University of East London

Dr. Patrick Evans

Technical Associate – Audio and Video Studios - Software and Hardware (School of Arts and Creative Industries)

Research Fellow – RadioActive 2.0 project (School of Childhood and Social Care, formerly Educom)

p.evans2@uel.ac.uk

RADIO AND PODCAST STUDIO – WB.G.05

University of East London

RADIO STUDIO GUIDE (WRI.G.05) - 2023 / 24

TABLE OF CONTENTS

Please note: if the producer (situated in the control room) wishes to participate in the broadcast or recording, as soon as Mic 1 becomes active all sound will be cut to the control room speaker monitors. This is to prevent feedback from the speakers to the microphone, see photo below:

For each channel on the desk, the [ON] button is coloured red when switched on, meaning that it's closed to your bus. This enables background mic-checking and the muting of microphones not in use.

The [PFL/SOLO] button, situated at the top of each of channel and coloured green when switched on corresponds to output or 'going to air' mix.

The [AUDITION] button, also coloured green when on enables mic-checking / soundcheck by while a broadcast or a different output is underway. In this status, the [AUDITION] button within the Studio panel will also need to be selected (see photo below) singly. See photo:

The [CUE] button which is also coloured green when on, essentially acts like a bus channel enabling multiple channels to be powered to one active. Any channels where [CUE] is selected will correspond to the [CUE] selection in either or both the Control and Studio panels respectively, see photo below:

INTRODUCTION

Situated in the West Building at Docklands Campus is University of East London's radio studio - WRI.G.05 (live room) + WRI.G.06 (control room).

The studio can be booked via shared calendar (RA) students and staff) or by e-mailing duellmann@uel.ac.uk

Inductor to gain access to the studio on arrival at West Building, please visit the Equipment Store during opening hours (also situated on the ground floor a few metres away from the radio studio)

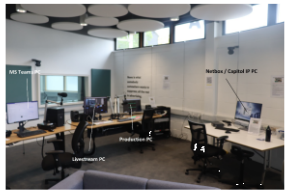
It is recommended that any audio or sound content produced in the studio is backed up by the student / staff member at the end of each studio session onto removable drive or via cloud-based storage (search of the PCs in the studio will be wiped periodically

In addition to the volume fader for each channel as physically situated on the mixing desk, the 'gain' setting is accessible by pressing the select button. This is particularly relevant when working on a multitrack session in Adobe Audition (please see later in this guide for more information on multitracking). The settings visible on the digital displays on the right-hand side of the desk will then correspond to whichever channel is selected.

3 parameters will be highlighted on the digital display, each of which are adjustable via the 3 faders situated below it:

- Gate — enables adjustment of amplitude of being amplified (similar to volume)
- Pan — shpere of audio signal based on digital process
- Balance — relates to the left and right-hand side of the stereo mix. For example, if this balance is turned all the way to the left, this channel will only be audible in the left-hand side of the stereo mix

CONTROL ROOM PCs



Situated in the radio studio are 4 PCs, each of which has a different role to either recording or broadcasting audio-visual content. Each PC is labelled corresponding with the annotation in the above picture. Depending on the method of production for any podcast or radio show, it may be necessary to design its specific roles to the members of the production team. These roles could include aspects such as: scripting, audio production, show production, presenter or managing social media for example. The following section of this guide provides an outline of the role of each of the PCs in the studio and how they relate to each other.

From left to right:

MS Teams PC

- This PC is connected to the University's intranet network and is available for log in by any member of staff or student, using usual usernames and password credentials
- This PC can be used for the input of any auxiliary sound or music into a recording or broadcast (via the mixing desk)
- Any audio output from this PC will arrive on channel 11 of the mixing desk, labelled "Teams"

OTHER HARDWARE

Headphone ports

The nearest headphones to either the live room or the control room, simply plug in a 3.5mm jack headphone fitting to one of the headphone ports, each of which has its own volume control. A bus of headphones can usually be found on the table in the control room.

Behringer U-Phoria UMC202HD Audio Interface

This audio interface is located in the control room acts a mediator between the mixing desk and the livestream PC. A stereo mix is sent from the mixing desk via the interface, enabling any adjustments/resolution attenuation to take place prior to the streaming and post. Importantly, if the 'clip' light is flashing red, the volume will need to be adjusted using both faders (L+R) situated in the centre of the device (please see photo adjacent)

Alternative volume for livestream (L+R)

LIVESTREAM PC

Installed on the livestream PC in the control room are a series of applications which can facilitate broadcasting and recording of audio-visual content. These include 'OBS Studio' which is a cross-platform screencasting and streaming app and "Teamviewer" which can provide remote access and remote-control computer software, allowing maintenance of computer and other devices. For the purpose of this guide, yourself first can two other applications located on the PC entitled 'Livestream Studio' and 'Cam Control'. Please note: ordinarily this PC is not connected to the internet, therefore when conducting a livestream a staff member will need to be present at all times.

