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Optimizing podcasts as practitioner tools in higher education: learner and teacher feedback from two disciplinary settings.

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### **Abstract**

Supporting increasingly diverse cohorts of learners in Higher Education requires commitment to developing accessible, inclusive learning environments, to creating non-traditional and diverse learning materials and to draw on appropriate technologies to deliver these ambitions. Practitioner-delivered podcasts may help enhance accessibility within learning environments helping to make learning accessible to a greater number of individual learners. Little is known about what distinguishes relatively more from relatively less effective podcasts. We content analyzed free text survey responses from learner and teacher stakeholders to understand what factors optimize (or inhibit) the effectiveness of podcasts as learning tools. We identified five core 'considerations' involved in developing podcasts to promote accessible HE learning environments including: using clear, accessible language; adopting a clear structural approach; keeping podcasts relatively short; successfully integrating podcasts with other learning materials; and ensuring a coherent approach across podcast recordings. Suggestions for how to approach conceive and plan podcasts, record and deliver podcasts and for post-production and the role of supplementary materials linked to podcasts are offered.

**Keywords:** Practitioner-delivered podcasts; podcasting; accessibility; non-traditional learning materials; content analysis

### **Introduction**

In Higher Education (HE), there has been considerable innovation within learning and teaching practices to enhance and quality assure the accessibility and inclusivity of learning environments. For example, from a UK perspective, Advance HE, a charity whose strategic focus is to drive sector improvements, have published a series of practical resources, case studies and competency standards which partly focus on developing accessibility within learning environments (Advance HE, 2020).

One approach available to Higher Education teaching practitioners for enhancing inclusive learning is by offering differentiated learning resources that are designed to enhance accessibility within learning

environments. Such resources include auditory learning resources including audio recordings created by teaching practitioners to develop understanding inclusively across a cohort of learners. Audio recordings designed for educational purposes in higher education environments have been discussed as ‘podcasting for learning’ and are recognised to appear in different forms including podcasting for assessment and feedback, to personalize learning environments, and to provide learners with dynamic, flexible and reusable learning resources (Salmon & Edirisingha, 2008). There has been ongoing debate about whether, how much, and how podcasts used in learning environments positively impacts on learning outcomes. For example, a recent systematic review of 17 eligible studies suggested equivocal evidence for a clear positive impact of podcasts on learning but did provide attest to the value of podcasts among learners as one mechanism for deeper, more sophisticated curriculum engagement (Gunderson & Cumming, 2022). This supports previous discussion that podcasts may work best when used to supplement traditional teaching resources (e.g., PowerPoint slides, Word documents) (Evans, 2008; Walls et al., 2010).

A contemporary community of practice has begun to emerge around the scholarship of podcasting. For example, project work involving interviews with 101 academics who use podcasting in some way in their learning and teaching practices, has emphasized how podcasts represent an ‘insurgent craft’ that can cultivate a climate of collaboration, greater transparency in debate, intellectual curiosity and, ultimately, a transformative approach to scholarship (Cook, 2023). Recent empirical research compliments these conclusions by suggesting how the transparency and collaborative feel of podcasting as an approach may strengthen the quality of communication within learning environments. For example, exploratory work conducted to understand learner and teacher stakeholder viewpoints from Education and Psychology disciplines has provided evidence that podcasts may play a valuable role in terms of cultivating learner-teacher rapport to enhance learning experiences and outcomes (Conroy & Kidd, 2022). These findings also accord with the conclusion of Gunderson and Cumming’s (2022) review that podcasts may help foster ‘deeper engagement’ in learning environments. The full scope of pedagogic applications of podcasts has grown considerably over the last twenty years and more recent podcasting for learning and teaching research demonstrates movement away from their singular role as solely practitioner developed and delivered learning guides and towards applications driven by, and involving, learners themselves. For example, Canadian research conducted with 19 social work undergraduate students has demonstrated how student produced podcasts may promote a social justice agenda and help support meaningful links between universities and surrounding relevant community stakeholders (Ferrer et al., 2020).

The term ‘podcast’ itself, pays reference to an earlier technological form – the distribution of (in this case radio) content through broad “casting”. Early attempts to define a ‘podcast’, now a contested term, came from the recognition of the (as was) rise of the ubiquity of the portable MP3 player (such

as an iPod) and the possibility for this device to receive and store audio content, on-demand. Early academic definitions of the term 'podcast' have focused upon the "publishing of sound files on the internet... users subscribe to podcasting via designated software" (JISC, 2005: 57), permitting listening in any location thereafter. At the time, this was both new and potentially revolutionary. The application of these sound files have given rise, within emergent and ongoing practices, to a range of different 'pod-agogies' (adapted from Rosell-Aguilar, 2007). The authors own work within the field recognises the ambivalent nature of the term 'podcast' (Kidd, 2009; 2012) yet at the same time the multiple and changed/ changing potential applications of podcasts for learning and teaching. These changing applications include, very approximately, educational podcasts for delivering learning content (circa 2000s meaning), educational podcasts produced by learners for assessment and learning purposes (circa 2010s onward meaning) and educational podcasts for hosting/ spurring discussion and debate among and between educators, learners and other stakeholders of education (circa 2020s onward meaning).

