sense of one-to-one explanation that podcasts offered in large lecture halls, and relied on replay to catch material they had missed, particularly non-native English speakers (Hew, 2009; McGarr, 2009). At the same time, these students did not treat podcasts as a substitute for face-to-face teaching; they used them situationally, mainly for review and exam preparation (Fietze, 2009).

2.2 Universal Design for Learning and podcasting's fit

UDL organizes inclusive teaching around three principles: multiple means of engagement, multiple means of representation, and multiple means of action and expression (Meyer et al., 2014; Roberts et al., 2011). Each principle offers a different lens on why podcasting might work well for a diverse student population, and each has some empirical support.

On engagement, podcasting's main advantage is that it lowers the affective barriers associated with fixed schedules and rigid formats. Students managing academic, professional, and personal commitments can engage with content on their own time, and several studies report that this flexibility itself increases motivation (Gachago et al., 2016; Bamanger & Alhassan, 2015). The conversational, narrative style typical of podcasts, built around real-world examples and interviews rather than formal exposition, also appears to make content feel more relevant and less effortful to approach.

On representation, podcasting offers an auditory alternative to text-heavy materials, which matters for students who find written content difficult to process, whether because of a learning difference, limited literacy in the language of instruction, or simply a preference for listening. Forbes and Khoo (2015) found that student-generated podcasts in an online teacher education course supported interactive formative assessment precisely because they let learners engage with material through a different sensory channel, particularly when paired with written notes or reflective tasks. The ability to pause, rewind, and slow down playback compounds this benefit, since it allows students to control the pace at which information is delivered rather than being locked into the rhythm of a live lecture.

On action and expression, the clearest evidence comes from studies of podcast creation rather than podcast listening. Bolden and Nahachewsky (2015) found that producing podcasts in a music education course let students articulate their understanding through audio narratives that blended technical knowledge with personal reflection, in ways a written exam could not capture. Powell and Robson (2014) reported a similar pattern among business students, who developed stronger communication skills through podcast assessments than through traditional written reports, while Lee et al. (2008) found that shy or non-native-speaking students used podcast recording to build confidence in expressing ideas without the pressure of a live presentation. Zahay and Fredricks (2009) add that marketing students felt more motivated when

podcasting let them showcase expertise through interviews and storytelling rather than through exams.

This body of work suggests that podcasting is not simply a way of transmitting content but a medium that lends itself, on paper, to inclusive design. Even so, the fit is not automatic. UDL also anticipates variability, and the same auditory format that helps one learner can exclude another: students with hearing impairments or auditory processing difficulties may need transcripts or visual scaffolds to access the same content equitably (CAST, 2018), and dense, unstructured audio can increase cognitive load rather than reduce it if it is not deliberately chunked (Mayer, 2005). These considerations matter for how the present study interprets its own findings, since UDL is used here not simply to confirm that podcasting is inclusive, but to identify where that inclusivity breaks down.

2.3 Autonomy, motivation, and collaboration

Beyond UDL specifically, two further strands of literature informed this study's design. The first concerns autonomy and motivation. Hill et al. (2012) found that podcasting gives students a felt sense of control over their own learning, letting them review material, take notes, and identify gaps in their understanding at their own pace, while Cooper (2008) showed that personalized audio feedback is often experienced as clearer and more engaging than written feedback because of its conversational tone. Ryan and Deci's (2000) self-determination theory offers a useful explanation for why this matters: when an activity satisfies a learner's need for autonomy, competence, and relatedness, motivation tends to follow, and podcasting, whether through self-paced listening or through the technical and creative demands of production, plausibly touches all three.

The second strand concerns collaboration and anxiety. Several studies describe podcast creation as a genuinely social process that requires students to divide tasks, negotiate roles, and resolve disagreements much as they would in any team project (Corbacho et al., 2021; Nurius & Kemp, 2019). At the same time, the format's asynchronous, editable nature appears to reduce the anxiety associated with live performance: Boyle et al. (2018) found that a majority of students who stutter preferred recorded assignments over live presentations, and similar patterns of reduced performance anxiety have been reported among English-language learners given the option to re-record segments before submission.