Playback from Livestream PC to studio monitors (audio)

Once an MP4 file has been recorded and saved onto the livestream PC desktop, in order to watch the video with full sound quality via the speakers in the studio, the output 'LINE2(HDMI) (USB' will need to be selected by clicking on the volume icon in the bottom right corner of the screen before opening the drop-down menu:

The next step is to press the select [SEL] key within the 'Control' section of the mixing desk (bottom right)

The correct input will then need to be selected by pressing down on the [INPUT] key before turning the knob to highlight the list of inputs on the display.

- In order for this PC to be connected to the mixing desk, the audio output 'Line6 USB I/O module' will need to be selected by clicking once to the speaker symbol in the bottom right-hand corner of the screen (see adjacent image)

- Remote participants via Teams or any other platform on this PC will be able to hear a stereo mix of all mics / inputs from the radio studio via the mixing desk

Livestream PC

- In order to log on to the Livestream PC, there are two user-accounts entitled 'Admin' and 'Student'. The password for this account entitled 'Student' is: Student
- This PC connects to the internet via wifi — please contact a member of the ATS technical team in order to switch on the wifi connection to this PC
- In on-wifi connection is set, any video recorded to this studio will be saved as an .mp4 file which can be taken away via a USB or hard drive
- Any sound transmitted via the mixing desk will be sent as a stereo mix (L+R) via the Behringer UMC202 interface to the livestream PC
- Within the sound settings on the livestream PC, the "Line 6 USB AUDIO CODEC" input will need to be selected (see adjacent image)

- Installed on the desktop of this PC are several applications which facilitate audio-visual live streaming: an outline of the capabilities of these applications can be found later in this guide
- For playback via audio monitors from the livestream PC, please see page 17 of this document

Production PC

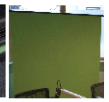
- This PC is also connected to the University's intranet network and is available for log in by any member of staff or student, using usual usernames and password credentials
- This PC can be used to record audio via 'Adobe Audition' as well as for post-production purposes and for saving pieces of audio using 'Cubase'

Green Screens

Situated between the live room and the control room are two portable green screens which can be associated to provide a visual backdrop for video broadcasting and / or recording using a chromakey. This can either be done in post-production using video software or in real time, using the livestream studio application on the livestream PC. A guide on how to do this can be found on page 18 of this document.

To access middle section of the green screens, begin by undoing the two clips on either side of the case, ensuring the legs are perpendicular. Then pull the handle situated on the top of the case.

Having opened the case, simply pull the handle out to the yellow sticker upwards until the screen is vertical.



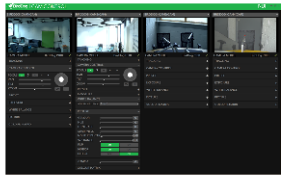
To fold screens away again, pull handle downwards until screens have rolled back into its case.

This is just 'AUX 2' will need to be selected from the list (keep scrolling if you don't see it immediately). Once this input is highlighted on the display, select by pressing down on the knob.

The volume of the audio being outputted to the speakers can then be controlled with the [MONITOR] knob.

Cam Control

When beginning a livestream or video recording, opening 'Cam Control' will enable the adjustment of any settings / parameters relating to the 4 resident cameras located in the radio studio (2 in the control room - #1 + #2 and 2 in the live room - #3 + #4), please see below:



- In order for any audio output from the Production PC to be heard in the control room monitors, either output "Speakers (USB Audio CODEC" or "Speakers 2 (USB Audio CODEC" (corresponding to channel 9 or 10 respectively on the mixing desk) will need to be selected in this pc's settings (see adjacent image)

- The full Adobe Creative Suite of applications is available on this PC using your UEL username and password
- More detail about using Audition in this studio can be found later in this guide

Nelton / Capitol IP PC

- This PC is not connected to either the university's intranet or the wifi
- The main purpose of this PC is to allow the programming of the mixing desk and production PCs to an internal network
- In most situations this PC can be left alone as the way these applications are configured has been designed to facilitate practical and easy use of these studio facilities.

Please note, if the same user is logged on to both the MS Teams and Production PCs at the same time, a warning message will appear on one of the two screen monitors, this can be removed by either by clicking 'Yes' in response to 'Would you like to close this call? LOW client' or by ending/exit for the 'MOM 32-bit client' by keying ctrl+alt+delete.

'On Air' Light

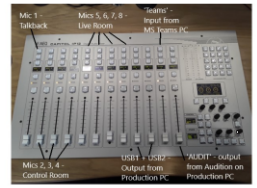
Located above the door at the entrance to the studio is an "ON-AIR" display. This can be switched on by pressing the first key (top-left) in the programmable key section of the mixing desk (top-right hand corner of mixing desk).

The light may flicker for a few seconds initially before staying red.

'Mic Live' Light

Above the window between the live room and control is the 'MIC LIVE' light. As this is hardwired into the mixing desk, as soon as any of the microphones situated in the live room become active (pressing [ON] button and bringing up the volume fader on any channels 5-8), the light will come on.

MIXING DESK



Channels 1, 2, 3 and 4 — corresponding to the microphones situated in the control room as labelled. 1, 2, 3 and 4 on each of the microphone stands. Please note: Mic 1 also acts as a talkback mic for communication between live rooms and control room via monitor headphones

Channels 5, 6, 7 and 8 — corresponding to the microphones located in the live room as labelled 5, 6, 7 and 8 on each of the microphone stands

Channel 9 — 'USB 1' — output from the production PC (audio output: 'USB Codec...')

