TEACHING LITERARY HISTORY WITH MUSIC

A classroom experiment

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Abstract

In Dutch Literature classes in the Netherlands, song lyrics are often treated as poems, regrettably neglecting the music. Recent research has provided evidence for various processes that suggest that playing songs would enhance the literary-historical learning of a class. Music can support motivation, attention and retention, and may clarify language by accentuating prosody and adding emotion. In an educational design experiment, including a repeated measures recall test, it was assessed whether playing a song only once or twice can heighten the learning efficiency of a literary history class. Five groups of fifth-grade pre-university high-school students (131 pupils; *Mean age* = 16.47; SD = 0.64), each with a different teacher, received a series of classes on 16^{th} - and 17^{th} -century Dutch literature. As part of these classes, they read a number of poems, half of which were also read aloud by their teachers, while the other half were also played to them as songs with music. However, which poems they heard with music and which they heard without differed for each group. Two recall tests indicated that both verbatim and gist recall for texts presented with music is better than for texts read aloud, indicating comprehension and a basis for historical reasoning. In addition, two evaluation surveys showed enhanced attention, motivation and historical insight.

Keywords: Education, Music and Language, Recall, Motivation, Attention, Literary history

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1. INTRODUCTION

Song lyrics have long been considered non-literary, and whenever they have been considered literary, music has often been seen as irrelevant for understanding the text. As a result, a lot of canonic medieval and 16th- and 17th-century song lyrics are known as poems and also analyzed as such in literature classes. In literary-historical education in the Netherlands, texts that are still recognised as songs are not covered at all, not even those used in the struggle for independence of the Dutch Republic, although they have played an important role in Dutch culture for centuries.

As part of an attempt to give song a place in the Dutch Language and Literature classroom and doctoral research into the effect of singing on the processing of sung language, a number of these texts were covered as songs in a Literary History class. Several effects related to the PhD project were investigated. As a result, the current study focuses on the use of music as a means to support the processing of song lyrics and other teaching materials, although the scope of the interventions was broader. In accordance with Sanz-Camarero et al. (2023), the narrower scope of the study points to a subordinated service-based arts-integration style, which is critiqued for instrumentalizing the arts, 'diminishing the value of the arts in themselves', though the actual arts integration style in the class values the arts. The class is about experiencing and learning to understand Dutch literary art, and that teaching songs as songs, not as poems, is a way to do justice to these works of art. Moreover, even though it is important not to diminish the value of the arts in themselves, it can also be valuable to use them in an instrumental way (Lehtinen-Schnabel, 2022).

From an educational perspective, investigating the effects of the use of song in a Literary History class is particularly interesting, because in such an environment a song cannot be played very often, though frequent presentation is essential for the use of a song as a so-called pedagogical song (Chazin & Neuschatz, 1990; Medina, 1994; Powhida, 2008; Werner, 2018). However, various scholars have also advocated the use of songs in history classes, in which they would be presented only once or twice (Cohen, 2005; Eady & Wilson, 2004; Goering & Burenheide, 2010; Heafner et al., 2014; Msila, 2013; Pellegrino, 2013). Song is argued to increase attention, to reduce the distance between the world of pupils and the world of the teaching materials, to be engaging, to enhance the cognition of historical or social concepts, and, subsequently, to enhance recall (see, for example, Goering & Burenheide, 2010; Pellegrino, 2013).

2. BACKGROUND

2.1 Literary history with the curriculum

Within the Dutch Language and Literature curriculum for the highest grades of secondary education, the discipline of literature allows for great freedom; schools and teachers are allowed to choose which texts they work on and how, and with

