ORIGINAL ARTICLE

The Curriculum Journal   ◼BERA

Topic choices: Revealing concealed processes of curriculum sequencing in English secondary school Music classrooms

Anthony Anderson 🔸

Centre for the Study of Practice and Culture in Education, Birmingham City University, Birmingham, UK

Correspondence
Anthony Anderson, Centre for the Study of Practice and Culture in Education, Birmingham City University, Westbourne Road, Birmingham, B15 3TN, UK.
Email: Anthony.Anderson@bcu.ac.uk

Abstract

Music curriculum programmes are designed by English Music teachers in schools as the primary means of musical engagement for young people aged 11–14. Such Music curricula are often structured in learning topics. However, Music teacher rationales for the sequencing of the topics they have chosen to include in their curriculum is an under-developed area of music education research literature. This study seeks to examine teacher practices in this domain through a comparative case study of nine English secondary school teachers using *Think Aloud Protocols* to uncover sequencing practices. The findings are analysed using the Friedman ANOVA statistical test and eyeball analysis of teacher curriculum formulations. Theorising from these results facilitated the development of a teacher model of curriculum processing, and illuminated hidden practices in curriculum design.

KEYWORDS
curriculum processing, music education, sequencing, think aloud protocols, topics

INTRODUCTION

Curriculum sequencing in classroom Music lessons

Within discussions of the wide variance of approaches to Music curriculum pedagogy, the sub-set of curriculum sequencing has received limited attention. In England, the Key Stage 3 (KS3) Music curriculum for 11–14 year olds tends towards topic-based learning, where a musical style, genre or tradition is explored, often in half-termly units, generally ranging between 6 and 8 weeks of study (Anderson, 2019; Fautley, 2015; Fautley et al., 2018). In teacher education, Music specialists receive limited opportunity to develop their thinking in curriculum design or refine rationales for topic order and relationships between them for progress. School Music departments in England tend to be staffed by one or two individuals (Daubney & Mackrill, 2017), and this often means that teachers lead in the design of Music curricula relatively early in their careers. There is limited UK-focused literature on which they can draw to facilitate this task.

The use of topics in KS3 Music curricula enables teachers to facilitate learning breadth through diverse styles, genres, and traditions, where the teaching of a diverse curriculum is regarded as positive practice in teacher planning guidance. Examples of this in the literature include Rogers (2009), who connects wide-ranging musical activities and traditions to the breadth of learning as an approved discourse, and the Office for Standards in Education [Ofsted] (2012), the school inspectorate in England, which encourages schools to recognise "the importance of promoting a diverse range of musical styles" (2012, p. 4). In creating curriculum *Programmes of Study* (PoS) for Key Stage 3 learners, teachers, therefore, have to make decisions about which topics to include to fulfil these requirements and how to sequence them.

There is a lack of consensus on the nature of curriculum sequencing in music education as described, where teacher thinking can be largely unvoiced and thinking remains underdeveloped (Anderson, 2019). Much of the literature around such hidden curriculum interactions is of a general nature. Lave and Wenger's (1991) discussion of a learning and teaching curriculum, for instance, touches on some of the hidden dynamics in play in curriculum design between teachers and learners. Looking beyond the school gates, it draws on concepts of curriculum from everyday practices (as distinct from school curricula alone) but suggests that the field of learning from the perspective of learners can remain bound by teachers' perceptions of what "knowing is all about" (1991, p. 97). Although this example explores factors that lie just below the surface in unspoken assumptions, and find a form in teacher and learner behaviours, it lacks music specifics for application in planning structures for KS3 classrooms. Rogers (2009) suggests that musical understanding can be defined and presented in progressive stages, within which he locates frameworks for assessment. General conceptual language is also used by Mills (2005), when discussing how musical development manifests in classroom structures. She describes a "developmental line" (2005, p. 16) of musical growth, relating this image to the growth of a tree, and maintaining that the teacher who keeps musical development in mind during their planning will ensure that music is taught musically. Nevertheless, this approach to curriculum planning provides an outline of considered practice, rather than detailed curriculum structures.

There are other examples of curriculum discussions in music education literature that tend to relate to overarching perspectives, rather than to propose details of curriculum realisations. For instance, Hallam (2006) suggests that it is easier to learn new information and concepts if they link to "existing knowledge structures" (2006, p. 95). This implies that effective procedures to build and sequence knowledge and understanding exist, although she does not describe this process precisely. Hallam considers supported skills learning, (scaffolding) as applied to self-regulated learning as a classroom technique. However, she

does not go as far as suggesting a model for how this might be represented, or how it might be incorporated into planning processes.

Policy perspectives

Policy guidance for classroom Music teachers in how to plan for classroom teaching is also formed of general constructs. For instance, the *Secondary National Strategy for School Improvement* (Department for Education and Skills [DfES], 2006), a UK government initiative for all subjects which sought to enable young people to enjoy their school experiences and to develop socially (DfES, 2005), included a substantial section on curriculum design in its Music publication (DfES, 2006), but lacked detail on sequencing. The strategy commented that identifying how students should develop their understanding and apply this to practical work was significant (DfES, 2006, p. 3), and suggested that students should also understand how their work for lessons linked to prior learning. How these expectations should be met and assimilated into a sequenced order with a consistent rationale for musical development was not, however, included in the discussion. A similarly general conceptualisation can be found in the 2012 Ofsted Music report *Wider still and Wider*, in which Ofsted identified school visit data, that, according to Ofsted, demonstrated that students willingly participated in work relating to different styles and traditions, but lacked understanding of how musical features of these styles related to each other (Ofsted, 2012, p. 29). Ofsted did not offer suggestions for how connections between curriculum content and curriculum sequencing could be generated. However, Ofsted did identify sequencing as an issue within planning for progress, stating that teachers have often not fully considered the curriculum confluence of progression with topic justification (Ofsted, 2012, p. 48). Whilst it is true that policy bodies such as Ofsted maintain that they do not "advocate any particular curriculum model" (Ofsted, 2019, p. 1), teachers' decisions about how to structure and implement curriculum remains one of the key elements by which a school's effectiveness is evaluated by the inspectorate. How schools are held accountable through their curriculum, and the guidance which establishes the framing of this curriculum, therefore creates unresolved curriculum noise, through which it can be difficult for Music teachers to hear.

Ofsted has more recently produced a conceptualisation of curriculum which is now part of its expectations in the school inspection process. This considers curriculum as *intent*, *implementation* and *impact* (Ofsted, 2019a). Such a paradigm of curriculum considers the place of curriculum rationales in schools at a whole governance and subject level and seeks to scrutinise the perceived effectiveness of curriculum as realised in school practices. Although there are some links here between curriculum as perceived and received, also known as the planned and received curriculum (Kelly, 2009), there remain areas of curriculum vacuum for the interpretation and realisation of Music curricula. Music's multi-dimensional nature which enhances "lived curriculum experience" (Cooke & Spruce, 2016, p. 79) and music's presence and influence which Ofsted include in "enrichment activities…outside of the normal timetabled curriculum" (Ofsted, 2019, p. 28) are examples of such complexities. This means that it is problematic for music to be expressed in the straightforward tripartite form which Ofsted suggest.