Channel 10 — 'USB 2' — output from Audition on production PC for use in post-production (audio output 'USB 2 Codec...')

Channel 11 — 'Teams' — facilitates input of any auxiliary audio from MS Teams PC such as tracks, jingles or remote participants

Channel 12 — 'AUDIT' — is used when working on post-production from a multitrack session in Audition

ADOBE AUDITION

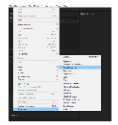
When recording audio via Audition, there are two methods of doing so:

a) stereo recording — any sound input/coming on either of sources will be recorded as a stereo audio file (L+R)

b) multitrack recording — each sound source will arrive to the Audition project as a separate audio file as part of an overall file source, ensuring that each sound source can be treated independently. The following section provides information about how to get started with both methods:

Stereo Recording

When beginning a recording session, the first thing to check is that the audio settings are correct within Audition. In order to find locate these settings, please follow: (Edit > Preferences > Audio Hardware), see screenshot:



Having opened the Audio Hardware page, the input — 'Microphone (USB Audio CODEC)' should be selected. For the Output, either [USB Audio CODEC) or (2 - USB Audio CODEC)' should be selected (see screenshot adjacent). Both of these output channels correspond to Channels 9 (USB) and 10 (USB 2) on the mixing desk for use in post-production. Note: "MME" will need to be selected as the device class.

Control panel (bottom right) — corresponds to what can be heard in the speakers in the live room. The volume of the speakers can be controlled with the left-hand fader labelled 'monitor'

Studio panel (bottom right) — corresponds to what can be heard in the headphones in both the control room and live room

For audio to be heard in the headphones, the [PHONES] button will need to be pressed on within the Studio panel. Once this button is selected, the headphone mix will be the same as the input for each channel on the mixing desk

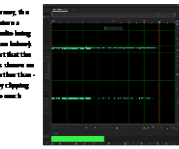
For the talk back mic (Mic 1 in the control room) needs to be heard in the headphones enabling communication between the control room and live room, the select button [SEL] will need to be pressed within the Studio panel:

Once recording / broadcasting is underway, the producer may wish to switch the talk back mic off in order that no sound from the control room is audible to the local phones of participants in the live room. Please note: the volume of Mic 1 as appears on the mixing desk does not correspond to the use of the mic as phones or talk back mic.

Here is an example of mixing desk settings applicable to the instance of recording / broadcasting participants in the live room using mics 5-8 only (talk back mic is still live):

Once these Audio Hardware settings are in place, the next step will be to press the record button, a red circle situated in the centre of the screen. Having done this, a window will appear (see screenshot adjacent). At this point, it is important you enter a relevant name for the audio file. Other settings such as sample rate and bit depth can also be adjusted here if required.

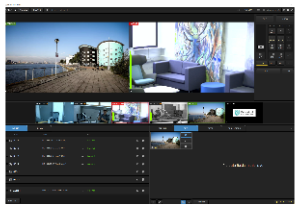
Now the recording is underway, the display on Audition will feature a graphic indication of the audio being recorded as a waveform (see below). Please note — it is important that the parameters of this audio is shown as stereo about each any further than - 6dB in order to prevent any clipping (damaged audio due to too much signal input).



Multitrack recording

When beginning a multitrack recording session, the 'MULTI' device class will need to be selected. These settings can be accessed via: (Edit > Preferences > Audio Hardware)

Outputs



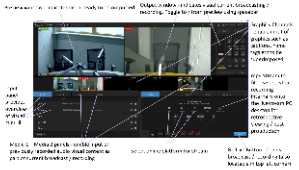
Within the livestream studio software, two enlarged subsections will be visible in the top-half of the screen. The right-hand section — labelled OUTPUT in red, corresponds to what is being recorded or broadcast at any time. The output can be selected by right-clicking on any of the input sources listed horizontally in the middle of the screen. The left-hand section — labelled PREVIEW in green, corresponds to what is being cued and can be selected by left clicking on any of the input sources.

Typically, for example in a situation whereby a conversation is taking place between two or more participants in the live room or between the live room and the control room, the two camera shots in question can be alternated between by pressing space bar. Here, the PREVIEW and OUTPUT windows will swap views, meaning to when is on camera at any given time.

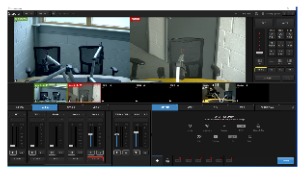
When switching between sources, it may be agreed shorts upon the 'TRANSITIONS' tab toward the right of the window as well as to alter the duration and / or style of the changing of camera / image.

LIVESTREAM STUDIO

'Livestream Studio' is the central application used in livestreaming / recording and broadcast content live from the studio. Media such as video files and graphics can be imported into this application to be included in the broadcast or recording. A general overview of Livestream Studio's functionalities is outlined in this image:



In the event of recording a live video for retrospective viewing, it is recommended to select the "Streams to File (MP4)" icon within the "STREAM" tab. This will automatically save anything that has been recorded onto the desktop of this PC.