### **What we mean by, and how we use, podcasts**

As acknowledged above, 'podcasting' has become a contested term referring to a variety of ways in which audio recordings can be applied within the context of learning in higher education environments. We recognise that the origins of the term 'podcast' itself are subject to ambiguity since in many senses the specific audios are not 'cast' and neither are they solely for use in an 'iPod'. We also recognise the rapid pace of change and agility of these audio practices and the broader contemporary popular cultural association of the term 'podcasting' as, typically, a series characterized by a presenter-facilitated discussion on a given topic area to which consumers digitally subscribe. Meanings of podcasting in 2024 differ to meanings in the 2000s and 2010s and inevitably meanings going forward into the future. We argue that creative, plural understandings of any technology applied to learning environments are important to help ensure the widest possible range of applications of value to learners and educators alike. As practitioners, we recognise the changing cultural meanings around the term 'podcast' and deliberately use the term, flexibly and authentically, in the current article to refer to any stored sound file (generated under a wide range of circumstances and by a wide range of users) deployed for learning and teaching and assessment purposes that has been produced for a defined intended pedagogic purpose/ purposes.

The intended pedagogic purpose for using podcasts in our own teaching practices is to develop and enhance accessibility and inclusivity in learning environments. We have used podcasts in our learning environments to help address core learning concerns. For example, we have both developed podcasts involving discussion of intended learning outcomes or summative assessment requirements, and podcasts outlining successful study planning approaches. In our view, 'practitioner delivered podcasts

for learning and teaching' ('podcasts' hereafter), despite being followed by newer technologies (e.g., the visual and synchronous working affordances of platforms like Microsoft Teams), remain appealing as a relatively simple, low tech, resource for promoting accessible, inclusive learning environments.

### **The current study**

Though podcasts, as defined above, appear to carry promise as a resource to support higher quality learning experiences and outcomes there remain perennial questions surrounding what qualities would distinguish relatively more from relatively less effective podcasts. For example, questions around what constitutes an approximately effective delivery approach, delivery style, podcast length and structural approach. Indeed, the need for research that focuses on optimizing the design characteristics of podcasts for learning has been advocated in recent empirical work (e.g., Kelly et al., 2022). Such research could help cultivate an evidence base supporting key features that characterize more and less effective podcasts but can also translate into something of immediate practical value to practitioners; both those new to using podcasts and teachers wishing to streamline the delivery of their current or planned podcast resources. The study reported in this article is intended to contribute to discussion around *when*, *how* and *why* (not *whether*) podcasts, in their presently understood definition and application, are useful in teaching and learning environments in HE. This contribution to understanding particularly focuses on design characteristics of podcasts – e.g., what, sonically, or aesthetically, or in terms of content/ approach, produces a resource that is useful for learners. We also wanted to explore whether valued aspects of podcasts differed or accorded between learners and teachers.

Accordingly, we sought to address the following overarching research question: 'What factors improve (or limit) a practitioner-delivered podcast's effectiveness as a learning resource?'

### **Method**

#### **Participants**

A convenience sampling approach was adopted in this study. Feedback was provided by a total of 16 individual participants (see Table 1). This sample comprised ten learners (8 psychology; 2 education) and five teachers (2 psychology; 3 education). A sample size of 16 is sufficient for exploratory research to gain initial data to guide understanding in subsequent work and is consistent with approaches taken in comparable published educational work. For example, recent qualitative educational research exploring educator experiences with postgraduate psychology students concerning approaches with professional competence issues featured twelve interviewees from a single stakeholder group (North American academics) yet generated a range of findings with clear theoretical and practical applications relevant to the study phenomenon (Quinlan et al., 2024). Our

sample was relatively mature (Mean age = 34. 8 years) and included more women than man (75% female learners) though we note that this was representative of the age and gender complexion of Education and Psychology courses in UK Higher Education. Learner participants were recruited via in-lecture, forum posts and email recruitment drives. Teaching feedback was provided by departmental colleagues via word-of-mouth requests and email recruitment drives.

Table 1. Study sample

Manuscript reference code	Sex	Age (years)	Sub-themes illustrated by participant data*
Psychology participants			
LPyF1	Female	40	1, 2.2, 3.2
LPyF2	Female	57	1, 2.1, 5.2
LPyF3	Female	24	1, 3.1, 5.1
LPyM1	Male	39	2.1, 3.1, 5.2
LPyF4	Female	41	2.1, 4.3
LPyF5	Female	25	4.1, 5.1
LPyF6	Female	36	1, 5.2
LPyF7	Female	31	3.1, 4.2, 4.3
TPyF1	Female	32	4.2
TPyM1	Male	48	1, 3.2, 4.1, 4.3, 5.1
Education participants			
LEdF1	Female	27	2.2
LEdM1	Male	34	2.2, 3.2, 5.2
LEdM2	Male	26	1, 2.2, 3.2, 4.1, 4.2
TEdF1	Female	23	1, 2.2, 3.1, 4.2
TEdF2	Female	42	1, 2.1, 2.2, 3.2, 4.1, 4.2, 5.2
TEdF3	Female	31	1, 2.1, 2.2, 3.1

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\* 1 = The importance of using clear, accessible language; 2.2 = Signposting; 2.2 = Voice as structure; 3.1 = Maintaining concentration; 3.2 = Density of coverage; 4.1 = Mapping; 4.2 = Sequencing; 4.3 = Duplication; 5.1 = Inclusivity; 5.2 = Cohorts.