Taken together, this literature makes a reasonably strong case that podcasting should support autonomy, motivation, inclusive representation, and expressive communication in ways that align with UDL. What it does not resolve is how these benefits play out together, in a single institutional setting, for students who are asked not only to listen to podcasts but to talk about them, work through them in groups, and in some cases produce them. That is the gap this study was designed to address, and Morocco offers a useful setting for it: a context in which digital transformation is actively being integrated into higher education curricula, but in which podcasting as an instructional medium remains largely untested.

3. Methodology

3.1 Design and context

This study used a mixed-methods design combining quantitative and qualitative techniques: a questionnaire, semi-structured interviews, and an experiment built around an original podcast. It was conducted during the 2025 academic year at the University of Mohammed First, Faculty of Letters and Human Sciences, in Oujda, Morocco, with students from the Department of Communication and Digital Transformation. This department was selected deliberately. Its

students are regularly exposed to digital tools and communication theory through their coursework, which made them well positioned to evaluate podcasting both as a communication medium and as a learning tool.

3.2 Participants

Fifty-four students took part, drawn from different academic levels, first- and second-year master's students and third-year bachelor's students, using judgment sampling based on relevant academic background. Including students at different stages of the programme allowed the study to capture a range of perspectives shaped by different levels of theoretical grounding and practical experience. Participation was voluntary and consent was obtained from all respondents. Anonymity was preserved by disabling email collection in the online questionnaire and by limiting demographic questions to broad age brackets rather than identifying details; participants in the interviews were separately asked whether they were comfortable being named or preferred anonymity.

3.3 Materials and procedure

Three instruments were used. The questionnaire, administered online, comprised nine items: one multiple-choice question, two open-ended questions, four dichotomous items, and two yes/no questions, and was made available in French to avoid language barriers for the majority of participants. It captured students' opinions, observations, and experiences of podcasting as a medium for learning and communication.

The semi-structured interviews were conducted with master's students who had previously created their own podcasts as an assessed course activity in digital marketing during an earlier semester. These interviews asked participants to reflect on that experience: what they found effective, how they experienced the follow-up discussions after producing and sharing their episodes, and how podcasting compared with more traditional assessment formats.

The experiment involved an original two-episode podcast, *TechTalk: AI in Learning*, developed specifically for this study around the theme of artificial intelligence in education. One episode addressed AI in adaptive learning and personalized instruction; the other addressed AI's role in language learning and communication. Both featured guest experts, including an educational supervisor and PhD candidate specializing in AI-supported blended learning. The podcast was delivered in an online session, and participants were divided into five groups of three. Each group was first asked a set of questions related to the podcast's themes before being exposed to the episodes, establishing a baseline of prior knowledge, engagement, and collaboration. The episodes were then distributed for review, and a second session was held in which each group addressed a specific question drawn from the podcast content, allowing for a before-and-after comparison of understanding, communication, and collaborative behaviour.

3.4 Ethical considerations

Ethical considerations shaped the design at every stage. Participation was entirely voluntary, and no participant was penalized academically for declining to take part or for withdrawing partway through. In the interviews, participants were asked at the outset whether they wished to be identified by name or preferred anonymity, and their preference was respected in the way their responses were recorded and later reported. This combination of safeguards was intended to create conditions in which students felt comfortable sharing genuinely critical, and not only favourable, views of podcasting.

3.5 Analysis

Quantitative responses from the questionnaire were analysed descriptively and presented as percentages, allowing comparisons across demographic groups such as age. Qualitative data from the open-ended questionnaire items, the interviews, and the experiment's follow-up discussions were analysed thematically, with responses grouped into recurring categories such as flexibility, comprehension, motivation, and communication. Graphs and tables were used to visualize quantitative trends, while thematic categories were used to organize and interpret the qualitative material.