Inputs

Any audio feeding into the livestream / broadcast can be seen if within the tab labelled 'AUDIO' in the bottom left section of the screen. Within this tab, audio inputs are situated on the left-hand side, outputs are situated on the right. Inputs will need to be selected by clicking on the 'AUDIO' button at the bottom of each channel in order to become active. And to being recorded / broadcast live from within the studio via the mixing desk can be located on the channel named 'Audio 1'.

In this example, the 'AUDIO' button is selected for this 'Audio 1' channel, meaning that it is sent to from the video or audio file which has imported into the section is now audible. 'Audio 1' is a one directional meaning that the studio mics are not currently active.

Within the 'INPUTS' tab is listed all forms of media currently in use in the live. This could include graphics, images, videos, audios, other live streams, tied to cameras and mixers. Inputs can be added by clicking 'ADD INPUT', which will bring up the menu adjacent. Inputs can be removed by clicking on the thumbs down icon on the right-hand side of each row.

Please note: a maximum of 3 graphics files can be in use within one session at any time.

Radio and Podcasting as a Pedagogical Tool

How can emergent practices that use radio or podcasts translate research into engaging narratives for public audiences and interdisciplinary dialogue?

How can radio and podcast practices allow academics, students, and external voices to bypass traditional gatekeepers?

What could be the potential benefits of empowering students to create radio or podcasts as part of their coursework?

What could be the role of radio and podcasting in civic engagement by higher education institutions?

How can radio and podcast initiatives challenge traditional academic hierarchies and open space for diverse epistemologies and challenging discourses?

Radio vs Podcasts
Definitions

radio
/ˈreɪdɪəʊ/

the transmission and reception of electromagnetic waves of radio frequency, especially those carrying sound messages.

the activity or industry of broadcasting sound programmes to the public.

podcast
/ˈpɒdkɑːst/

a digital audio file made available on the internet for downloading to a computer or mobile device, typically available as a series, new instalments of which can be received by subscribers automatically.

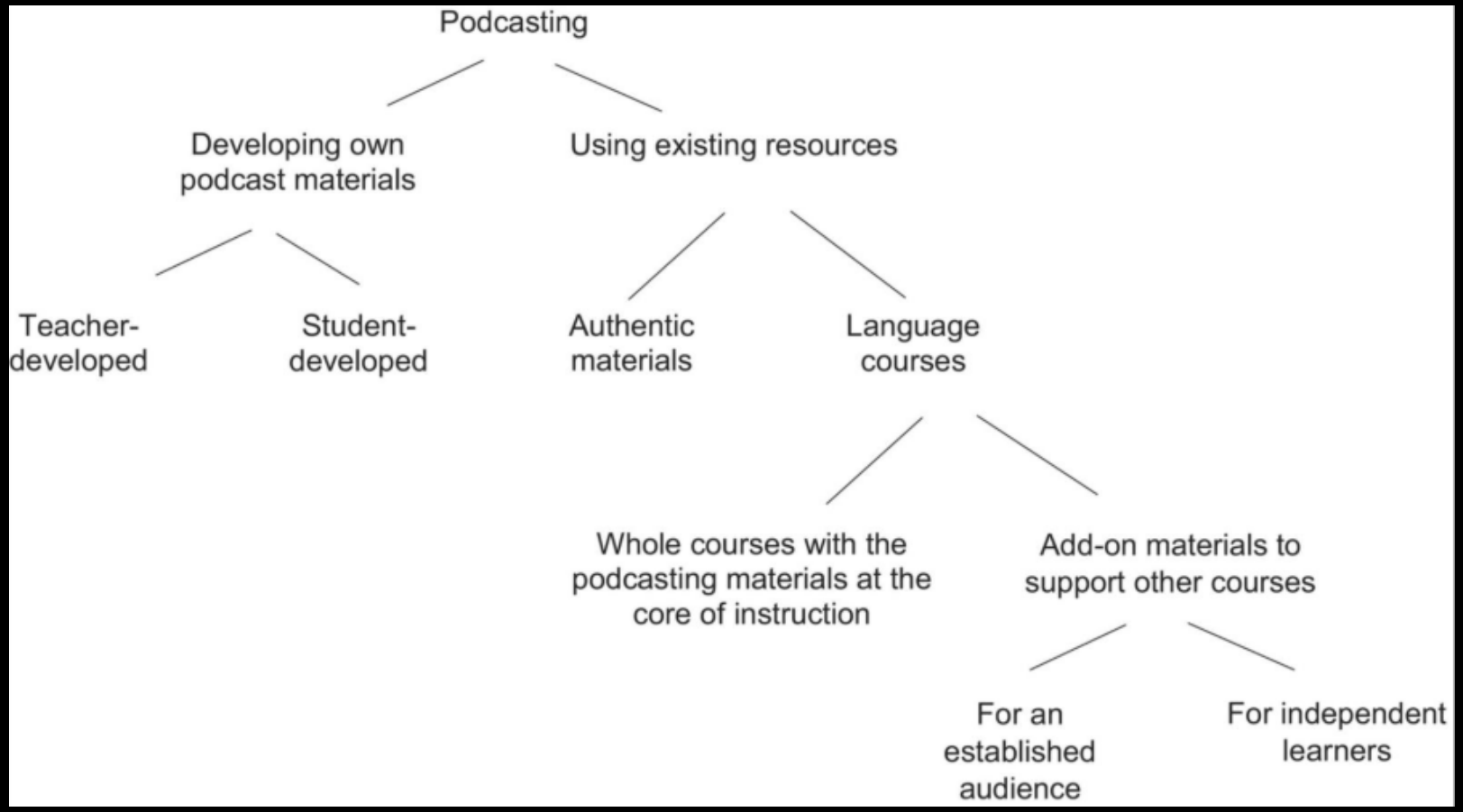
Chronology of Attempts to Define the Podcast in the Context of Higher Education