## **Procedure**

Institutional ethical approval was secured (ETH1920-0010). Both authors met to discuss (a) their respective podcast series for the 2019/20 academic year; (b) the kind of feedback that would help improve future podcasts; and to establish (c) the most appropriate type of data collection tool to acquire feedback on our podcasts. It was agreed in advance that we would each aim to recruit feedback responses from around 5 students and around 2 teaching colleagues. We each selected two podcasts that represented the scope/focus of our learning outcome goals for the target cohort (e.g., the first author selected podcasts which, respectively, introduced the module focus and outlined assessment requirements). These sample podcasts were between 5-8 minutes long (Mean length = 6.5 minutes).

Feedback was generated via free text responses to a survey data collection tool hosted on Qualtrics. In constructing our data collection tool, we drew on both our own practitioner experiences of developing podcasts and on theories concerning optimal circumstances for higher quality engagement in learning environments (e.g., managing cognitive load, Chandler & Sweller, 1991). In the final survey data collection tool some items were more general (e.g., "Please add any other comments/observations relevant to this podcast below.") and others focused on more specific characteristics of each sample podcast as a learning and teaching resource (e.g., "What did you think of the language used in the podcast?" and "What did you think of the focus/length of the podcast?"). Following data collection, as a final step, we reviewed feedback and developed a feedback-based strategy for refining our podcast approach for the subsequent academic year.

## **Analytic approach**

We followed a conventional content analysis approach as defined by Hsieh and Shannon (2005) which involved deriving codes directly from the textual data. The approach was inductive: decisions on the final approach to organizing content were postponed until the data corpus had been fully understood and organized. Content analysis was performed on the free text survey responses and proceeded through a sequence of key stages. First, data extract responses relevant to the research question were collated and organized into a single document. Second, where needed, data was edited to produce a dataset with standard formatting features. Care was taken during this stage to ensure

minimal loss of fidelity from the original free text responses. Third, material was read and re-read carefully to ensure clear interpretation of meaning for each extract. Fourth, initial codes were produced to capture the focus and dynamics present in each extract. Fifth, codes were organized into clusters reflecting shared factors between extracts relating to the relative ease or difficulty of consuming podcasts. All analytic activities were led by the first author and were subsequently checked by the second author leading to discussion, where needed, about the structure and focus of the emergent analytic approach. To enhance the reliability of the analysis, we arranged for an independent analysis of our coding structure to be conducted by an educator colleague in the first author's Subject area. There was broad agreement between first and second author and the independent analysis in terms of the final set of themes/ subthemes and in terms of alignment between themes, subthemes and textual data extracts. Further details about the final organizational approach for presenting the analysis are provided in the next section.

## **Findings**

Wide-ranging factors were highlighted giving insights into the overarching research question (i.e., 'What factors improve (or limit) a practitioner-delivered podcast's effectiveness as a learning resource?'). Findings are presented under a series of five 'key considerations' that emerged inductively from this analysis. Given the anticipated practical application of our findings, the term 'Considerations' here is preferred to 'Themes' to emphasise how findings could be drawn on rapidly to calibrate approaches to podcast production for learning and teaching environments. These considerations related to: (1) language; (2) structure; (3) length; (4) integration with other learning materials; and (5) promoting inclusive learning environments. We note that the characteristics referred to in the illustrative data explicitly concerned stakeholder viewpoints on the attributes (e.g. length, structure) of the sample podcasts rather than to the same attributes as apparent in other or wider learning resources (e.g. as considerations in lecture settings). Under each 'consideration' heading, between 1-3 sub-themes are presented which summarise the key relevant data from learner and teacher stakeholders.

Notably, the textual material from both learners and teachers converged on a very similar range of considerations. Similarly, there was textual material available from each stakeholder group relevant to each sub-theme. Individual participant free text responses contributed to between one and seven discrete subthemes (Mean = 2.6; see right-most column in Table 1).

Free text response extracts are presented in the section below followed by participant details. Participant details appear in a standard format (e.g., LEdM2 = Learner, male, in Education, participant #2 in this category; TPyF1 = Teacher, female, in Psychology, participant #1 in this category).

### **Consideration 1: Language**

Care taken with clear, carefully explained language in podcasts was highly valued, and relevant material is presented below.

### ***The importance of using clear, accessible language***

**Learner views.** Having clear, simple, accessible language and avoiding a formal tone were key valued features of podcasts, *'The language was clear, focused and didn't feel too formal. It's tricky to explain such topics in accessible language, which this did.'* (LEdM2). Also valued were efforts to consistently explain unfamiliar terms whether these were acronyms, *'Podcaster says 'BPS' then 'British Psychological Society', but abbreviations used towards the end were unclear, hindered learning of some content'* (LPyF1), or whether technical language was concerned, *'any relatively complicated concepts were introduced (e.g. 'measures of central tendency') and properly explained'* (LPyF3). Learners were not unanimous on this issue however, with some feeling that podcasts could not entirely satisfactorily replace visual teaching materials, *'at times technical detail became a bit too abstract and I wanted some words or pictures to hang on to too'*, (LPyF2). Finally, conscious restraint on repeating content within podcasts was valued, *'good use of examples to contextualize understanding - some repetition but kept to a minimum'*, (LPyF6)