Findings from the three instruments were then read against each other and against the study's six hypotheses and three research questions, using UDL as an interpretive framework throughout. The hypotheses tested whether podcasts enhance engagement relative to traditional materials, whether regular podcast use improves comprehension and retention, whether podcasts support peer-to-peer collaboration, whether they strengthen communication between students and instructors specifically, whether their flexibility increases autonomy and motivation, and whether their informal, storytelling format makes them more engaging and relatable than conventional formats. Triangulating the questionnaire, interviews, and experiment against these hypotheses allowed the study to assess not only whether podcasting was well received, but which of its specific affordances, flexibility, representation, or expressive opportunity, accounted for that reception.

4. Findings

4.1 Questionnaire results

Participants were fairly evenly split across age brackets, with 42.6% under 25, 35.2% between 25 and 34, and 22.2% over 35. Support for podcasting as an educational tool was high overall: 90.7% of respondents considered educational podcasts effective in higher education, and the same proportion supported expanding their use in the department. Motivation showed a similar pattern, with 87% of participants reporting greater motivation to learn through podcasts than through traditional lectures. On engagement style, 92.6% preferred podcast listening followed by discussion over passive listening alone, and 66.7% reported higher concentration when learning through podcasts compared with in-person lectures, against 33.3% who concentrated better in the traditional format. On the communicative role of podcasts, 66.7% of respondents associated podcasts primarily with horizontal, student-to-student communication, while 33.3% associated them more with vertical, teacher-to-student communication.

Open-ended responses added texture to these figures. Flexibility and control were the most frequently mentioned benefits, with students describing the ability to pause, rewind, or speed up playback as central to their understanding. As one participant put it, a podcast can be paused "when you're confused" and rewound "to catch what you missed." Others linked this control directly to comprehension and retention, describing podcasts as a way to revisit complex ideas and, in the words of one respondent, "absorb information more effectively, revisit complex ideas, and tailor the experience to your personal learning style." A related theme was personalization: students described being able to adapt the pace of listening to their own rhythm and cognitive capacity, with one noting that this "respects differences in concentration and learning styles."

A recurring theme was the sense of intimacy the format created. Several students described podcasts as feeling like a direct conversation, "almost like having a conversation" with the speaker, which they contrasted favourably with the more impersonal experience of a lecture hall, and several described podcasts as "less tiring" than lectures once they had found the right

time and setting to listen. Communication also emerged as a theme independent of content delivery: participants described podcasts as creating an environment that encouraged discussion after listening, rather than simply transmitting information to be memorized, with one student singling out a classroom discussion that followed a podcast as “extremely interesting and highly engaging.”

Not all responses were positive. A minority of students reported difficulty concentrating on audio-only content, with one explaining that “there’s something about just listening, without seeing or taking notes, that doesn’t work for me,” and another describing being drawn into unrelated content within minutes of starting to listen. A few participants argued explicitly that podcasts should remain supplementary rather than replace classroom interaction, framing them as “a supplementary tool, but not as a primary learning resource.” A smaller set of responses to the open-ended items were brief and largely affirmative without elaboration, indicating general goodwill toward the medium without necessarily reflecting deep engagement with the questions asked.

4.2 Interview findings

Interviews with students who had previously created their own podcasts as coursework reinforced several of these themes while adding detail specific to production rather than consumption. Most participants described the experience positively, calling it “less monotonous” than conventional assignments and crediting it with improvements in oral communication, creativity, and the ability to reformulate information clearly and dynamically. One participant said the activity had made them want to “produce more content” in their own field, while another described it as encouraging students to “encourage reformulating information in a clear and lively way.”

Several participants linked podcast production directly to reduced performance anxiety. One noted re-recording a segment “until faultless” rather than facing the discomfort of a live audience, and described this as allowing genuine practice without the stakes of real-time performance. Post-production discussions were valued specifically as a “free and safe environment” to exchange ideas, which several students linked to improved active listening, and a few pointed to storytelling and content delivery as skills they had noticeably developed through the process.