Notwithstanding the complexities of curriculum form, Ofsted has, nevertheless, long identified sequencing as an area for improvement in classroom music practices, (Ofsted, 2012). The research which this paper discusses demonstrates that teacher curriculum cognition, although active, is unrecognised by classroom professionals and therefore represents a tacit practice. Winch (2013) has characterised these features as "the difficulties in reconciling subject specific conceptual schemes developed by experts with those developed by teachers" (Winch, 2013, p. 138). In other words, the frameworks espoused by "curriculum

experts" (Winch, 2013, p. 142) (which include inspectorates such as Ofsted) and practices of classroom teachers in music are at considerable variance. Whilst the difference between policy, academic discourse and teacher practices is not necessarily a negative one, in that it permits teacher agency for local context in curriculum design, it is a distinction that can remain unacknowledged. Where tensions exist between teacher outlooks and planning literature of various kinds, this creates challenges for teachers in translating curriculum conceptualisations into classroom settings. For instance, sequencing of musical learning has seldom been addressed in pedagogical discussions but remains a practice with which Music teachers must engage as a frequent aspect of their work.

Musical meaning and development

Philpott (2017) has placed sequencing in the context of knowledge development for musical meaning, arguing that sequencing is important when transitioning between these differing knowledge types. Philpott considers *intuitive* knowledge as a type of foundational knowledge that underpins all other types of musical knowledge, facilitating and creating musical meaning. *Analytical* knowledge is for Philpott "that which can be measured and used as a mark of the progress in musical learning" (2017, p. 2). Considering the interplay between these two theoretical protagonists, Philpott considers the transfer from intuitive to analytical knowledge, stating that there are "sequential implications" (2017, p. 5) in moving from one to the other. He, therefore, regards sequencing as integrated into musical development, and whilst he develops details of musical knowledge and musical meaning-making, he does not develop the place of sequencing in musical learning into a more detailed model.

Fautley (2012) has designed teacher prompts for assessing musical development in terms of what pupils can: *do, know, articulate* and *judge aesthetically* at the end of a key stage, unit of work, or term, *that they could not at the beginning*. This raises the questions of topic positioning within a *Programme of Study*, so that developing facility, knowledge and perception are enabled. More explicitly, Fautley also discusses the development of *skills*, *knowledge* and *understanding* through how teachers place topics sequentially, so that learning occurs.

Given the lack of debate on sequencing in school music education in England, programmes of study that learners follow at KS3, demonstrate significant variance and are intensely personal to the teachers that plan them. Teachers' personal experiences and values have been described as "pivotal" (McPhail, 2013, p. 8) and determine and inform designs for Music curricula that are realised in the classroom. However, a gap in the field remains in understanding the relationship of such intimate Music teacher curriculum constructs, and how this is realised in sequencing hierarchies, and the resultant classroom practices in music education which are then manifested in schools. The notion of a considered *Programme of Study* for Music, teaching topics across the academic year, for instance, also appears underdeveloped in the literature. This is the wider realisation of what Philpott terms as ordering sounds and musical meaning before "written notations and technical analysis" (Philpott, 2007, p.166).

Music teacher conceptualisations of sequencing suggest that further research is required into how teachers make choices and their rationale for doing so. Teacher processes in evaluating the effectiveness of sequenced curricula and pedagogies for evaluating musical development through topics are, at present, only partially understood. There is a lack of detail and consensus on definitions and approaches to topic-based learning in Music. There, therefore, remains a significant gap in understanding curriculum design, which, to borrow from Paynter, is *in* as well as *of* music (Paynter, 1977).

Despite limited acknowledgements in music education literature that teachers originate and then orientate their Key Stage 3 curriculum around their own perceptions of learning,

there is little discussion or research of the role of classroom Music teachers as curriculum designers. This is a surprising gap. Classroom Music curricula have been acknowledged as a cottage industry, which is "homespun" (Swanwick, 1992, p. 24), but the nature of curriculum origins in this context is less clear. Aside from earlier observations that Music classroom activity is left almost entirely to the classroom teacher (Swanwick, 1988), understandings of the way teachers operate as curriculum couturiers have received limited attention. In addition to these complexities, Music teacher activity has also been described in its three-pronged form, within which the teacher is simultaneously occupied with classroom music-making, the management of instrumental tuition and extra-curricular opportunities which reach beyond expressions of classroom curricula (Adams, 2007; Bray, 2000). This dynamic has the potential to create a more complex dynamic for Music in schools than is the case for other subjects. Although the existence of Music curriculum design has been frequently acknowledged (Paynter, 1982; Philpott & Carden-Price, 2001; Plummeridge, 2001; Savage, 2013) analysis of Music teachers' approaches to the design of curricula concentrated within classrooms is hard to find. The process of the enaction of curriculum design thereby remains uncharted territory, in which little is known and even less is explored in research.

MATERIALS AND METHODS

Research aims and questions

In order to better understand what is going on in both curriculum as conceptualised and enacted by teachers (not always the same thing), this research sought to explore how classroom Music teachers approached curriculum design in England. Aspirations for the research were to uncover teacher thinking and rationales on the nature of the curriculum and how these found a form in Music curriculum programmes.

The specific research question was therefore: *How and why do Music teachers sequence musical learning in the design of their Key Stage 3 Music curricula?*

Participants and research context

The research took place between December 2012 and July 2013 and was based in schools in Birmingham and Leicestershire in England, with Music teachers from nine different school settings participating. Ethical protocols of anonymity and informed consent were observed and ethical approval granted by Birmingham City University. The Music teachers were of different genders and ages, which ranged from early career teachers to those close to retirement. Teaching backgrounds also demonstrated variance across the research sample and included those who had worked in fields of popular music and music technology, to those who were classically trained; and included conventional routes into Music teaching (e.g. Music A-level and Music degree) to less conventional ones (e.g. no Music degree or primary teacher training before transferring to the secondary school sector at a later date).

There was, therefore, a widespread of teacher background, training and experience, age-range and school context. This helped the research to be suitably representative, giving access and releasing tacit narratives of curriculum design as conceptualised and realised by a range of secondary classroom Music teachers (See Table 1).

Schools were selected in order to ensure maximum variation sampling, in terms of their size, Pupil Premium profile (a measure of pupil disadvantage), Special Educational Needs and ethnic origins. There was a wide range of school participants in all these areas, ensuring that no one type of school context was privileged over another (see Table 2).