**Teacher views.** Colleague feedback from both disciplines agreed with learners that clear, unambiguous terminology was a priority (and challenge) of producing successful podcasts for learning purposes, *'frequent use of specialist terminology, but clarifies these terms partly using synonyms. Using simple terms and explaining synonyms would be important'*, (TEdF1), and underscored the importance of reflecting on what counted as a specialist lexicon, *'some method terms were a little under-defined and maybe too much undefined jargon- e.g. "formative/summative assessment" - not really everyday terms'*, (TPyM1). As referred to by LPyF6 above, repetition was recognized as key to overcoming unclear language, as was reflection on disciplinary tendencies toward using jargon, *'language use in education can rely on prior knowledge and ability to recognize jargon, but here terms are repeated throughout, so you could deduce meaning even if you weren't sure about specifics'*, (TEdF3). One piece of colleague feedback usefully suggested that a more systematic effort to identify and address potential jargon/terminology would help improve podcast clarity, *'I would probably map the podcast before I begin to ensure that I am clear on different terminology relied on to explain the key terms'*, (TEdF2).

### **Consideration 2: Structure**

Different aspects relating to podcast structure, and structural devices that could be effective within podcasts, were apparent in our data. Material concerning structure-related considerations in podcast development is presented below and organized under two sub-themes: 'signposting', and 'voice as structure'.

#### ***Signposting***



**Learner views.** Providing listeners with a strong sense of direction within podcasts was viewed as important, with many students feeding back innovative ideas about how signposting could become a more intrinsic feature of their lecturer's podcasts. Numbered points were suggested by one learner, *'could use spoken numbers to order discussion- e.g. "I am going to talk about (1) What is expected from you in this module, (2) SPSS, etc"'. When listening back, the numbers could then be used to locate relevant information'* (LPyM1). Another suggestion concerned using timestamps which could be cross-referenced against a text document while listening to the podcast, *'could include a content overview at the beginning of each podcast and perhaps timestamps for sections (kept on separate text file) so you can quickly find something again'* (LPyF4). Signposting was also understood as valued when it was used in a podcast to help connect related learning materials, *'signposting for additional resources was helpful'*, (LPyF2) (this mapping of materials receives more dedicated coverage in the 'Sequencing' sub-theme below).

**Teacher views.** Colleague comments agreed with the importance of structure though focused on this notably less than learners, *'the structure was good: chunks of language were connected coherently'* (TEdF3). An interesting way in which structure was identified as an important consideration was in terms of contextualizing podcast remit within the process of introducing/explaining podcast purpose to the listening audience, *'the podcast scope was truthfully acknowledged – e.g., the speaker mentions he "cannot do justice to social constructivism" in the time, giving necessary focus and justifying provided content'*, (TEdF2).

### ***Voice as structure***

**Learner views.** Inventive use of intonation, pitch and pacing could be powerful ways of using structural forms to deliver content and discuss issues in a digestible, appealing way for student listeners. One clear illustration was present where an educational learner drew a connection between the presence of structural devices used within podcasts and the possibilities of a more active learning response: *'the tone was used to place emphasis – e.g. when talking about Vygotsky, the word 'not' in different tones emphasized importance in certain places allowed the listener to engage with what is being said more deeply, making parts more memorable'*, (LEdM1). Other ways in which voice modulation could be used for structural purposes in podcasts involved keeping a measured pace, *'the pace and tone were calming and gave time to consider the points that had been made'*, (LEdF1), and capitalizing on how pauses could be used to partition and boundary discussion of specific issues, *'the podcast was very easy to understand, with the correct number of pauses moving from idea to idea'*, (LPyF1).

**Teacher views.** Taking advantage of subtle changes in vocal register was, similarly, recognized by colleagues as an important way of retaining the listener's interest, *'voice modulation matched the talk and carried the reader through the podcast'*, (TEdF1), and also as a way of drawing

attention to shifts in focus, or underscoring key messages, over the course of the podcast, *‘varying the pitch and tone helped communicate changes of direction/key points/important bits’* (TEdF3).

Punctuating the podcast with reiterations of the podcast focus was another structural device appreciated by colleagues, *‘there were regular reminders of the topic during the podcast. The introduction and recap worked well providing an overview of podcast content’*, (TEdF1). One piece of colleague feedback expressed scepticism about the extent to which vocal nuance could be used, successfully, as an alternative to less ambiguous written form in the context of explaining conceptual terms, *‘the term ‘schemas’ is unpacked, but will all audio learners get the semi-colon implicit between schemas and your unpacking?’* (TEdF2).

### **Consideration 3: Length**

An equally important consideration to making podcasts clear and well-organized was making appropriate decisions around podcast length. Material concerning length-related aspects of optimizing podcasts is presented below under two sub-themes: ‘maintaining concentration’, and ‘density of coverage’.

#### ***Maintaining concentration***

**Learner views.** Striking a balance between engaging users with useful content without losing listener attention was valued. There were risks to retaining attention of presenting too much content to listeners, *‘length was good and focused on what was important without giving loads of overwhelming information’* (LPyF3) and relatedly, risks to holding attention by covering large numbers of topic areas in the space of a single podcast, *‘this introductory podcast covered a variety of topics and I found a focus hard to establish; for me the podcast length was a little long’* (LPyM1). One learner referred to the relative novelty of podcasts as a learning medium as a specific challenge involved in maintaining listeners’ concentration and she urged *‘... no longer than 10-15 for an introductory podcast. An academic podcast is a new concept for many students, so it may be difficult to gain traction at first, and folks have a short attention span’* (LPyF7).