Some participants preferred a hybrid approach, combining the creative dynamism of podcasting with the structure of traditional written assignments. As one put it, “a hybrid approach balances podcast dynamism with written assignments’ structure,” reflecting a view that each format serves a distinct purpose rather than one simply replacing the other. Others were considerably more critical: participants described scripting, recording, and editing as extra labour on top of an already full workload, cited poor audio quality resulting from a lack of professional equipment, and in one case reported disliking the experience altogether, preferring the relative simplicity and accessibility of written assignments. A small number of students also reported discomfort specifically with hearing their own recorded voice, a reaction distinct from anxiety about the assignment itself. Together, these accounts suggest that podcast creation is emotionally and practically demanding in ways that podcast listening is not, and that its benefits are not experienced uniformly even among students who volunteer positive assessments overall.

4.3 Experimental findings

Figure 1 summarizes how each of the five experimental groups changed across four evaluated dimensions, understanding, communication, collaboration, and engagement, before and after exposure to the podcast episodes.

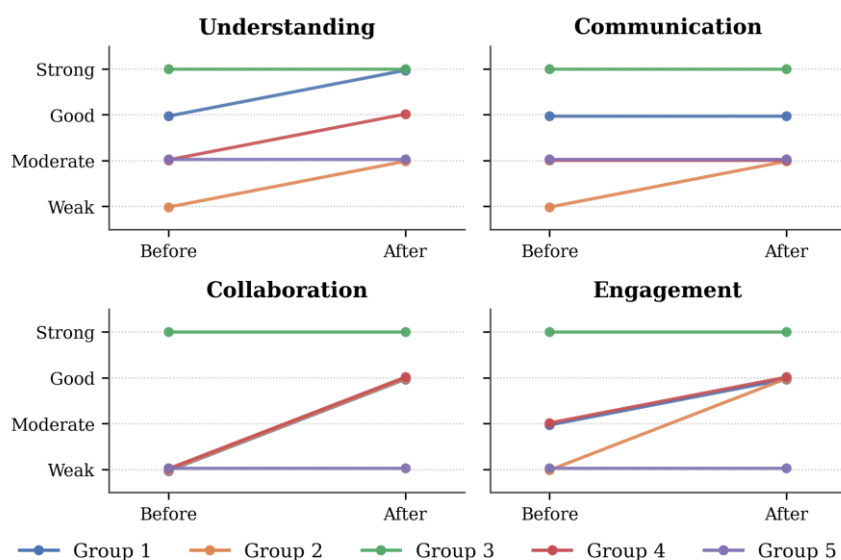


Figure 1. Change in group performance before and after podcast exposure, across four evaluated dimensions. Each line traces one group's shift on an ordinal scale from Weak to Strong; overlapping trajectories are offset slightly for legibility.

Group performance before exposure to the podcast episodes varied considerably. Some groups, notably Group 3, already showed strong prior knowledge, engagement, and collaboration; others, such as Group 2, were limited by language barriers and worked individually rather than collaboratively; and Group 4 generated ideas independently but struggled to communicate them collectively.

After exposure to the podcast episodes, most groups showed measurable improvement, a pattern visible in Figure 1 as upward movement between the Before and After columns. Group 1 acquired knowledge it had not previously demonstrated and explained concepts to each other more effectively, though its overall communication skill level held steady. Group 2 moved from weak to moderate communication and began working together to explain new vocabulary and ideas. Group 4 communicated more clearly and referred to notes while speaking, with moderate collaboration and mutual sharing of details individual members had missed. Group 3, already strong before the intervention, remained highly engaged and reported that the podcast helped consolidate and review material they already understood, which is reflected in Figure 1 as a flat line at the ceiling of the scale rather than an absence of benefit. Group 5 was the exception: despite continued collaborative effort, this group made limited progress and expressed dissatisfaction with the format, citing persistent difficulties with focus and language comprehension, some of which the participants attributed to distracting visual elements such as animated titles during the video-conferencing session rather than to the audio content itself. Group 5 is the only group whose lines in Figure 1 remain essentially flat across all four dimensions, marking it as a clear outlier against an otherwise consistent pattern of improvement.