TABLE 1 Contextual information of teacher participants

School	Gender	Approximate age	Background
A	Female	30	Data not gathered
B	Male	32	Conservatoire
C	Female	55	Education degree
D	Female	28	Contemporary Music degree
E	Female	26	Conservatoire
F	Male	45	Education degree in Primary Music
G	Female	32	Russell Group
H	Female	50	Education degree
I	Male	35	Self-taught

TABLE 2 Contextual information of participant schools

School	Size	Pupil premium	Special educational needs	Minority ethnic backgrounds
A	Larger than average	Significantly higher than average	Lower than average	Lower than average
B	Larger than average	Higher than average	Average	Almost all
C	Larger than average	Lower than average	Higher than average	Lower than average
D	Smaller than average	Lower than average	Lower than average	Higher than average
E	Larger than average	Lower than average	Lower than average	Lower than average
F	Smaller than average	Higher than average	Average	Significantly higher than average
G	Smaller than average	Lower than average	Slightly higher than average	Significantly lower than average
H	Significantly smaller than average	Lower than average	Lower than average	Almost none
I	Larger than average	Higher than average	Lower than average	Significantly higher than average

Key:	
Shading	Gradation
	Very significantly above average
	Significantly above average
	Average
	Lower than average
	Significantly lower than average
	Very significantly lower than average

A distinction has been made between Music teachers and schools in order to make teacher background and school settings more transparent. Although the lead teacher and curriculum designer was interviewed at each school, they were also frequently working with other music colleagues to realise their curriculum plans. Contextual information about the school illuminates these features, therefore, references to schools or teachers in the discussion in this article are distinct and not used interchangeably.

Think aloud protocols research method

In this research study, a *Think Aloud Protocols* (TAP) activity was used as a method to understand processes of Music curriculum design and what occurs during critical incidents of teacher planning. The unit of analysis was semi-structured interviews with Music teachers, which incorporated this TAP activity. Although the interviews covered a range of aspects of curriculum dynamics, discussing all these dimensions is beyond the scope of this article, therefore, teacher commentary and rationale for their decision-making processes will be the focus of this paper.

Think Aloud Protocols (TAP) has been defined as "a research procedure to identify psychological processes" (Richardson & Whittaker, 1996), although its use can be realised as more than a *procedure*: it is, in essence, a *method* to access research participants' tacit assumptions, and realised cognitive structures. The TAP activity, therefore, sought to uncover practices in curriculum design, by asking participants to enact planning scenarios in which they vocalised their thinking during a task. The research intention in asking teachers to engage with the TAP activity was to illuminate significant factors that participant teachers took into account during enactments of curriculum design, as well as choices and reasoning that occupied their conceptual space. Its inclusion was designed to reveal whether there were common planning themes, or whether the design of KS3 Music curricula demonstrated variance. The TAP activity was nested within semi-structured interviews and was therefore an example of a concurrent protocol (Erricson & Simon, 1993).

Such an activity methodology is sometimes referred to as "think aloud interviews" (Newby, 2010, p. 340) and has precedent in research that seeks to uncover complex cognitive processes, which may otherwise remain concealed. For example, thinking as a process has been explored in research with chess players by Frey, who refers to this technique as "thinking-aloud protocols" (Frey, 1983, p. 183) and uses it to explore the psychology of human thinking in chess mastery. There is also precedent for this technique in music research, although this is most frequently as a means for understanding qualities of aesthetic aspects of music and musical choices of preference, such as in composition (Crozier, 1974; Reitman, 1965; Sloboda, 1985; Smith & Cuddy, 1986). TAP has also been used in music education (Whitaker, 1992), but not as a tool to understand curriculum design processes, and its use as a *level 3 procedure* (Erricson & Simon, 1993), in which participants explain concepts and internal narratives, remains a method that is seldom deployed.

The activity in this research study was constructed using a range of frequently occurring Music curriculum topics, as they arose from an online teacher survey whose discussion is outside the scope of this article ((Anderson, 2019) contains further details of the survey). The TAP included a common range of topics that emerged from the online survey, but also drew on less frequently cited topics, which nevertheless are referenced in the relatively few KS3 Music textbooks which existed at the time the research was conducted (*cf.* Hiscock & Metcalfe, 1992; Blythe & Hobbs, 2007; Harrison & Laurence, 2009). The approach of drawing on the familiar and unfamiliar concurrently, helped to enable the teacher participants to feel confident with the activity, whilst also requiring their cognitive concentration as they provided oral commentary. Topics included were *minimalism, ternary form, ground bass, blues and African drumming*. These topics represented a range of frequently occurring, midrange and infrequently occurring topics from both years 7 and 9, in order to enable an activity that contained equality of possible responses. Using five topics allowed complexity to surface, without limiting choices respondents had to an insignificant number, or constructing tasks with overwhelming parameters for participants.

These topics were then represented as cards (one per topic), which participants arranged in sequences in which they would teach them, first for a year 7, and then for a year 9 class. As well as commentaries, which were recorded and transcribed, the sequencing of cards

were recorded in a template and a sketch also made of their arrangement. Teacher participant discussions were based around exploring reasons for these choices and identifying differences and similarities between year groups.

Data analysis

Responses were analysed using a modified grounded theory methodology (Glaser & Strauss, 1967) to enable themes to emerge from teacher approaches to curriculum design. This analysis focused in particular on Music teacher rationales for their Music curriculum organisation, how they regarded the differing topics they selected for their curriculum structures and the more general features of musical learning that these sought to develop. Data from research discussions with participants were analysed using processes of open coding (Glaser & Strauss, 1967), which enabled themes to emerge. These themes further facilitated the development of the model of 'Curriculum Processing' explored later in this article (see Figure 5).

As part of the TAP research participants were asked to:

- "Sequence the five topics as you would for a programme of study for Year 7 students, explaining your thinking as you go."

After this, teacher participants were asked to:

- "Sequence the same five topics as you would for a programme of study for Year 9 students, explaining your thinking as you go."

This was followed by a discussion exploring which topics came first and last and why, alongside an opportunity to explain in more depth their thinking for topic sequencing as a line of musical development. Participants were then invited to comment on the adjustments made between Year 7 and Year 9, and to articulate their rationale for their planning choices as they might explain it to a line manager.