**Teacher views.** Ensuring that attention was held throughout the duration of a podcast was an important length consideration for colleagues too, *‘length was good, any longer might risk loss of concentration’* (TEdF3). Feedback concerning the risk of lowered concentration from colleagues also pointed to devices to mitigate against lost attention from listeners, *‘It was useful to have the podcast length clarified at the start’* (TEdF1) and, in the same colleague’s response, there was the sense that once engaged with a podcast, length concerns could potentially be quickly overcome, *‘even though 16 mins seemed a long time, it flew by once I started listening!’* (TEdF1).

#### ***Density of coverage***

**Learner views.** Length-related considerations went beyond seeking to secure and maintain listeners' attention for the podcast duration and some material seemed to turn around whether podcast length was warranted given the focus/importance of material addressed. Among learners, longer podcasts felt validated in the context of, illustratively, more substantive topic areas, *'the slightly longer coverage felt appropriate because of the dense topic area which required more examples and explanation of theories'* (LEdM1), and where lengthier discussion felt justified if a topic area needed greater explanation and/or acknowledgement of adjacent issues, *'the podcast felt longer than other podcasts but that was helpful as it provided more context and content, it felt like a structured mini essay almost'* (LEdM2). More ambivalent commentary was apparent in some responses where podcast length mandated repeated listens and a stop-start approach, *'a lot of information was given and I had to stop the podcast a few times to make notes and to listen to certain parts again'* (LPyF1).

**Teacher views.** Among colleagues, there was divergence in views about podcast lengths in terms of an upper limit duration. For a psychology colleague, appropriate podcast length was not an absolute, and was conditional on the underlying teaching approach linked to the session for which the podcast had been made, *'an orientating pre-lecture podcast, giving context when previewing slides, would ideally be in the 5-10 min category. However, if the purpose were more of a flipped lecture, it would have to be 15-20 mins'* (TPyM1). By contrast, a colleague in education viewed length-related upper limits as an appropriate consideration when developing podcasts as learning resources, *'I would cap a podcast at around 15 minutes and prepare by thinking carefully about what key concepts I could afford to discuss within that remit'* (TEdF2).

#### **Consideration 4: Integration with other learning materials**

While more concrete issues about length and structure characterized some feedback, comments also orientated toward how podcasts, as distinctive audio learning resources, might work best alongside other teaching and learning materials. Participant views about how to successfully embed podcasts in the context of the broader teaching and learning programme is presented via three sub-themes: 'mapping', 'sequencing' and 'duplication'.

##### ***Mapping***

**Learner views.** Inherent challenges were found in linking podcasts to other learning resources, but podcasts were also viewed as offering a unique opportunity to buffer or stagger the sequencing and appearance of traditional learning resources. For example, podcasts were viewed as one way of communicating with learners about learning expectations and the planned teaching agenda in advance of other materials being made available, *'having weekly podcasts is useful for students to have an overview of the week even if the materials are uploaded late'* (LPyF5). Another way in which podcasts were viewed as serving a mapping function, was through underscoring learner's extant knowledge base and, potentially from there, communicating expectations about the next phase of

learning outcomes, *'making it more personalized and contextualized would be good e.g. saying something about what we already know, or where in our studies you expect us to be'* (LEdM2).

**Teacher views.** Similarly to learner feedback, colleague feedback pointed to the inherent value of podcasts as a way to draw attention to self-directed learning activities that could help students prepare appropriately for formal teaching sessions, *'I did really like the required reading focus which gave a helpful pre-lecture orientation towards alternative information streams'* (TPyM1). Further care around the administrative side of podcast in terms of their labelling and description in repositories was dealt with in other colleague feedback which in one instance usefully suggested how *'there could be some mapping with a sentence or two underneath the podcast to direct students to related podcasts for more info?'* (TEdF2).

### Sequencing

**Learner views.** Closely related to mapping podcasts alongside other teaching and learning materials was the issue of these materials appearing in a consistent, logical sequence from the learner's perspective and in a way that seemed to enhance opportunities to learn. Feedback from one learner indicated that the appearance of podcasts a reasonable length of time away from formal learning sessions assisted preparation, particularly in terms of specialist terms that the learner might be due to encounter, *'I like the week ahead summary and flagging upcoming assignments giving plenty of time to prepare and mentioning technical methods terms (e.g. "discourse analysis") helps with course expectations and doing additional research if students are interested'* (LPyF7). Making a clean break with learning materials that offered, unequivocally, specific taught content in some form, was a less successful aspect of podcasts for some learners. Sequencing was again relevant here in that it was difficult for material covered in some podcasts to avoid assuming prior module engagement and understanding, *'this podcast required prior learning to be understood – you couldn't dip into without prior teaching unlike shorter podcasts I've heard where anyone could understand what's being talked about'* (LEdM2). Another suggestion for improving sequencing issues involved in using podcasts was to offer clearer definition of podcasts in relation to the broader podcast series – i.e. sequencing podcasts alongside other podcasts more clearly and consistently, *'the end of the podcast could have been more lead into – e.g. more clarification of what is coming in the next podcast or if this was the last of its kind'* (LEdM2).