which educational objectives. Yet there are a few basic aims, one of which is that pupils in these classes should get an overview of Dutch literary history (Bax & Mantingh, 2019; Janssen & Rijlaarsdam, 2006; Witte et al., 2012). However, as is the case in other countries (Baumgartner, 2022; Gourvennec et al., 2020), literary education has moved away from teaching the canon or accentuating rote knowledge concerning the national cultural history, towards emphasizing either aesthetic textcentred knowledge and reading skills, or morally or practically motivated readercentred goals (such as being a good citizen or being able to use the language properly), with a growing emphasis on the latter in newly developed approaches (Applebee, 2003; Gabrielsen et al., 2019; Janssen et al., 2019; Koek et al., 2016; Schrijvers, 2019; Witte & Sâmihăian, 2013). Perhaps as a consequence, the didactics of literary history are underdeveloped (Bax & Mantingh, 2019), even though historical texts continue to be studied in the Netherlands and in other countries (Baumgartner, 2022; Blom, 2017; Gourvennec et al., 2020; Pike, 2003; Witte et al., 2017; Wood, 2017). Therefore, Bax and Mantingh (2019) have proposed an approach to literary history that balances historical contextualization with the perspective of the modern reader. It focusses on literary-historical reasoning by combining a synchronous perspective (interpretation of a text within the historical context), and a diachronous one (connecting older texts with contemporary texts).

In the author's own teaching environment, the main aim of the literary history classes is two-fold. There is a general aim that pupils learn about Dutch culture and its valuable art works (particularly literary art works), and there is a practical aim that pupils learn to argue why a specific text belongs to a specific genre or literary movement, and how this text could be created in the age in which it was written. In terms of Bax & Mantingh (2019), this may be called 'historical reasoning with the emphasis on a synchronous perspective' (i.e. on interpretation within the context). In connection with this, the discussion of texts involved in the author's literary history classes is mainly focused on recognizing examples of time, culture or genrespecific characteristics. Of course, understanding and valuing the works discussed is also important, but in most cases, pupils do not need to remember the content for the related assessment. They only need to remember the characteristics or how they can recognize them, as that is the kind of knowledge which is important for literaryhistorical reasoning and understanding historical texts. Gist knowledge about the story and other specific aspects of the text is only required for a few iconic texts, which are covered more extensively.

At the time of the experiment reported here (2018), it was not clear how a diachronous perspective could be implemented in a class concerning a whole period, and therefore such a perspective was underrepresented in class. However, it was not absent. First, as mentioned above, using songs was meant to bridge the distance between academic learning materials and everyday life (Sitomer,2008) and to provide the diachronous perspective in historical thinking (Heafner et al., 2014). In addition, the lessons on the seventeenth century history play *Gijsbrecht van Aemstel* included videos of modern performances, as well as passages read aloud

from a modernized version for young readers. And third, dependent on the teacher, several topics were considered in terms of how they are viewed in our time, for example, the lessons on the Dutch national anthem looked at the fact that the song is now often criticized because the lyrics do not sound like those of a national anthem at all (De Bruin, 2017).

2.2 Non-literary art forms in the literature class

As the materials used in the lessons on *Gijsbrecht* show, music is not the only non-literary art form that is used in the author's classes. For example, emblems, a popular art form at the time, combining engravings with text, are also covered in the class. In addition, the textbook used in the current experiment (*Laagland*; Van der Meulen & Van der Pol, 2011) is illustrated with images of paintings, statues and buildings in order to visualise important characteristics of art in general (including music, drama and literature) in a specific period. Textbooks like this are clearly written with the conviction that developments in literary art are rooted in larger political and cultural developments, such as the emergence of the Renaissance, civic culture, and the Dutch Republic.

Other scholars use other art forms as well: Heuvel (2020) advocates performances by teachers and students as historical characters. In the class in question, this might have involved the teacher dressed up as Frederick Henry of Orange, refuting the accusations against him in the protest song 'Duyvelsliedeken'. Msila (2013) included both drama and song in history classes. Film is also advocated as an aid to stimulate students' interest in literature (Grubben, 2020; Van der Knaap, 2019; Van Eik & Groenendijk, 2012). With drama, teachers can choose to dramatize the reading of a historical text (Avery, 2011), or even to stage it, if only because it is meant to be heard rather than read in silence. Finally, YouTube contains several examples of student-created animated films and other clips, summarizing the plot of important historical literary works. These clips can be used in a new class but can also be seen as examples of creative responses to literature as advocated by, for example, Blom (2017) and Wood (2017).