5. Discussion

Read together, the three sets of findings support a fairly consistent picture, one that aligns closely with UDL's three principles while also exposing their limits. On engagement, the questionnaire data show that podcasts reduced the fatigue students associated with traditional lectures and increased their motivation to learn, a pattern most pronounced among younger, more digitally immersed participants and broadly consistent with Gachago et al.'s (2016) finding that autonomy and control over pacing drive engagement. Older participants showed a milder preference for traditional formats, suggesting that the appeal of podcasting is not universal but is shaped by prior media habits, which is itself a UDL-relevant observation: engagement strategies that work for one cohort will not automatically work for another.

On representation, the emphasis participants placed on pausing, replaying, and controlling playback speed reflects exactly the kind of flexible access to content that UDL's second principle calls for, and it echoes Gachago et al.'s (2016) conclusion that this flexibility improves both accessibility and comprehension. What the data add to that finding is a communicative dimension: several students described podcasts as fostering a sense of one-on-one conversation that made them more willing to engage with the material and, subsequently, with each other. This is consistent with the questionnaire finding that two-thirds of participants saw podcasts as facilitating horizontal, peer-to-peer communication rather than purely vertical, instructor-to-student communication, a distinction the existing literature on podcasting as content delivery does not typically draw.

On action and expression, the interview data provide the clearest evidence. Students who had produced their own podcasts described the process in terms that closely mirror Bolden and Nahachewsky's (2015) findings on expressive clarity and reduced performance anxiety: the ability to re-record until a segment felt right allowed students to separate the act of getting an idea right from the pressure of performing it live, which several described as building confidence they then carried into other communicative situations. This also extends Ng'ambi and Lombe's (2012) observation that podcasting supports critical thinking through narrative tasks, since students in this study connected podcast creation not only to content mastery but to communication skills they viewed as transferable.

The experimental data complicate this otherwise favourable picture in a useful way. Improvement after podcast exposure was real but uneven, a pattern Figure 1 makes visible at a glance: groups that were already collaborating effectively before the intervention, like Group 3, mainly used the podcast to consolidate existing understanding rather than to climb further up the scale, while groups with initial language or engagement barriers, like Group 2 and Group 4, showed more visible gains in communication and collaboration once the audio content gave them a shared reference point to discuss. Group 5's flat lines across all four dimensions in Figure 1 are the clearest counter-example in the dataset, and they map directly onto UDL's caution against treating any single medium as universally accessible: language comprehension difficulties and distraction from visual elements during the session, rather than the audio content itself, appear to have limited this group's ability to benefit, which is consistent with UDL's call for multiple, redundant means of representation rather than reliance on a single sensory channel.

Two further points from the discussion are worth drawing out explicitly. First, the hypothesis that podcasts function as a tool for building connection specifically between students and instructors received only partial support; the clearer effect throughout the data is on peer-to-peer communication and collaboration rather than vertical communication with faculty, which suggests that podcasting's communicative value in this context is primarily social and horizontal rather than pedagogical and hierarchical. Second, the contrast between listening-

based and creation-based data is itself informative: passive listening produced gains in motivation, accessibility, and comprehension, while active production produced gains in confidence, expressive communication, and collaborative skill. This distinction, between what podcasts do for students as an input and what podcasting does for students as an activity, is not always made explicit in the wider literature, which tends to treat “podcasting” as a single undifferentiated intervention.