Following this qualitative approach, a quantitative methodology was also applied to the TAP activity to explore the statistical significance and to establish the presence of further patterns in the manner in which teacher participants sequenced topics. The Friedman ANOVA (FA) test (Field, 2017) was employed as the overall statistical test. This is a non-parametric test suitable for measuring multiple groups (in this case the teacher participants' responses to the sequencing activity) using an ordinal variable (in this case represented as five individual topic choices). The FA test was considered appropriate for the sequencing activity, due to its use in one-way repeated measures ANOVA by ranks. Post-hoc testing then compared all possible pairings of the five topics which featured in the activity using Statistical Package for Social Science (SPSS) software (version 20.0) to reveal statistical significance between topic rankings. The post-hoc testing in SPSS (IBM, 2011) used scale data in non-parametric testing for related samples, using the FA test (the procedure for this is described in Field, 2017). Newby (2010) suggests that the Friedman ANOVA test is a valuable tool for comparing multiple data sets. Multiple data sets are here regarded as an arrangement of the five topic cards, which each teacher made for their own school setting. This activity was repeated with 9 different schools. Data collection thus took place on multiple occasions. There are complexities in the manner in which some teachers arranged their cards, where they did not always use a linear arrangement. In such cases (2 out of 9), the arrangement of the cards was interpreted from right to left, which followed the order the participant teacher laid the cards in completing the activity. (This characteristic is further discussed in the *Resolving*

non-linear TAP card arrangements section below). Data analysis of the topic cards which were included in the activity is concurrent in that all participants were using the same topics. Individual teachers would usually select their own teaching topics for their own schools, but the topics in the TAP activity were chosen by the researcher. The pre-determined topics which featured in the FA test, enabled research of multiple school Music teachers, where contextual inhibitors (such as what resources are available in a particular school) would otherwise dominate and make comparisons challenging.

RESULTS

Qualitative findings

Teacher participant rationale for sequencing of topics for Year 7 learners (the 'why teachers design curricula as they do' aspect of the research question for the project), indicated some convergent thinking. This was particularly evident in the placement of *African drumming*, as the beginning topic of a *Programme of Study* sequence. Teacher participants indicated both their perception that *African drumming* was accessible and engaging. Research participant responses included:

> Instant results with drumming.

> Drumming to get the kids involved straight away.

> African drumming is accessible to you and gets them working together.

> Immediately gets children thinking musically.

Further encompassing rationales for topic placement (not only *African drumming*) included creating structures that participants considered enabled progress. Particularly noticeable is the reference to *Blues*, which is the most popular topic in Music programmes of study in English schools (Anderson, 2019). Its use as a bridge to further musical learning, as well as an integral form of music to be explored as a topic emerges from participants' responses in the TAP exercise. Responses that reflected such connected paradigms to *Blues* and other topics included:

> You need to do something that's going to get them used to a keyboard.

> Developmental—draw upon previously learned skills.

> Learn to play and apply.

> African drumming followed by Blues because you can make the link.

> Ground Bass develops pitch.

An equal proportion of teacher participants expressed the absence of a conceptual framework in their curriculum sequencing:

> My theory's quite warped really, isn't it? I could just shuffle them up! It's very random.

> I don't know how you could do it. I think I'd need to look at it.

Is the correct answer on the back?!

A little bit vague.

I don't know.

Therefore, whilst there is a strong association for operations of some topics within a *Programme of Study* (e.g. *African drumming*), and an overarching rationale that sequencing of topics should enable progress, there is also dissimilitude regarding processes and uncertainty regarding the extent to which participants regarded their choices in the sequencing activity as fully formulated. Whilst topics themselves do not subsist in inherent levels of difficulty (this is more a matter of pedagogical stance), it is interesting to note that this is how participants regarded them, as was evident in their commentary during the TAP activity.

For example, just as teacher comments about Year 7 considered sequencing as developmental, some responses for Year 9, for instance, also identified aspects of progression:

Use a seed to get a groove going.

Thinking about what's come before.

As well as these formulations of progression, responses also emphasised engagement and variety, and were expressed in modes of hesitancy:

That one first [African drumming] because it's fun … gets them engaged and performing. …engagement purposes rather than skills based.

Am I aiming for contrast in this scheme? [as an aside to self].

Terrible reason for the order—they are fun.

Minimalism in pairs for behaviour management.

Similar motivators are evident when participants discuss their rationales for adjustments of approach between Year 7 and Year 9:

I wouldn't want to start with drumming with Year 9, because the boys would be too hard to control.

Year 9 topics chosen to engage kids and are fun.

Ways of getting kids to shine in Year 9.

Finish on something at which kids can excel and you can give a summative level in.

You want them to get involved in the music.

Start it with something simple and then develop it maybe—not really sure, don't know!

Although participant teachers described a variety of approaches to how they might realise the topics which formed the TAP activity, many of the principles that teachers outlined (for

the final year of Key Stage 3 for all participants), promoted classroom management and assessment procedures. Research participants considered such structures to be enablers of rich outcomes, whilst fostering engagement and complicity. These motivators for Year 9 structures may or may not have impacted the effectiveness of musical learning in their classrooms but were very different from progress motivators which appeared to some extent for Year 7. There was thus a considerable variance of practice between the sequencing of topics for these year groups, within the confines of the TAP activity.

Resolving non-linear TAP card arrangements

Teacher participants arranged cards sequentially in 7 out of 9 cases; either vertically or horizontally, and consequently presented minimal interpretive issues. However, two participants arranged their cards in a less conventional manner, as indicated below:

These arrangements of cards are different, indicating how teachers regarded topics as nested. However, through teacher commentary following on from the order in which cards were laid, it was possible to clarify a sequential process, as sequential letters in Figures 1 and 2 indicate. The sequential form was therefore included in the analysis of teacher participant approaches to the development of musical learning through topics. In the instances above, some topics were regarded as subsets of the others: in Figure 1, the cards are arranged with *Ground Bass* as a subset of the *Blues* (*Blues* = 2a, *Ground Bass* = 2b). In Figure 2, the cards are arranged with *Ground Bass and African drumming* as subsets of the *Blues* (*Ground Bass* = 1b, *African drumming* = 1c). There is a convergence of practice in these two arrangements, in which *Ground Bass* is considered as a subset of the *Blues*, and this arrangement was applied to Year 9 classes in both cases. Whilst it is problematic to understand definitively the rationale for this convergence, there is evidence that topics in Year 9 were often implemented over a more extended timeframe (schools G, B and E, all did this).