- ‘digital media files’ inclusive of both audio and video formats (Salmon et al., 2008, p. 20)
- ‘audio-only digital media files, which when used in teaching and learning, allow listeners/learners choices for when, how, where, and in what ways they engage with the content’ Llinares et al. (2018)
- ‘podcasts are exclusively words (via audio)’ (Noetel et al., 2022, p. 414)

Some Definitional Ambiguities..

- Is audio-recorded feedback on a student paper a podcast?
- What about the digital media files from a Zoom lecture accessed by students after the lecture?
- Is an audio file a podcast if it remains locked within an online course management system—such as Canvas, Moodle, or Blackboard—available only to enrolled students?

Pedagogical Taxonomy of the Podcast in HE



Model informed by practice around learning of a second language in HE

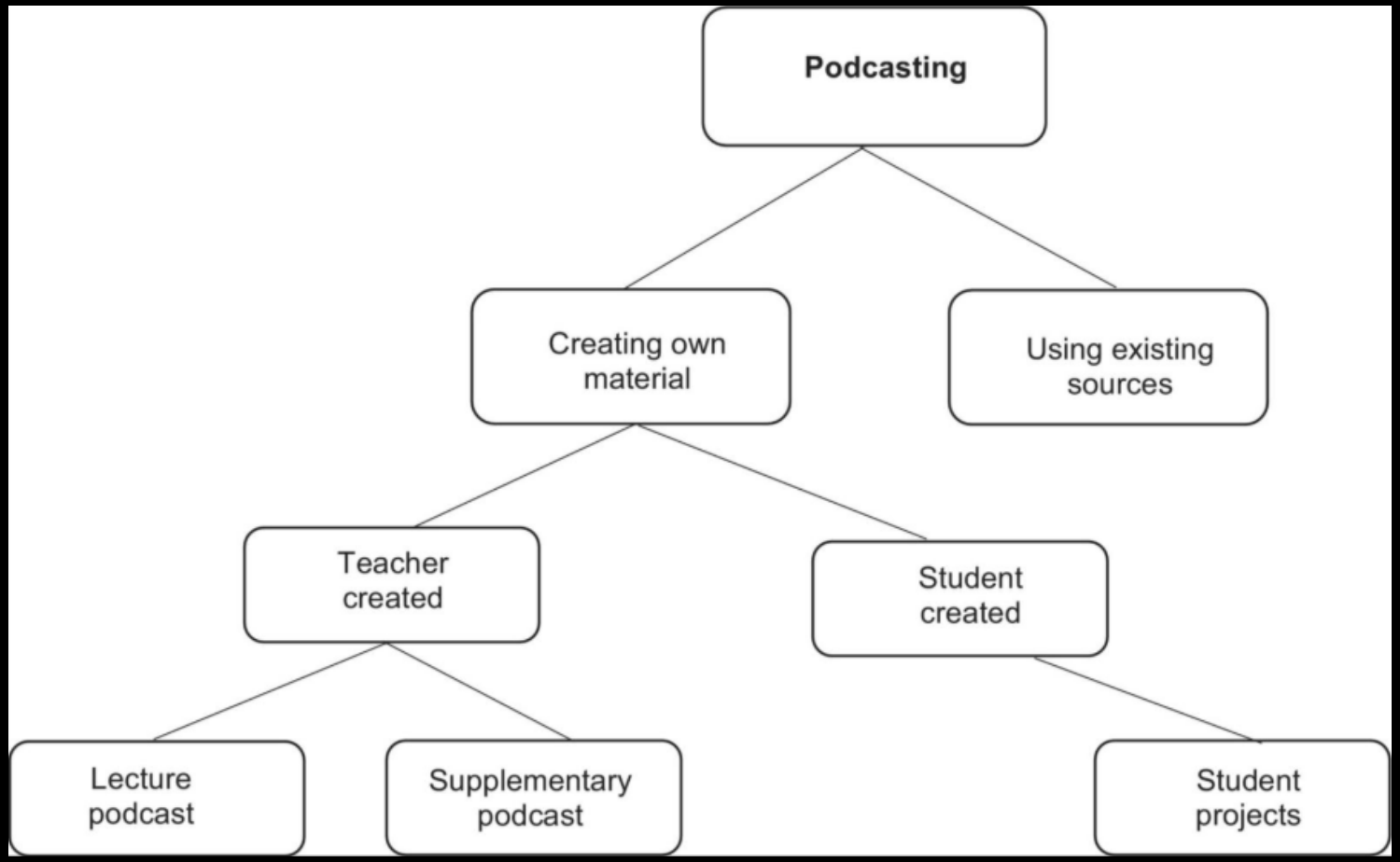
Main differentiation between;