To some extent, all these uses of art forms other than plain written text in the literary history class are meant to make these classes more engaging, to explain historical and artistic concepts with examples from various disciplines, or to bridge the distance between the pupils' world and that of historical literary texts, thus making the latter more relevant, except when they are integrated in the original art work, such as songs, plays and emblems. Yet it is difficult to distinguish between the effects of using these art forms. For example, research into the so-called Mozart effect has shown that the effect of Mozart's music could also be evoked by a Stephen King story (Jones et al., 2006; Mainard & Schellenberg, 1999). In this study, the focus will therefore be on the effect of playing songs versus not playing songs, in particular on the effect of presenting poems in a sung version instead of reading them out loud which, though an aural mode of presentation, is not a musical one. Note that this

does not affect the issue that the use of song in the class was primarily meant to do justice to poems that are written as song lyrics. Ultimately, tracing the differences between the effect of presenting a text in song versus reading it out loud may contribute to the understanding and the appreciation of song as an art form in which words and music (and performance and visuals) make up a new text which conveys meaning in a distinctive way (Eckstein, 2004; Schotanus, 2020b).

2.3 Musical foregrounding

To understand why one would assume that presenting a text in a sung version would support learning, it is important to understand the multiple effects of combining music and language through singing on the processing of song lyrics. In an attempt to model these effects, I have presented the Musical Foregrounding Hypothesis (MFH) (Schotanus, 2015), elaborated in a two-part model for lyric processing (Schotanus, 2020b, pp. 17, 20). The MFH assumes that music disturbs the processing of song lyrics in several ways (for example, by diverting attention from the words or hampering intelligibility), but at the same time it can support lyric processing (for example, by accentuating specific words or lines, by adding emotion, or by attracting attention to the song as a whole). Consequently, the MFH assumes that music can support language processing immediately, i.e. after a single exposure. That is, the language can be interpreted more adequately, be valued more positively, or be remembered better.

Several aspects of the MFH can be substantiated by existing studies. Negative effects of combining music and language are shown by, for example, Kunert et al. (2015), Maidhof & Koelsch (2011), and Patel (2003), who have demonstrated that linguistic events can indeed distract from processing musical events and vice versa. Others have shown that music can impede intelligibility, for example, through noise, vocal deformation, or misalignments of linguistic and musical stress (e.g., Condit-Schultz & Huron, 2015; Johnson et al., 2014).

There are positive effects as well. First, music can enhance intelligibility, either by facilitating dynamic attention (e.g., Cason, Astesano, et al., 2015; Cason, Hidalgo, et al., 2015; Cason & Schön, 2012; Jones, 1997; Patel, 2011, 2014, Schön & Tillmann, 2015), or by accentuating important linguistic events by aligning them with salient musical events (Schotanus, 2018, 2021). Second, as music is known to grab attention (Perham & Currie, 2014) and music and lyrics are combined in the same sound stream, music can also draw attention to the lyrics by blocking distraction from elsewhere. Evidence of such a process can be found in Alley & Greene (2008), Brown & Bidelman (2022), and Olsen & Johnson (2002), and Schotanus (2020a). This may be particularly beneficial in highly distracting settings such as a classroom or for people who find difficulty sustaining attention (Schotanus, 2020a).

Third, singing and accompaniment can induce a positive attitude towards a text (Schotanus, 2020a), probably because processing music induces a dopamine reward (Menon & Levitin, 2005). Fourth, music can emphasize or enrich the lyrics' meaning

by adding its prosodic, timbral, harmonic and other kinds of musical meaning (Lousberg, 2018; Paul & Huron, 2010; Schotanus, 2018; Strykowsky, 2016; Sun & Cuthbert, 2017; Whipple, et al. 2015), through binding by synchrony (Large & Jones, 1999), through conceptive blending (Zbikowsky, 1999, 2018), or through another psychological process. Thus, music can be used to affect the interpretation of lyrics in a premeditated way (Schotanus, 2018, 2020a, 2020b, 2021a, 2021b, 2023). Sixth, music affects brain activity in ways that can further enhance cognition (e.g., Ferreri et al., 2014, Ferreri & Verga, 2016; Peterson & Thaut, 2007).