TAP Card placement patterns

In considering the 'how' aspect of curriculum design in the project's research question, the sequencing activity exhibited some more foundational congruent practice, within which significant patterns emerged. Participant approaches to sequencing topics for a Year 7 class, where numbers indicate the sequence of teaching (e.g. if *African drumming* is shown as 1, teachers would begin with this) are given below (Table 3):

For the TAP Year 7 activity, *African drumming*, *Ground Bass* and the *Blues* are consistently ranked first, second and fifth respectively. It is therefore most likely among research participants, that a Year 7 *Programme of Study* would begin with *African drumming* and end
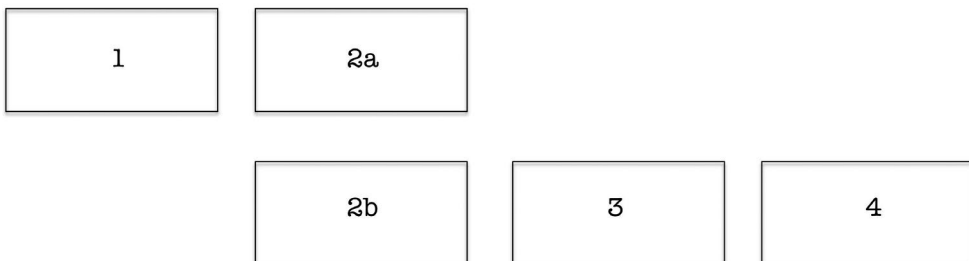

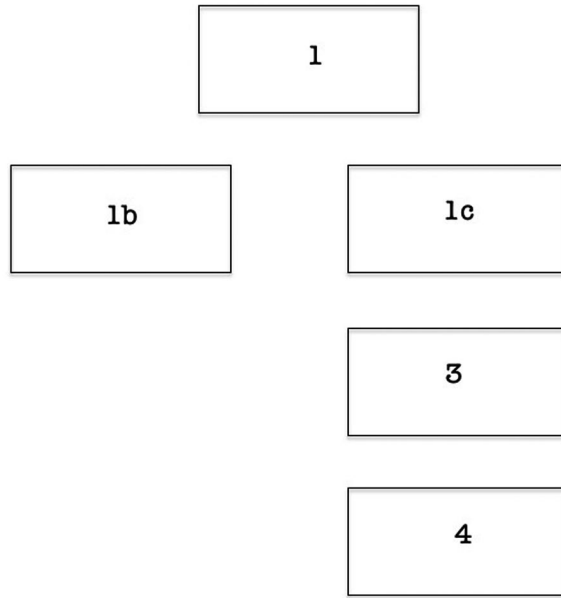**FIGURE 1** TAPS findings—non-linear response 1

FIGURE 2 TAPS findings—non-linear response 2

TABLE 3 TAPS findings—Year 7 arrangements

School	African drumming	Ground Bass	Ternary form	Minimalism	Blues
A	1	2	4	3	5
B	1	2	3	4	5
C	5	3	2	1	4
D	1	3	5	2	4
E	1	2	3	4	5
F	1	4	2	5	3
G	3	2	1	5	4
H	3	2	1	4	5
I	1	2	4	3	5
Most frequently occurring	1	2	1, 2, 4, 3	4	5
	(6 of 9 cases)	(6 of 9 cases)	(2 of 9 cases)	(3 of 9 cases)	(5 of 9 cases)

Shading is required to highlight the most frequently occurring topics

with *Blues* when given these choices. The placement of the *Blues* in this final position may be anticipated when informed by online survey results from other studies (Anderson, 2019), when *Blues* occurred most frequently in Year 8. Within the parameters of the TAP activity, the end of Year 7 was the closest that participants were able to place this topic to Year 8.

Quantitative findings

In addition, statistical analysis using the Friedman ANOVA test (Field, 2017), reveals a statistically significant difference for Year 7 topics, despite the small number of Music teachers

participating in the study ($n = 9$). The smaller sample size, was, nevertheless appropriate for FA, which is suitable for testing three or more variables. That the p-value emerges as significant, even though the sample size is small, increases confidence in the research findings and reduces the margin for error. In the light of the small sample size, the p-value is, therefore, all the more important. The table below indicates pairwise comparisons between Year 7 (Yr7) topics following the Friedman ANOVA test analysis, with the most significant statistical finding highlighted (Table 4):

The findings from Friedman ANOVA, demonstrate that there is a significant difference ($p < .05$) between the rankings. For *African drumming* and the *Blues* the overall FA test statistic was −2.556, with a standard error of .745 (SE = .745). There is a significant difference between *African drumming*, with a mean rank of 1.89 and the *Blues*, with a mean rank of 4.44. There is thus a statistically significant difference between all topics ($p < .05$), but this difference most statistically significant between *African drumming* and the *Blues* where it is .001 ($p < .01$). There is also a significant difference ($p < .01$) between *Ground bass* and the *Blues*, where the overall FA test statistic was 2.000, with a standard error of .745 (SE = .745). There can, therefore, be a high confidence level that these findings are not the result of random distribution for these topics. The statistical analysis, therefore, supports eye-ball analysis, an approach used in repertory grids, which seeks to uncover immediately obvious patterns and connectivities through rapid scanning of raw data (Jankowicz, 2004). Such eye-ball analysis suggested the comparative ranking between topics, and in particular, the frequency of the *Blues* and *African drumming* (see Table 3), which more nuanced statistical analysis later confirmed.

These findings are represented here in a line chart in which the outermost lines indicate a statistically significant difference. This can be seen at point 3 on the x axis, in the centre of the graph, which documents the overall test statistic. Here the lowest line indicates a significant difference between the topics of African Drumming and the Blues, whilst the highest line denotes a significant difference between Ground Bass and the Blues. In other words these differences are least likely to have occurred due to random distribution (Figure 3):

When a pairwise comparison is made, which sets out each potential topic pairing, based on the mean rank from the sample, this statistically significant difference is also highlighted.

TABLE 4 Table of statistical analysis of Year 7 Musical topics arising from TAPs activity in post-hoc testing

Sample1–Sample2	Test statistic	Standard error	Standard test statistic	Significance	Adjusted significance
Yr7AfricanDrumming–Yr7GroundBass	−0.556	0.745	−0.745	0.456	1
yr7AfricanDrumming–Yr7TernaryForm	−0.889	0.745	−1.193	0.233	1
Yr7AfricanDrumming–Yr7Minimalism	−1.556	0.745	−2.087	0.037	0.369
Yr7AfricanDrumming–Yr7Blues	−2.556	0.745	−3.429	0.001	0.006
Yr7GroundBass–Yr7TernaryForm	−0.333	0.745	−0.447	0.655	1
Yr7GroundBass–Yr7Minimalism	−1	0.745	−1.342	0.18	1
Yr7GroundBass–Yr7Blues	2	0.745	2.683	0.007	0.073
Yr7TernaryForm–Yr7Minimalism	0.667	0.745	0.894	0.371	1
Yr7TernaryForm–Yr7Blues	1.667	0.745	2.236	0.025	0.253
Yr7Minimalism–Yr7Blues	1	0.745	1.342	0.18	1