**Teacher views.** Dovetailing with learner feedback, addressing the sequence of a podcast series head-on, and using this to generate awareness and enthusiasm for podcasts as a core learning resource, was raised as an important consideration among colleagues, *'I liked the start where previous podcast content was reviewed- I was immediately curious and wanted to listen. Throwing in tantalising information about the next podcast at the end had a similar effect'* (TEdF1). A more active engagement strategy was suggested in other colleague feedback as a way of utilizing podcasts to

optimum effect. One piece of feedback along these lines suggested inclusion of concrete pre-lecture learning activities included within podcasts designed for use as trailers for formal learning sessions, *‘if students are meant to listen to podcasts pre-lecture, perhaps some pre-lecture activities or reading would help familiarise them with terms to be covered in the lecture’* (TPyF1). Knowing how far to go in terms of formally sequencing podcasts raised the question around whether to refer to specific time/dates of the scheduled learning timetable to listeners given that this may clash with when podcasts were actually consumed, *‘referring to time (e.g. tomorrow, last week) risks breaking connectedness between presenter and listener, if listened to at another time. However, connectedness could be enhanced if the podcast was listened to at the appropriate time’* (TEdF2).

### **Duplication**

**Learner views.** Offering listeners podcasts where contents were unambiguously distinct from the contents of other materials delivered via companion outlets (e.g. lectures, seminars, handbooks) was understood as a significant challenge of developing successful podcasts. Study podcasts were not always viewed as successful in this respect, *‘it was slightly long and overlapped with lecture content in places’* (LPyF4). Developing tactics to trim and customize podcasts so that material covered elsewhere did not appear (or appeared minimally) was therefore a key consideration for producing podcasts that could be understood as offering clear ‘added value’ to the learner, *‘you could cut time a little by removing some key concept examples (e.g. variables, ethical considerations) as they’re in the readings and the lecture itself’* (LPyF7). Even where such tactics were employed, some learners saw podcasts as a potential obstacle to attending formal taught sessions in that podcast content may risk duplicating (or be perceived by learners to duplicate) content delivered in face-to-face settings, *‘students may not listen to podcasts because they feel that it covers so much of what is needed that folks won’t feel like they need to come into class’* (LPyF7).

**Teacher views.** Colleague feedback on the danger of duplicating adjacent learning material in podcasts was mixed, though some feedback did not identify this as a risk in the podcasts on which they had been asked to provide feedback, *‘reassuring without overlapping lecture content’* (TPyM1). However, the same colleague remained unconvinced that the podcast they had listened to was able to clearly distinguish and justify itself from other learning materials, given this risk of duplication, *‘might the podcast be falling between two stools: longer than necessary/ ideal for a quick overview, while perhaps overlapping with video-recorded lecture content?’* (TPyM1).

### **Consideration 5: Promoting inclusive learning environments**

A final selection of material concerned the importance of producing podcasts which successfully addressed the full diversity of a student group. Podcast inclusivity was referred to by participants in different ways; inclusivity concerned ensuring that the full diversity of learning styles (a term we use loosely here to refer to differences between individuals in how they approach learning rather than in a

hard-defined theoretical sense) and learning approaches within the student group benefited from podcasts. However, inclusivity also concerned pitching podcast contents in a way that addressed learners starting at multiple time points during the course of the academic year. Material in this section is presented under two sub-themes: ‘inclusivity’ and ‘cohorts’.

### ***Inclusivity***

**Learner views.** There was a broad consensus among learners that podcast pace (also discussed in the *Voice as structure* sub-theme above) was tied closely to producing a learning material that was going to be accessible and appealing to all learning styles within module cohorts. This was apparent in feedback from a personal perspective, *‘it helped having information re-capped or summarized and slight pauses let the new information settle before moving on. Pace worked well - I could make notes during the podcast without having to stop it’*, (LPyF2), and, *‘I can gauge from the speaker where I can take notes so I can pause and listen to parts again which is useful. If I needed to listen to the podcast in entirety again, it would be ok because the pace/tone is pleasant and easy’*, (LEdM1). However, the justification and value of having a judicially slow pace was also recognized as important from learner’s perspective of other learners’ study styles, *‘the pace was quite slow but I can see that this will be useful for some and that the podcast was directed at the whole cohort’* (LPyF6). Keeping an appropriate pace was a challenge in terms of keeping the full cohort engaged with podcasts focus/content and for some, a measured, cohort-inclusive pace, was an unambiguous obstacle to engagement, *‘the pace of the podcast could have been faster. I found myself drifting and thinking of other things’*, (LPyM1).

**Teacher views.** It was notable how both colleague and learner feedback tuned into the issue of inclusive learning needs from the viewpoint of podcast production. Careful attention to pace was acknowledged as a key consideration among teachers, *‘in face-to-face teaching you can read the faces of those watching and respond by slowing down where necessary, which is not possible for podcasts, so slow and steady speaking is more important. I will consider speaking speed going forward’* (TEdF2). While pace and delivery were important, teachers also recognized that podcast inclusivity also depended on a transparent vocabulary with time taken to explain and unpack unfamiliar terms, *‘vocabulary felt general and inclusive without becoming patronizing. In face-to-face classes students who are less strong academically would pick me up on all unexplained terms, but with podcasts, this could be a barrier to understanding’* (TEdF2).