- existing resources – considered authentic materials of native language speakers, e.g language courses;

- newly developed resources – created by educator or students

Rosell-Aguilar, F. (2007). Top of the pods—In search of a podcasting "podagogy" for language learning. *Computer Assisted Language Learning*, **20**(5), 471–492. **https://doi.org/10.1080/09588220701746047**

Pedagogical Taxonomy of the Podcast in HE



Differentiates between:

Lectures – duplicates content delivered in person

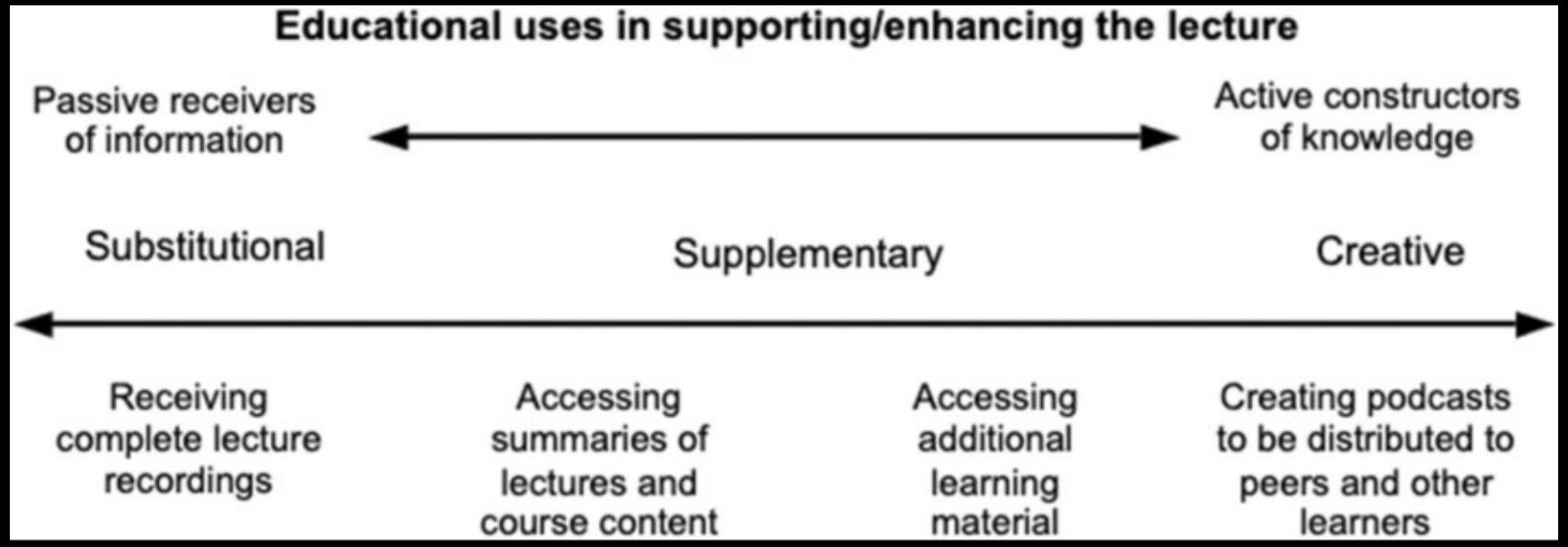
Supplemental – adds something new to previously delivered content

Student projects - e.g group work

An extension to previous model in conceptualizing integration of podcasts into curriculum