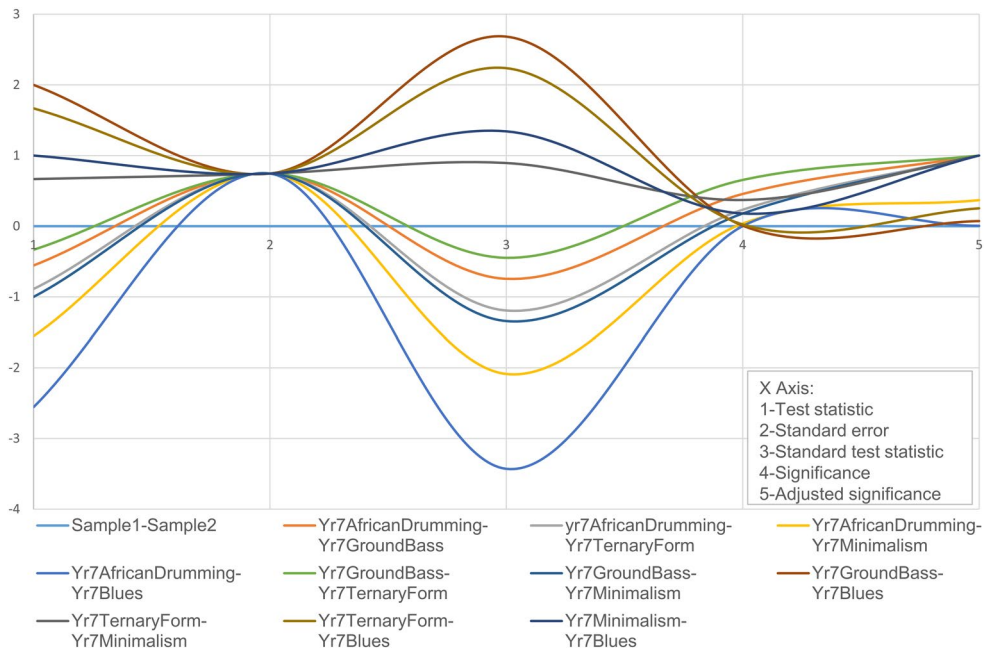Shading is used here to highlight the most significant finding

FIGURE 3 Line chart tracing the statistical significance of topic sequencing in pairwise comparison

This is evident through the greatest contrast between highest and lowest rankings (*African drumming*—1.89 and *Blues*—4.44), followed by the next most significant (*Ground Bass*—2.44 and *Blues*—4.44). These rankings are indicated on the radar diagram below (Figure 4):

In Year 9 findings, the data were analysed in a congruent manner using SPSS software. This analysis retained the null hypothesis with a significant factor of .406 (where $p < .05$), therefore, there was no statistically significant difference. Therefore, there was random distribution in the sequencing of topics for Year 9. This may, once again, be linked to differing formulations of musical learning for Year 9, in which some of the respondents (3 out of 9) preferred a *Programme of Study* structure, that favoured fewer topics over longer periods; a contrast to the curriculum design practice of Years 7 and 8. In contrast to Year 7, the sequencing activity that formed part of research discussions exhibited wide-ranging practices within which no significant patterns emerged for Year 9. A comparison of responses for this second activity are given below (Table 5):

There is some agreement in the sequencing of topics between research participants, most notably in placing *Ground bass* second in a *Programme of Study* for Year 9 students. However, there is no statistical significance ($p < .05$) in these findings, due to the low level of congruence. There is thus a greater variety of practice within the TAP curriculum design activity, which is insignificant in comparison with random distribution. This means that random distribution has the potential to return the same, or similar results, indicating that no significant pattern of topic sequencing emerged from the research for this year group.

DISCUSSION: THEORISING UNVOICED PRACTICES OF CURRICULUM PROCESSING

This research sought to uncover the often unacknowledged autonomy that teachers operate in Music curriculum design, which also contains submerged interactions of great subtlety,
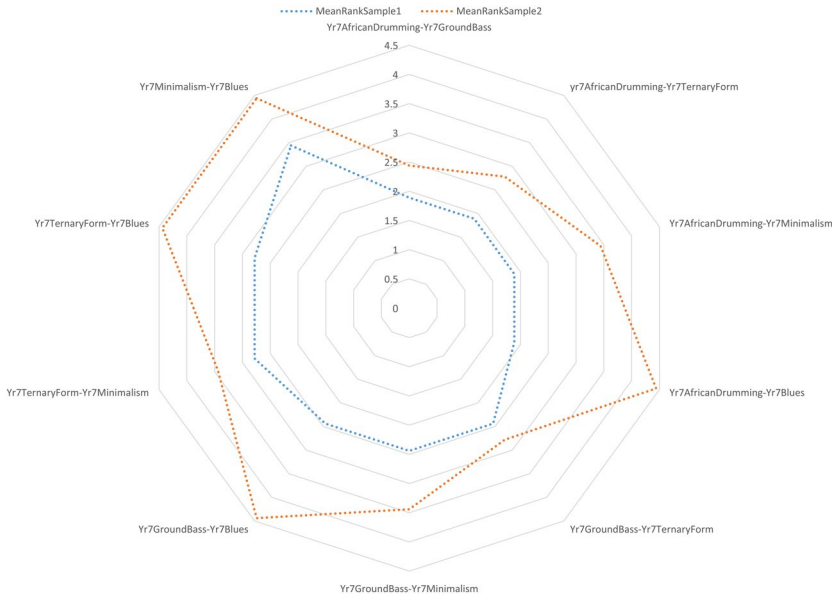
FIGURE 4 Radar diagram tracing pairwise ranking of topics

TABLE 5 TAP findings—Year 9 arrangements

School	African drumming	Ground Bass	Ternary form	Minimalism	Blues
A	5	4	2	1	3
B	1	3	4	2	5
C	1	2	3	5	4
D	4	1	5	3	2
E	3	2	4	5	1
F	1	3	4	5	2
G	5	1	3	2	4
H	3	2	1	4	5
I	3	2	5	4	1
Most frequently occurring	3, 1 (3 of 9 cases)	2 (4 of 9 cases)	4 (3 of 9 cases)	5 (3 of 9 cases)	1, 2, 4, 5 (2 of 9 cases)

Shading is required to highlight the most frequently occurring topics

nuance and finely balanced pedagogical decision-making. Understanding how and why teachers sequence the topics they select is complex as a result of the nature of these shades of curriculum detail. *Think Aloud Protocols* enable some of these concealed practices to be revealed. Drawing these approaches together into a coherent theory presents difficulties due to the wide variety of conceptualisations that teachers deploy in the actualisation of their curriculum plans. However, *curriculum processing* is one way to understand these variant ideologies and rationales, as they become embodied in pedagogical musical activity. Curriculum processing refers to validated behaviours, with which Music teacher participants in this research project manipulated Music curriculum materials, to design curriculum for

their contexts. Such behaviours indicated both how they regarded their professional environment and characteristics of curriculum as an entity.