Finally, by hampering language-processing, aligning language to music can also accentuate the language through the mechanism of alienation (Shklowsky, 1919/2015), which underlies the concept of foregrounding. This concept has been predominantly investigated in a linguistic context (Hakemulder, 2004, Miall & Kuiken, 1994; Van Peer, 1983) but has also been used in the context of film (Hakemulder, 2008) and music (Hatten, 2004). However, as an effect of alienation is hard to distinguish from an effect of enhanced perceptiveness or clarity, the term Musical Foregrounding (MF) refers to the combined effect of all the processes mentioned above (see Schotanus, 2015, 2020b for a further review of the evidence underpinning these processes). For example, the fact that chanting one's contributions to a conversation can enhance communication with people with autism (Schotanus, 2020b, pp. 298-300) cannot be attributed to one of these processes on its own.

The model for lyric processing derived from the MFH (Schotanus, 2020b) suggests that negative effects of adding music can be reduced by facilitating either language-processing or music-processing. For example, an accompaniment that is clearly conveying harmony and rhythm can facilitate music-processing, as it eases the processing of unexpected musical events (Schotanus, 2020a), and providing the lyrics in print or on screen can facilitate language-processing (Hansen & Hansen, 1991). In the latter case, language-processing will also be enhanced because of a modality effect of multimedia learning (Moreno & Mayer, 1999), which includes engaging extra memory storage (Frick, 1984). The same may hold for a video showing the singer singing (Jesse & Massaro, 2010) or showing images that reflect the text. However, if such a video is used in combination with printed lyrics, the lyrics should probably be integrated into the video, for the sake of spatial contiguity (Moreno & Mayer, 1999).

Moreno & Mayer advocate temporal contiguity, but in the case of song lyrics this should probably not be applied too strictly. Strict temporal contiguity, which means that the lyrics are shown only at the moment when they are sung, is likely to be less helpful than 'loose temporal contiguity', in which case the whole song, or at least a complete strophe, is shown at once. This allows the listener to read along with the singer, but also to look back and forward, which is supposed to support language-processing: that listening alone cannot afford looking back and forward is often mentioned as an important obstacle in song comprehension (Bakker, 1998, 2006; Davis, 1985).

2.4 Musical foregrounding and memory

The processes mentioned above do not include an effect on memory for the song or its content, although the MFH does suggest that music can affect recall. The problem is that the efficacy of song as a means to support memory (as it does in pedagogical songs) seems to be largely dependent on repetition (Patel, 2011). Moreover, in line with Patel's OPERA hypothesis (2011, 2014), repetition is also important to the various ways in which song is used in second language education, whether or not the learning process is stimulated through singing or reciting songs (Alisaari & Heikkola, 2016), or by using songs or sung stimuli in a more targeted way (e.g., more focused on verbal learning or pronunciation, or teaching specific grammatical constructions; Fonseca-Mora & Gant, 2016; Lehtinen-Schnabel, 2023).

The importance of repetition in learning through song raises the question of whether songs can be used in a meaningful way in classes where they can be presented only once or twice. This is important as historic reasoning requires knowledge (Bax & Mantingh, 2019), and knowledge requires recall. Another problem is that music is assumed to support only verbatim recall, not gist recall, as if words set to music are remembered predominantly as meaningless sound streams (Calvert & Tart, 2013; Serafine et al., 1986; see also, Margulis, 2014, pp. 86-89 for a review). This would make songs useless in a class not aiming for rote knowledge.

However, Ma et al. (2020) show enhanced gist recall through song and infant-directed speech in comparison to normal speech. In addition, it is likely that something clearer or better perceived, or something associated with positive emotions, will be better remembered. In line with that, Schotanus et al. (2018) have shown that a text sung a cappella is memorized better than a spoken text. A text sung with a piano accompaniment is also memorized better than a spoken text, but in this case the difference is not significant. However, the difference with a-cappella singing is not significant either. Moreover, in a relatively distractive environment such as a classroom, the effect of accompanied singing may be even stronger than the effect of a-cappella singing.

2.5 Educational design experiment

To test the assumption that the use of songs, played only once, or in exceptional cases twice, can benefit the effectiveness of a literary history lesson, the author has conducted what may be considered one of the first stages of an educational design experiment (Cobb et al., 2003; Plomp & Nieveen, 2013).