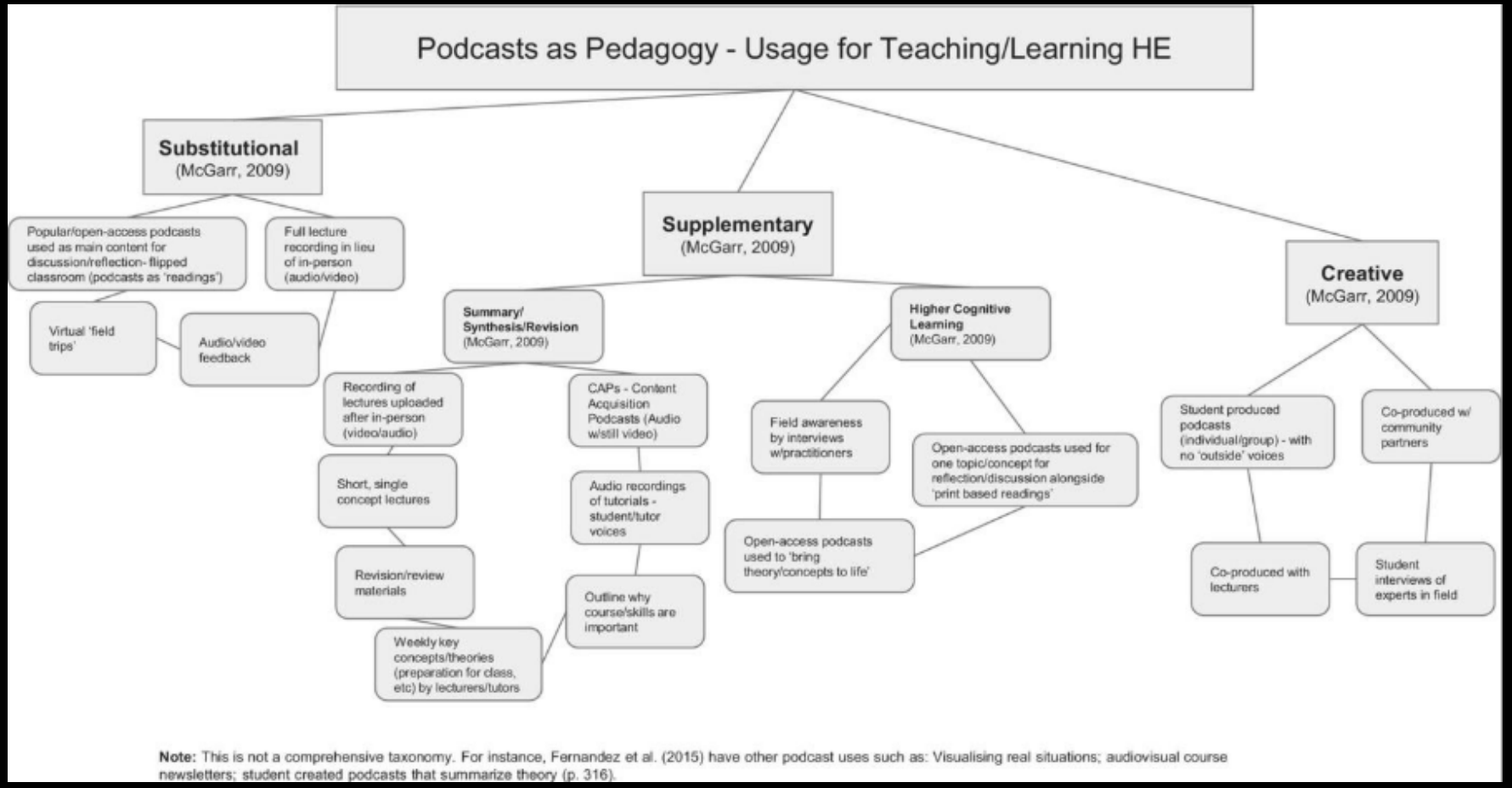
Hew, K. (2009). Use of audio podcast in K-12 and higher education: A review of research topics and methodologies. *Educational Technology Research and Development*, **57**(3), 333–357. **https://doi.org/10.1007/s11423-008-9108-3**

Pedagogical Taxonomy of the Podcast in HE



*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. **https://ajet.org.au/index.php/AJET/article/view/1136**

Focuses on pedagogical intentions, from perspective of learner as participator (3 categories)



*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. **https://ajet.org.au/index.php/AJET/article/view/1136**

3 Categories – Substitutional, Supplementary, Creative

- Substitutional - Some research suggests that podcasting can lead to a deeper understanding as students feel more involved in learning, amplifying students' sense of contact with their lecturers (Evans, 2008) (Gachago et al. 2016) Lonn and Teasley (2009).
- Supplementary – advantages potentially anchored in terms of diversity of learners, potentially improving student experience. Offers opportunity to pause, rewind, listen several times
- merits of podcasting within HE are most apparent when it comes to student created content, either as part of formative or summative assessments.

Evans, C., 2008. The effectiveness of m-learning in the form of podcast revision lectures in higher education. Computers & education, 50(2), pp.491-498.

Gachago, D., Livingston, C. and Ivala, E. (2016) Podcasts: A technology for all?. British Journal of Educational Technology, 47(5), pp.859-872.

Lonn, S. and Teasley, S.D., 2009. Saving time or innovating practice: Investigating perceptions and uses of Learning Management Systems. Computers & education, 53(3), pp.686-694.

Reflections From Students as part of Research Project into role of Podcasts in HE

- *"Innovative podcasts had not been a feature of Uni assessments prior to this module. Using podcasts did offer some unique challenges in terms of structure, flow, and line of questioning. However, I did value this because if the assessment was another bog-standard, "write an essay with an intro, research, findings, etc", I don't think I'd have engaged with the topic or material anywhere near as in-depth*" (Student 1, workshop, 24 August 2020).
- *"[Podcasting] is new but familiar as everyone has had conversations before! It was not intimidating. Working on a podcast allowed me not to focus on word count. It allowed us to go more in-depth into a chosen topic, as there was no concern over words count. It was also less fragmented compared to work on a (group) assignment like an essay*" (Student 2, workshop, 24 August 2020).
- *"It felt natural in terms of how the conversation flowed, and whilst we were working to a time limit, it gave the chance to explore the topic" "It is very important to choose a topic as it allows you to feel more passionate about it"* (Student 3, workshop, 24 August 2020)