Music curriculum as an entity constituted of topics was regarded by participant teachers as subsisting in inherent levels of musical difficulty. Learner engagement in sets of competencies within such notions of complexity, contributed to approaches towards curriculum design adopted by teachers. These perceptions associated topics with levels of challenge, which determined status for their position within a *Programme of Study* (a frequently used one-page document, listing topics to be studied by each key stage in a year group over the course of an academic year). Within this construct, musical teaching and learning in teacher processing for curriculum design is not the result of pedagogical practices, but of anticipated associations of complexity. Therefore, it is the perceived content of topics and not modes of classroom operation, which determine their inclusion, location and surrounding sequencing in Music teachers' Key Stage 3 curriculum. Thus, the differences between the arrangements of topics in the TAP task in which Year 7 arrangements were contrasting to Year 9 selections to such an extent that no congruence emerged in this research. Curriculum design is, therefore, further constrained before processes of its development begin, in the cognition of Music teachers. Although hierarchies of topics are unvoiced, assumptive processes in Music curriculum design, the influence these structures have in pre-determining legitimate topic occupation within *Programmes of Study* is highly influential in teacher actions of curriculum processing. A model that represents the processes and behaviours of curriculum processing is given below:

Within this model, pre-existing notions of a validated curriculum consist of contextual factors created by professional context and implied notions of complexity as discussed above. Such contextual factors include teacher participants' notions of topic complexity. These feed into Music teachers' perceptions of planning as a beginning stratum to curriculum design as revealed through their commentary during the TAP activity. This foundational phase consists of a consequential chain of interrelated processes: *reversing* (beginning with the highest grade descriptors in GCSE Music (the *General Certificate of Education* examination, which young people take at age 16 in English schools) and designing a curriculum at KS3 which works back from this assessment episode); *locating* (identifying resources and approaches for musical classroom activity); *establishing* (consolidating sequencing of these elements); *varying* (arranging topics to facilitate a variety of musical style, genre and tradition); and *revisiting* (repeating this cycle of planning with different musical media).

The second stratum of *processing* follows *revisiting*, in which there is a series of actions occurring in fluid form. The Music teacher enables curriculum processing through a process of *engaging* learners (making pedagogical connections in classroom dynamics); *contextualising* learning (exploring musical conventions and their realisation); *rationalising* learning (refining and manipulating musical materials to transform understanding) and *sequencing* learning (ordering and connecting musical features within a topic).

These strata together create an *enacted stratum*, in which a *Programme of Study* becomes realised through curriculum processes as described above, and is conventionally recorded in a *Programme of Study* of topics. The outcome of actions of curriculum processing, is a curriculum that exists in continual flux, never realising a finalised form. This is due to the natures of internal evaluative discussions of Music teachers, and their shifting domains. For instance, shifting policy demands of school leaders and developing musical knowledge of teachers' impacts on pre-existing notions of the validated curriculum. Other influencing factors may include shifting of criterion-referenced outcomes of GCSE grading, which resultantly affect processes of *reversing*; the necessity of *revisiting* may vary depending on the demographic of a class or the extent of *rationalising* may be inconsistent due to the mix of abilities within a group. These rotating factors result in a curriculum, which is unstable (Maw, 1993) and can never be inert. It is, therefore, such variable values that enable inconsistent
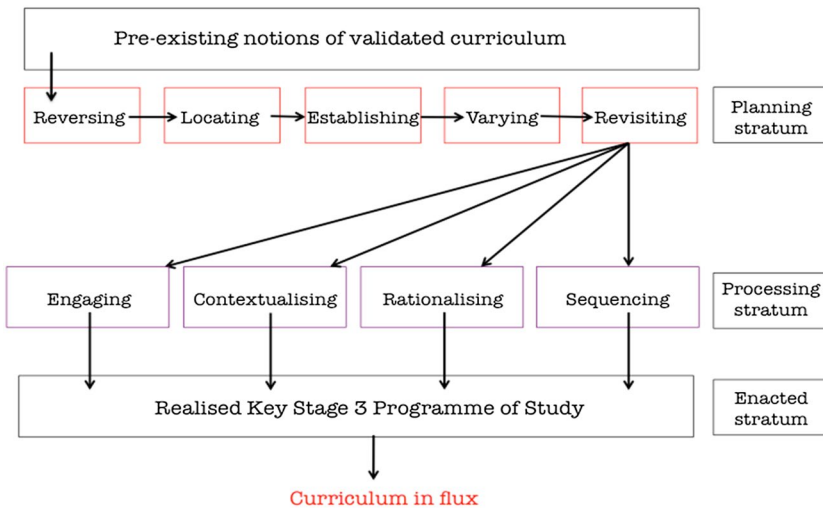
FIGURE 5 Model of curriculum processing in curriculum design

curriculum behaviours in teacher profiles and cause curriculum to become a metonym for content delivery.

The processes of each stratum are a way of labelling and summarising what emerged through teacher explanation of rationales and their starting points as part of the TAP activity. The existence of strata is not evident through card sequencing alone, and in this sense is one of the hidden dimensions of KS 3 Music curriculum design. However, strata become evident once teachers begin to discuss and comment on their sequencing and explain their curriculum rationales. Such rationales are therefore given a voice through the TAP activity. Modified grounded theory coding of these responses (Glaser & Strauss, 1967), then becomes a means for identifying common Music curriculum design characteristics. The model of curriculum processing (see Figure 5) is a representation of how the common features in the different strata interact with each other.

The complexities that are 'in play' in Music curriculum design coalesce around a topic-based formulation. Such a realisation of the curriculum focuses on a division of particular manifestations of musical expression as represented in musical traditions. Within such conceptualisations exists a tendency to approach classroom musical learning as a list of elements, which when combined produce a demonstrable structure that makes the aesthetic aspects of musical experience tangible. Such an approach to curriculum places a reification of musical interactions at the pinnacle of curriculum design, rather than as an intertwining motion, produced by more complex constructivist models of musical discovery. An approach which regards musical development as an accumulation of musical topics in this way is ultimately more easily manipulated into a programme of study for curriculum design in Music. However, it is also less authentic, in that creative meaning-making in music may be stunted, or pathways to development blocked by the requirement to transition to the next manifestation of music as represented in a recognisable 'topic'. Such an approach inhibits musical growth, denies equality of access and saddles teachers with unnecessary cognitive load.

The manner in which Music teachers conceptualise their curriculum into topic-based learning, and the sequencing of these topics, reveal cognitive processes which are complex and multi-faceted. The extent of such mental processes is generally unacknowledged in the analysis of Music curriculum interactions and their impact is yet to be fully understood. However, this research reveals previously hidden connectivities that are highly significant in

the formulation of KS3 learning experiences in music within school contexts. Understanding and acknowledging the strata of curriculum processing facilitates a more extensive discussion of curriculum design motivators amongst educators. Such a recognition results in a more considered, engaging and growth-orientated musical experience for young people in schools.