In an educational design experiment, educational methods are developed and tested in a series of interventions in a real-world classroom setting, in which the researcher and the teacher-experimenter are often the same person. Of course, such a design may cause issues of objectivity and generalizability, but on the other hand, it allows for conscious observation of the actual effects of an intervention in an ecologically valid setting and for immediate adaptations of the intervention if

needed. An educational design experiment allows the researcher to combine test results with several other kinds of information (e.g., observations, interviews, videos, or surveys). This enhances the generalizability of the conclusions and helps us to further understand the learning process.

As mentioned above, only one stage of such an educational design experiment will be reported here: a series of musical interventions in a regular literary history class on 16^{th-} and 17th-century Dutch literature. Earlier research stages consisted of exploratory interventions with song in the author's own Dutch Language and Literature classes (Schotanus, 2020b, pp. 307-308, 450-453), including various writing and literature classes often inspired by scholars such as Dethier (2003) and Sitomer (2008), and a small survey among teachers of Dutch Language and Literature about the use of song in their classes (Schotanus, 2020b, pp. 308-309, 453-454). The results of both the survey and the exploratory interventions were considered for constructing the interventions in the current experiment. The decision to choose a literary history class for the current experiment was prompted by the fact that such a class allowed for a coherent set of various interventions leading to a test that was already part of the school's official test programme, and that involved gist recall.

In five groups, with five different teachers, around ten different songs were embedded in sequences of between eight and ten lessons on the topic. Some of the songs were already part of the curriculum as poems, others were added as illustrations of topics (e.g., polyphonic music) and were used more briefly. By teaching the same materials in all classes but teaching different subsets with or without music, a repeated-measures-within-subject design was created. Such a design is usually more reliable than a between-subjects design.

3. METHOD

3.1 Participants

A total of 131 participants, spread among five groups, participated in the lessons. They all filled out the mid-term evaluation. Unfortunately, only 110 of them completed the final evaluation (in one group most of the pupils did not have time to do so, due to cancelled classes), in which they were asked about their age, gender, and musical sophistication. These pupils were 16, 17 or 18 years old (M = 16.47; SD = 0.64), comprising 60 female, 46 male, and four did not specifying their gender. Musical sophistication was investigated by using a Dutch version of the Gold MSI scale, a validated instrument addressing various aspects of musical sophistication, with five subscales, i.e. musical experience, singing abilities, perceptual abilities, musical engagement, and the ability to recognize emotions in music (Bouwer et al., in preparation; Müllensiefen et al., 2014). The results of measuring musical sophistication are shown in Table 1. The teachers of four groups (including the author) provided the detailed test results for their pupils (i.e., the scores per pupil per question).

Table 1. Musical sophistication reported by pupils' Gold MSI scores

Scale	М	SD	Range	
Active engagement	33.17	8.95	10-55	
Perceptual abilities	44.67	7.38	27-66	
Musical training	22.29	9.06	9-42	
Emotions	29.54	5.71	6-42	
Singing abilities	29.83	7.38	10-48	
Gold MSI	69.77	16.38	25-115	

N=107 (three participants were excluded because there were too many missing values

3.2 Stimuli and procedure

Within a regular series of lessons concerning 16th- and 17th-century Dutch literature, a song or a piece of music was played every now and then, with the double aim of making these classes livelier and more effective, and to do full justice to poems that were created as song lyrics. The complete text of all poems used as song lyrics were printed in a booklet (see supplementary materials) along with several song-specific discussion questions. This booklet was used in addition to the regular textbook for these lessons (Van der Meulen & Van der Pol, 2011). The textbook also contained one of the songs, which was therefore not printed in the booklet. These materials enabled all pupils to read along while listening to a text and to refer to texts during discussion. Furthermore, the aural presentation of the text was often interrupted by teachers in order to explain specific words and sentences and to support pupils' comprehension.

To make it possible to compare between test results for the use of music-rich and music-poor materials, not all songs were played in all classes. However, in most cases the lyrics of songs not played were read out by the teacher and discussed in a similar way as the 'songs'. Four pairs of texts addressing similar topics were selected and embedded in the course in such a way that each group heard one of those texts as a song and one as a poem that was read out.