### ***Cohorts***

**Learner views.** Having distinct issues pertaining to specific cohorts covered during podcasts was recognized as difficult and important, *‘Spring and Autumn starters were usefully distinguished so that students know why lecturers have to include materials we already covered’* (LPyF5). For one learner, the scope for confusion was sufficiently high to warrant coverage in cohort-specific podcasts,

particularly when it came to content that attracted anxiety (e.g. statistics), *‘Spring starters felt quite lost on the basics of statistics whereas some September starters felt some repetition – these basics could usefully be covered in an optional podcast for everyone to sort of start on the same level’* (LPyF3).

**Teacher views.** Risks of confusing messages being sent out to students who had started their studies at different cohort time points were also recognized among teachers. This was most striking in feedback from one colleague who noted that *‘without dealing with accommodating both Autumn/Spring starters listeners might disengage. As an Autumn starter, I might switch off during discussion of means/modes etc’* (TPyM1).

## **Discussion**

Practitioner generated podcasts may provide one way of diversifying learning materials, improving accessibility of learning environments and ultimately helping to produce higher quality learning experiences and outcomes. As acknowledged in the introduction to this article, initiatives to modernize and diversify learning materials to improve accessibility and inclusivity within educational environments are increasingly prioritised in UK Higher Education (HE) and internationally. Over the last two decades, practitioner generated podcasts (‘podcasts’ hereafter) have provided one learning resource for enhancing the accessibility and inclusivity of learning environments. To date, there is limited evidence offering clear insights into factors which optimize how these podcasts are developed and delivered. The exploratory research reported in this article highlights key features, as identified by teacher and learner stakeholders, that characterize more and less effective podcasts. This work provides an initial evidence base of immediate practical value to practitioners for using (or enhancing the use of) podcasts for learning and teaching purposes.

Textual data responses suggested that more effective podcasts: would use clear, accessible language; would contain clear signposting and structure; and would keep to an appropriate length to maintain concentration and offer appropriate and density of coverage. Effective podcasts were also identified as being well-integrated with other learning resources (e.g., carefully sequenced, avoid duplicating other resources); and as being successfully designed to be inclusive of diverse learners/ listeners and of learners at different stages of study (e.g., from different cohorts).

There was considerable agreement across stakeholder groups about what factors were involved with a relatively more and less effective podcast for learning and teaching purposes. Both stakeholders agreed on the importance of using clear, accessible language with emphasis from teachers on the role of pre-planning to identify key terms for explanation [Consideration 1]. Ensuring a clear structural approach to podcasts was recognized as important by both learners and teachers, with some useful emphasis (from learners) on the possible role of numbered points in podcasts and emphasis from teachers on the value of making explicit the potentially limited scope of what could be covered within

the podcast [Consideration 2]. Both learners and teachers mainly agreed that podcasts of an upper limit of around 15 minutes would be important to retain concentration. However, length was conditional on the value held in content covered and teachers indicated that being selective around which material to focus on would be important to produce a succinct, focused final product [Consideration 3]. Both stakeholder groups agreed that podcasts could successfully create links between different learning resources and could help facilitate study timetabling plans [Consideration 4]. Teacher stakeholders voiced concerns that podcasts developed as summaries of recent learning sessions risked being misleading if listened to by learners long after they had been produced. Podcasts were identified by both stakeholder groups as valuable ways of appealing to and engaging with diverse learning styles, and at differing stages of study (e.g., from different learning cohorts). Constructing podcasts that successfully addressed this potentially wide range of backgrounds and starting points was also identified (by both stakeholder groups) as a challenge of producing podcasts to support learning and teaching objectives [Consideration 5].

There is an emergent body of empirical work reporting explorations and interventions to address accessibility in HE learning environments. For example, a recent systematic review of 42 studies designed to evaluate the accessibility of university websites in 67 different countries flagged wide-ranging violations of standard accessibility guidelines including issues relating to compatibility, navigability and readability (Campoverde-Molina et al., 2023). Similar empirical work has reported on accessibility linked to information resources on university library websites (Abubakar, 2020) and on poor accessibility (e.g., confusing navigation, incompatible assistive technologies) on organizational Virtual Learning Environments (VLEs) (Alnfai & Alhakami, 2021; Lonsdale, 2019). As HE educators, the possibilities for capitalizing on new and innovative learning and teaching technologies grow each year. However, research reported in this article contributes to the broader consensus from the extant literature in this field discussed above which collectively underscores the importance of devoting time, thought and resources to cultivating accessibility within HE learning environments. Our study has contributed to one aspect for how accessibility can be enhanced in learning environments and has, importantly, drawn on different stakeholder perspectives to generate these insights.