CONFLICT OF INTEREST
There are no known issues that represent a conflict of interest in this paper.

ETHICS STATEMENT
This research received the approval of the Birmingham City University Ethics Committee subject to contemporaneous BERA guidelines prior to being conducted between 2012 and 2013. This article contains original material which does not require any permissions for its publication.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author, A. Anderson, upon reasonable request.

ORCID
Anthony Anderson ![ORCID] https://orcid.org/0000-0003-1423-2163

REFERENCES
Adams, P. (2007). Beyond the classroom 2: Collaborative partnerships. In C. Philpott, & G. Spruce (Eds.), *Learning to teach music in the Secondary School*, 2nd ed. Routledge.
Anderson, A. (2019). *Happy accidents?* Music teacher perceptions of curriculum design at Key Stage 3 in the English secondary school (Unpublished thesis).
Blythe, R., & Hobbs, D. (2007). *Opus 3*. Heinemann.
Bray, D. (2000). *Teaching music in the Secondary School*. Heinemann.
Cooke, C., & Spruce, G. (2016). What is a music curriculum? In C. Cooke, K. Evans, C. Philpott, & G. Spruce (Eds.), *Learning to teach music in the Secondary School*, 3rd ed. Routledge.
Crozier, J. B. (1974). In D. E. Berlyne (Ed.), *Verbal and exploratory responses to sound sequences varying in uncertainty level*. Studies in the New Experimental Aesthetics. Halsted Press.
Daubney, A., & Mackrill, D. (2017). *Changes in Secondary Music Curriculum over time 2012–2016*. University of Sussex.
Department for Education and Skills. (2005). *Secondary National Strategy for School Improvement 2005–2006: Headteachers, School strategy managers and senior leaders*. Crown Copyright.
Department for Education and Skills. (2006). *Secondary National Strategy for School Improvement*. *Foundation Subjects: KS3 Music*. Crown Copyright.
Erricson, K., & Simon, H. (1993). *Protocol analysis: Verbal reports as data*. MIT Press.
Fautley, M. (2012). Developing musical leadership. In J. Price, & J. Savage (Eds.). *Teaching Secondary Music*. Sage.
Fautley, M. (2015). *Teach through music*. Trinity Laban Conservatoire of Music and Dance.
Fautley, M., Kinsella, V., & Whittaker, A. (2018). *Birmingham Music Hub Secondary School Music Teachers Survey*. Birmingham City University.
Field, A. (2017). *Discovering statistics using IBM SPSS*. Sage.
Frey, P. (1983). *Chess skill in man and machine*. Springer-Verlag.
Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory*. Aldine.
Hallam, S. (2006). *Music psychology in education*. Institute of Education.
Harrison, J., & Laurence, K. (2009). *KS3 listening tests*. Rhinegold.

Hiscock, C., & Metcalfe, M. (1992). *Music matters*. Heinemann.

IBM Corp. (2011). *Released 2011. IBM SPSS Statistics for Windows*, Version 20.0. IBM Corp.

Jankowicz, D. (2004). *The easy guide to repertory grids*. John Wiley & Sons.

Kelly, A. (2009). *The Curriculum: Theory and practice*, 6th ed. Sage.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Maw, J. (1993). The National Curriculum Council and the whole curriculum: Reconstruction of a discourse? *Pedagogy, Culture and Society*, *1*(1), 55–74. https://doi.org/10.1080/0965975930010104

McPhail, G. (2013). The canon or the kids: Teachers and the recontextualisation of classical and popular music in the secondary school curriculum. *Research Studies in Music Education*, *35*(1), 7–20. https://doi.org/10.1177/1321103X13483083

Mills, J. (2005). *Music in the school*. Oxford University Press.

Newby, P. (2010). *Research methods for education*. Pearson.

Ofsted. (2012). *Music in Schools: Wider still and wider.* Crown Copyright.

Ofsted. (2019a). *Busting the 'intent' myth*. Ofsted blog. https://educationinspection.blog.gov.uk/2019/07/01/busting-the-intent-myth/

Ofsted. (2019a). *School inspection handbook: Handbook for inspecting school in England under section 5 of the education act 2005*. Crown Copyright.

Paynter, J. (1977). The Role of creativity in the school music curriculum. *Music education review: A handbook for music teachers* (Vol. *1*, pp. 3–7). Chappell.

Paynter, J. (1982). *Music in the Secondary School Curriculum: Trends and developments in class music teaching*. Cambridge University Press.

Philpott, C. (2007). In C. Philpott, & G. Spruce (Eds.), Musical learning and musical development. *Learning to Teach Music in the Secondary School: A companion to schools experience*. Routledge.

Philpott, C. (2017). *Assessment, musical meaning and the music classroom*. Unpublished paper presentation at the Sixth International Symposium on Assessment in Music Education at Birmingham City University.

Philpott, C., & Carden-Price, C. (2001). Public Examinations 1: The General Certificate of Secondary Education (GCSE) in Music. In C. Philpott (Ed.), *Learning to Teach Music in the Secondary School*, 1st ed. Routledge.

Plummeridge, C. (2001). The place of music in the school curriculum. In C. Philpott (Ed.), *Learning to Teach Music in the Secondary School*, 1st ed. Routledge.

Reitman, W. R. (1965). *Cognition and thought: An information processing approach*. Wiley.

Richardson, C. P., & Whittaker, N. L. (1996). Thinking about *Think Alouds* in music education research. *Research Studies in Music Education*, *6*(1), 38–49. https://doi.org/10.1177/1321103X9600600105

Rogers, K. (2009). Musical progress: 'It depends what you mean by …' *Sound Progress*. NAME.

Savage, J. (2013). *The guided reader to teaching and learning music*. Routledge.

Sloboda, J. (1985). *The musical mind, (1999 Edition, with corrections)*. Oxford University Press.

Smith, K. C., & Cuddy, L. L. (1986). The pleasingness of melodic sequences: Contrasting effects of repetition and rule-familiarity. *Psychology of Music*, *14*(1), 17–32. https://doi.org/10.1177/0305735686141002

Swanwick, K. (1988). *Music, mind and education*. Routledge.

Swanwick, K. (1992). Music education before the national curriculum. *The London File*. University of London Institute of Education and Tufnell Press.

Whitaker, N. (1992). The process of understanding: reflective thinking and music composition. Paper presented at the North Central Divisional Convention of Music Educators National Conference, Minneapolis.

Winch, C. (2013). Curriculum design and epistemic ascent. *Journal of Philosophy of Education*, *47*(1), 128–146. https://doi.org/10.1111/1467-9752.12006