First, two songs from the Dutch war of independence from Spain were used, one protesting the cruelty of the Spaniards and their leaders (Slaet op den trommele [Beat the drum]), the other protesting the cruelty of the Republican leader and his army (Duyvelsliedeken [Devils song]). Second, there were two songs introducing an important aspect of 17th-century literature discussed in the pupils' textbook (Van der Meulen & Van der Pol, 2011): one love song illustrating Petrarchism, an important literary movement involving poems about unrequited love in a highly cultivated style, and one example of jocular literature, another important literary style, in which bad behaviour is used to underscore civic morality in a humorous way. Third, there were two choruses from Vondel's tragedy *Gijsbrecht van Aemstel*, a famous play that was covered more extensively, which gave the opportunity to show how choruses were used in Renaissance plays in order to comment on the events and the characters in the play. Fourth, two songs were used that introduced an aspect of 16th century musical culture: one song illustrating polyphony, an art form in which the

Low Countries were highly influential in the 16th century (Milsom, 2011), and one song set to the same melody as 'Ic seg adieu' [I say goodbye], a song that was covered anyway, introducing the widespread use of contrafacts (new texts set to pre-existing melodies). As this concerned knowledge about the music rather than knowledge about the text, what mattered here was not whether the text was sung or read aloud, but whether or not the relevant musical phenomenon was illustrated with a song."

As the test concerned knowledge about and understanding of literary genres and developments in their historical context, pupils were not supposed to be able to recall the content of most of the songs. They only needed to recall the content of Vondel's choruses, and the way they were related to the play's main story.

The songs were distributed among the groups in such a way that all groups would hear at least four of the paired texts in a sung version and the other texts read out. Thus, a repeated-measures-within-subject design was created. Table 2 provides an overview of the songs used in the different groups.

In addition, several other songs and pieces of music were played in each group. In three cases, music (not necessarily with lyrics) was played while the pupils entered the classroom. The intended effect was to create a pleasant atmosphere and to turn the pupils' focus to the class, so that at least part of their minds would pay attention to the music (Perham & Currie, 2014) and be curious to know what it was. In order to prevent mistakes in song choice, each teacher received one of two variants of a course instruction letter and booklets with song lyrics and questions, to be distributed during the course (for a summary of those learning materials see Supplementary materials).

Table 2. Music stimuli per topic per group (see Appendix A for the URLs and CD titles)

Lesson – topic/Song	Use	Gr	oup			
		1	2	3	4	5
1 st lesson – Low Countries as cultural centre;						
polyphony, contrafact						
Sweelinck (instrumental, YT: pianist)	Opening	Х	х	х	х	х
Egidius quartet (polyphonic, CD)	Illustration	-	х	х	-	>
Ic segh adieu (YT lyr. Video)	Text + questions	-	Х	х	-	×
Ic segh adieu (contrafact, YT lyr video)	Illustration	Х	-	-	х	-
2 nd lesson – the Rebellion; battle songs						
Slaet op den trommele (hardstyle, YT fixed)	Opening	Х	Х	х	х)
Slaet op den trommele (cabaret, YT fixed)	Text + questions	Х	-	-	х	>
Slaet op den trommele (complete, CD)	Text + questions	-	х	х	-	-
Merck toch hoe sterck (YT video + lyr)	Illustration	Х	Х	х	х)
3 rd lesson – Wilhelmus + contrafact						
Wilhelmus (Mozart)	Opening	?	?	?	?)
Wilhelmus (original melody – YT: singers)		Х	Х	х	х	-
Wilhelmus	Text + questions	Х	Х	х	х)
Duyvelsliedeken	Text + questions	-	х	х	-	-
Duyvelsliedeken (complete song) – (CD or YT)	Text + questions	Х	-	-	х	,
Mid-term evaluation		х	Х	Х	Х	,