### **Limitations and future research**

In this study, we sought to generate a provisional evidence base for what characteristics of podcasts are perceived to optimize them as effective resources for learning. However, several limitations and implied areas for future research should be acknowledged. First, we note that the research reported in this article was exploratory and limited to a small number of individuals based at a single Higher Education Institution (HEI). One of our starting points in this article was to consider the growing emphasis on developing robust accessibility and inclusivity within HE learning environments to take account of the wide-ranging learning needs of the increasingly diverse demographic complexion of



learning cohorts in the 2020s. While the current study was not designed to explicitly focus on learners with a known disability/ impairment, we note the dramatic increase in the proportion of students with a known disability (e.g., among UK-domiciled, between 2010 and 2018, the proportion of students reporting a disability doubled to 16.7% of the overall student body, Office for Students, 2023). Future research should now consider where and how podcasts for educational purposes can make a positive impact to the learning experience for learners with different types of known disability including visual impairment, attention deficit hyperactivity disorder, or specific learning difficulties (e.g., dyslexia). Second, although a sample size of 16 is reasonable for an exploratory research project involving two stakeholder groups it was relatively small and limited to viewpoints drawn from only two disciplinary areas. Third, we should acknowledge an accessibility limitation of our own podcasts did not include a transcript (or captions, as these were not screencasts) so in that sense would not have been accessible to a student with a hearing impairment or a student who does not have audio available on their device. Fourth, we note that some degree of response bias is likely in that student feedback was provided by learners who were currently taking assessment for our modules; they may have felt inclined to give more positive feedback than would otherwise have been the case. Fifth, building on the current study focus on the intrinsic optimal properties of podcasts, future research might also address how these podcasts can be most successfully deployed within learning environments to maximize their positive impact on learning. For example, podcasts may successfully address a ‘flipped learning’ agenda by acting as a resource that learners are required to engage with prior to a formal learning session so that class time itself becomes dedicated to learning activities, interaction and other types of active learning enacted in synchronous time (Mazur, 2009). Arguably this is a strong example of where optimizing the approach and design qualities of podcasts counts given the weight in a flipped learning context on learner understanding and engagement with a pre-session resource. Sixth, and finally, despite developing our data collection tool in line with prior experience and relevant pedagogic theory, it is possible that the tool ‘primed’ participants to feedback on particular aspects of podcasts (e.g., length, structure). We also note that the free text responses, while providing rapid/ straight forward insights into teacher and learner viewpoints, could not be probed further and it is recommended that semi-structured interview or focus group research is conducted to develop understanding of what factors underlie relatively more and less successful podcasts for learning and teaching purposes.

### **Practical applications**

Our research contributes to an evidence base supporting understanding of key features that characterize more and less effective podcasts. However, our research was also conducted to produce findings that could be of immediate practical value to practitioners planning to develop (or seeking to finetune the preparation and delivery of) podcasts for their learning and teaching activities. Evidence drawn from our exploratory research is summarised in Table 2 which presents suggested approaches for practitioner-delivered podcasts spanning three distinct phases: (1) conceptual development and

planning; (2) recording and delivery and (3) a stage relating to postproduction and developing material to supplement podcasts.

Table 2. Mapping study findings against implications for producing podcasts

Consideration/ sub-theme	Implication of study evidence for podcast/ podcast series...		
	... conceptual development and planning	... recording and delivery	... postproduction, and role of supplementary material
<b>Consideration 1: Language</b>			
The importance of using clear, accessible language	Identify in advance key terms and acronyms to clarify/ define.	Ensure consistent/ slow pace.	—
<b>Consideration 2: Structure</b>			
Signposting	Plan discrete podcast sections (e.g., using numbered points); acknowledge parameters of podcast focus.	Use intonation to emphasise key points and to begin/ conclude new podcast sections.	Include podcast-linked time stamps.
Voice as structure	Pilot delivery style to identify preferred approach to using your practitioner voice.	Consider use of voice/ intonation (e.g., for emphasis and to connect ideas).	—
<b>Consideration 3: Length</b>			
Maintaining concentration	Pre-plan parameters of what will be covered to produce a focused, pithy podcast	Explicitly state near the beginning of the recording how long the podcast will be	—
<b>Density of coverage</b>			
<b>Consideration 4: Integration with other learning materials</b>			
Mapping	Consider how podcast can be used to flag/ remind	—	Embed hyperlinks to relevant learning

	about other learning resources		resources within podcast description and/ or near time stamps
Sequencing	Where possible, identify appropriate position of individual podcasts in learning materials (position reflected in postproduction note)	Include note that positions podcasts within podcast series (e.g., “this is podcast five of a broader series of seven podcasts”)	Add descriptive note stating materials to engage with immediately pre and post listening to each podcast
Duplication	Use reflection on how podcast could duplicate other learning materials to craft its own identity as a novel learning resource.	—	—
Consideration 5: Promoting inclusive learning environments			
Inclusivity	—	Include pauses and recaps during recording.	Including a podcast transcript as a supplementary resource.
Cohorts	Plan part of podcast content to address how issues work in discrete ways for different cohorts.	—	—

## Conclusion

Our starting point for this article acknowledged the importance of enhancing accessibility and inclusivity within contemporary HE learning environments and the emergent role of podcasts (among other digital resources) in catering more successfully for the learning needs of HE’s increasingly diverse learner cohorts. As practitioners, developing non-traditional resources, like podcasts helps to diversify and enhance accessibility in our learning environments. We hope that evidence and practical guidance provided in this article can serve optimize existing podcast approaches among practitioners experienced in using podcasts and can inspire practitioners new to using podcasts to start using these in their learning and teaching environments.

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