Set against the study’s original hypotheses, the pattern that emerges is one of broad but qualified support. The hypothesis that podcasts enhance engagement more effectively than traditional materials held up consistently, particularly among younger participants, while the hypothesis that regular podcast use improves comprehension and retention was only partially supported, since gains were concentrated in specific groups and did not extend evenly to students facing language or attentional barriers. The hypothesis concerning peer collaboration was clearly supported across both the interview and experimental data, whereas the hypothesis concerning student-instructor connection was the weakest of the six, receiving little direct evidence either way. The hypotheses relating to autonomy, motivation, and the appeal of podcasting’s informal, storytelling format were the most strongly and consistently supported, echoing the self-determination account offered by Ryan and Deci (2000): when students could control the pace, tone, and in some cases the content of what they listened to or produced, their reported motivation rose accordingly.

It is also worth situating these findings against the institutional motives Harris and Park (2008) describe. Their framework distinguishes between education, support, and promotion as reasons universities adopt podcasting, and the data gathered here speak most directly to the first two. Students did not frame podcasting as an institutional novelty; they framed it in terms of what it let them do, review material independently, participate more comfortably in discussion, and communicate ideas without the pressure of live performance, which is consistent with genuine educational and support value rather than adoption driven mainly by institutional image.

6. Limitations and Future Research

Several limitations should be considered when interpreting these findings. The sample was relatively small and drawn from a single department at a single university, which limits how far the results can be generalized. The podcasting process itself, recording, editing, and coordinating group work, took longer than anticipated, which constrained the scope of the experimental phase. Language proficiency was also a factor: some participants, primarily French speakers with limited English proficiency, found the podcast content harder to follow regardless of its audio format, which affected both their engagement and their reported outcomes. Finally, not all students responded equally well to an audio-only format; some found the absence of visual material distracting or insufficient, a reminder that podcasting, however inclusive in principle, is not a universal solution.

These limitations point toward specific directions for future research. Larger and more demographically varied samples, drawn from multiple institutions and disciplines, would help establish how far these findings generalize. A longer experimental period would allow researchers to track whether the gains observed here, particularly in collaboration and confidence, persist over time or fade once the novelty of the format wears off. Future studies might also test podcasting alongside deliberate UDL-aligned supports, such as transcripts, visual scaffolds, or language scaffolding for non-native speakers, to see whether these measures close the gap experienced by students like those in Group 5. Finally, given the distinction this study draws between listening and producing podcasts, future work might separate these as distinct interventions rather than treating “podcasting” as a single variable.

7. Conclusion

This study set out to examine podcasting not primarily as a substitute for lectures but as a medium for educational communication, and the evidence gathered here supports that framing. Students consistently described podcasts as more motivating and more accessible than traditional lecture-based learning, valued the autonomy that comes with controlling playback, and, when given the opportunity to produce their own episodes, reported meaningful gains in confidence and expressive communication. The experimental data show that these benefits are not automatic or evenly distributed: some groups used podcasts to consolidate existing strengths, others used them to close real gaps in communication and collaboration, and at least one group was left behind by a format that did not suit its members' language needs or attentional preferences.

Read through the lens of Universal Design for Learning, these findings suggest that podcasting is best understood as one flexible option among several rather than a wholesale replacement for existing methods. It supports engagement by lowering the barriers associated with fixed schedules and formal delivery, supports representation by offering an auditory alternative to text-based content, and supports action and expression by giving students a low-stakes, editable format in which to practise communicating. Its limits are equally instructive: without attention to language support, visual scaffolding, and thoughtful integration into coursework, podcasting risks reproducing the same unevenness it is often proposed to solve. Positioned carefully, however, podcasting offers higher education a genuinely inclusive communicative tool, one that extends learning beyond the lecture hall while bringing students, rather than just content, into closer contact with each other.