Podcasting and Collaborative Learning Practices in Placemaking Studies (Silvia Gullino, Simeon Shtebunaev and Elodie Wakerley, Birmingham City University) 2023

As part of either developmental work, formative or summative assessments

Differs from traditional group work in that students have the chance to refine and improve the end product, a process which in itself can be beneficial as part of their development

Consideration around this can be anchored by identifying epistemological processes that take place from the perspective of learner

Cognitivism, educational theorists such as:

- Vygotsky – belief that knowledge and thought are constructed through social interaction with the ‘zone of proximal development’
- Piaget – knowledge based on experiences which in turn are influenced by their emotional, biological and mental stage of development
- Freire - belief in the role of dialogue as opposed to monologue in education within the realm of what is referred to a critical consciousness

Factors to Consider in Evaluating Role of Radio and Podcasts in HE

Positives

Opens door to more remote participation, could make more content more accessible

Empowers students with some creative agency

Removes issue of AI / plagiarism in relation to group work

Provides students with 21c transferable skills in creation of digital content

Negatives

Echo chamber issue

Acceleration towards online resources detracting from overall educational experience

Potential for de-academization of academic work

Moves away from literary context which is arguably foundation for all academia

RadioActive 2.0

A collaboration between schools of Childhood and Social Care and Arts and Creative Industries.

Original initiative ‘RadioActive 101’ ran from approximately 2010-2020, was a very successful and original social innovation that supported: psychosocial development (confidence, self-esteem); 21C skills development (critical and creative thinking, communication and team-working); and, digital and employability skills more generally (including soft skills and industry specific journalistic and media skills)

This was evidenced through 38 publications and is reported in detail in Ravenscroft et al., (2018) and Ravenscroft (2022). It was developed and evaluated through UK and European funding (totalling £473K), that led to engaging over 680 participants through 49 Associate Partner organisations, including 29 employability placements in Music Performance, and broadcasting to listeners in 57 countries.

Ravenscroft, A., Dellow, J., Brites, M. J., Jorge, A., & Catalão, D. (2018). RadioActive101-Learning through radio, learning for life: An international approach to the inclusion and non-formal learning of socially excluded young people, International Journal of Inclusive Education, Taylor & Francis

Ravenscroft, A., (2020) Participatory Internet Radio (RadioActive101) as a Social Innovation and Co-Production Methodology for Engagement and Non-Formal Learning Amongst Socially Excluded Young People, International Journal of Inclusive Education, Routledge, Taylor & Francis.

RadioActive 2.0

2023-24: Educom QR funded – *“RadioActive (version 2.0): Designing a pilot participatory multimedia and near-future media platform”*

2024-25: Knowledge Exchange (Higher Education Innovation) funded – *“Embedding 21C, Social and Emotional Skills Development in Youth Empowerment Services through the Co-production of Digital Media within RadioActive 2.0”*

2025-26: Knowledge Exchange (Higher Education Innovation) funded – *“Participatory Digital Media Production and Training for Youth and Student Empowerment, Advocacy and Employability through RadioActive 2.0 Community Interest Company (CIC)”*

RADIOACTIVE 2.0 DESIGN

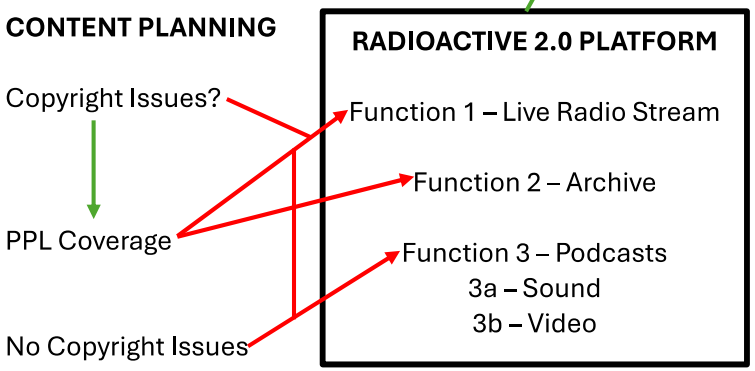
Newham Youth Empowerment Service – Theory of Change

↓

RadioActive 2.0 – Theory of Change

↓

Targeted programme
~ roll-out across Newham



DISTRIBUTION

1. Via RA 2.0 website

2.Individual social media (where possible)

↑

No copyright violation

Can RadioActive 2.0 Provide an Audience?

CONTENT PRODUCTION

UEL Radio Equipment

UEL Radio Tech Support

→ Scaffolding skills development

Measurement tools

+

Social and emotional skills
+
21st Century and digital skills
+
Industry Specific skills

Academic Input

- Music Production
- Journalism
- Youth and Community work
- Educational Innovation
- Psychological Innovation
- Media Innovation

Accreditation via UEL
+ student mentors

PEDAGOGICAL AND PERSONAL DEVELOPMENT ISSUES

Moving from individual content production and self-promotion to teamworking and collaboration within a community.

RadioActive 2.0

radioactives.org

https://radioactiveuel20.wixsite.com/radioactive-2