References

- Apple Inc. (2016, December 6). *Apple unveils Best of 2016 across apps, music, movies and more*. Apple Newsroom. <https://www.apple.com/newsroom/2016/12/apple-unveils-best-of-2016-across-apps-music-movies-and-more/>
- Bamanger, E. M., & Alhassan, R. A. (2015). Exploring podcasting in English as a foreign language learners' writing performance. *Journal of Education and Practice*, 6(11), 63–74.
- Bolden, B., & Nahachewsky, J. (2015). Podcast creation as transformative music engagement. *Music Education Research*, 17(1), 17–33.
- Boyle, M. P., Dioguardi, L., & Pate, J. E. (2018). A comparison of three strategies for reducing the public stigma associated with stuttering. *Journal of Fluency Disorders*, 55, 1–10.
- CAST. (2018). *Universal design for learning guidelines* (Version 2.2).
- Cooper, S. (2008). Delivering student feedback in higher education: The role of podcasting. *Journal of Music, Technology and Education*.
- Corbacho, A. M., et al. (2021). Interdisciplinary higher education with a focus on academic motivation and teamwork diversity. *Journal of Educational Research Open*, 2, 1–10.
- Fietze, S. (2009). Podcast in higher education: Students usage behaviour. Same places, different spaces. In *Proceedings ascilite Auckland 2009* (pp. 314–318).

- Forbes, D., & Khoo, E. (2015). Voice over distance: A case of podcasting for learning in online teacher education. *Distance Education*, 36(3), 335–350.
- Gachago, D., Livingston, C., & Ivala, E. (2016). Podcasts: A technology for all? *British Journal of Educational Technology*, 47(5), 859–872.
- Grunow, T. R. (2020). Podcasting during the pandemic and beyond. In D. Kenley (Ed.), *Teaching about Asia in a time of pandemic* (pp. 133–138). Association for Asian Studies.
- Harris, H., & Park, S. (2008). Educational usages of podcasting. *British Journal of Educational Technology*, 39(3), 548.
- Heilesen, S. B. (2010). What is the academic efficacy of podcasting? *Computers & Education*, 55(3), 1063–1068.
- Hew, K. F. (2009). Use of audio podcast in K-12 and higher education: A review of research topics and methodologies. *Educational Technology Research and Development*, 57(3), 333–357.
- Hill, J., Nelson, A., France, D., & Woodland, W. (2012). Integrating podcast technology effectively into student learning: A reflexive examination. *Journal of Geography in Higher Education*, 36(3).
- Lee, M., McLoughlin, C., & Chan, A. (2008). Talk the talk: Learner-generated podcasts as catalysts for knowledge creation. *British Journal of Educational Technology*, 39(3), 501–521.
- Mayer, R. E. (2005). *The Cambridge handbook of multimedia learning*. Cambridge University Press.
- McGarr, O. (2009). A review of podcasting in higher education: Its influence on the traditional lecture. *Australasian Journal of Educational Technology*, 25(3), 309–321.
- Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal design for learning: Theory and practice*. CAST Professional Publishing.
- Ng'ambi, D., & Lombe, A. (2012). Using podcasting to facilitate student learning: A constructivist perspective. *Journal of Educational Technology & Society*, 15(4), 181–192.
- Nurius, P. S., & Kemp, S. P. (2019). Individual-level competencies for team collaboration with cross-disciplinary researchers and stakeholders. In K. I. Hall et al. (Eds.), *Strategies for team science success* (pp. 171–187). Springer.
- Powell, L., & Robson, F. (2014). Learner-generated podcasts: A useful approach to assessment.
- Innovations in Education & Teaching International, 51(3), 326–337. <https://doi.org/10.1080/14703297.2013.796710>
- Roberts, K. D., Park, H. J., Brown, S., & Cook, B. (2011). Universal design for instruction in postsecondary education: A systematic review of empirically-based articles. *Journal of Postsecondary Education and Disability*, 24(1), 5–15.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>

Zahay, D., & Fredricks, E. (2009). Podcasting to improve delivery of a project-based internet marketing course. *Marketing Education Review*, 19(1), 57–63.