Lesson x – Urban culture – jocular literature						
Brederode – Boerenkermis (YT: singer)	Illustration	Х	х	Х	х	Х
Brederode – Wat jy soect soec ik mee	Text + questions	?	х	Х	-	-
Lesson x – Urban culture – Petrarchism – airs						
Huyghens – (YT: lyric video)	Text + questions	?	-	-	х	Х
Last lessons – Gijsbrecht van Aemstel – choruses within						
a tragedy						
Waer wert oprechter trou (CD)	Text + questions	-	х	?	-	-
O Kersnacht (CD or YT)	Text + questions	Х	-	-	х	Х
Test		Х	х	Х	х	Х
Evaluation		Х	х	х	х	Х

Note: after the third lesson there were also topics taught without music; the teachers were free to choose which topic they would teach in which lesson. All teachers ended with Gijsbrecht. X = played/involved in test or evaluation; - not played, or just one verse played; ? = unclear whether it was played.

As Table 2 shows, there were YouTube videos of artists playing, YouTube lyric videos with either one fixed image or a neutral background, YouTube lyric videos with various background images, YouTube 'videos' with just one fixed image, and CD recordings without images (see Appendix A for the URLs and CD titles). None of the teachers sung in front of their group or with their group. Using a video adds a third dimension to the song, somehow creating a new text. However, as most of the videos included very few images (often just one) and the pupils had to read the song lyrics in their text booklets, the effect of that may be considered negligible. The two exceptions, 'Merck toch hoe sterck', with several colourful images illustrating the song's content, and 'Boerenkermis', showing a recent live performance of the song, were shown to all pupils.

3.3 Hypothetical learning trajectories

The aims of the interventions involved in Educational Design Study are often described by various so-called 'Hypothetical Learning Trajectories' (HLTs, Karlsson, 2015; Simon, 1995) envisaged for pupils. An HLT typically consists of three components: a learning goal, a set of activities, and a hypothesized cognitive process. As is the case with the Personal Practice Theories (PPTs) advocated by Goering and Buerenheide (2010), HLTs are adapted and refined in practice. However, whereas PPTs focus on the effectiveness of an individual teacher's actions, HLTs focus on the cognitive process going on in the pupil's mind as a result of such actions.

Given the educational goals of the class and the theories concerning the possible gains of playing songs, a series of HLTs was developed (see Table 3). In these HLTs the learning goals varied, but the activities always involved music listening, and the hypothesized cognitive processes were examples of immediately enhanced language-processing through music. Singing together was not involved. Admittedly, many teachers believe that singing together can be an effective teaching strategy (Schotanus 2020b, pp. 453-453), however, it was likely that not all of the teachers

involved in the experiment would feel confident enough about that (Alisaari & Heikkola, 2017; Heyning, 2011).

Table 3. Hypothetical Learning Trajectories (HLTs) assessed in this study

HLT	Goal	Intervention	Hypothesized cognitive process
1	Pupils recognize new examples of a literary genre and substantiate such a determination with relevant arguments	Present an example of this genre in song	The singing will enhance recall for the first example, facilitating recognition of new examples
2	Pupils have been introduced to a phenomenon or an idea (for example, a historical concept, a picture representing a period) and have instilled it as a basis for historical reasoning	Play a song or a piece of music representing or illustrating this concept	Enhanced gist recall for this phenomenon
3	Pupils are more engaged in the class and have more focus, resulting in deep learning	Create a music-rich class, i.e. a class in which music is played relatively often	The class is more fun, so pupils will be more engaged
4	Pupils engage in historical thinking	Play historical songs (i.e., songs from the era discussed)	As music is relatively accessible compared to plain text (e.g., Heafner et al., 2014) a historical song can draw a vivid picture of the period in question and make history almost tangible, even if the song is unfamiliar to the pupils; a good picture of the period facilitates historical thinking
5	Pupils read older literary texts containing deviant spelling, vocabulary, and syntax	Present the text in song	Reading problems related to an unusual spelling will be diminished, syntactic structure will be clarified by prosodic cues, and comprehension will be furthered through added emotions.
6	Pupils engage in historical thinking	Present the text in song	Either through enhanced perceptiveness to the lyrics or through enhanced clarity of the language, the text will be better understood, which facilitates historical thinking
7	Pupils have a positive attitude towards the class	Open the lesson with a piece of music without any introduction	The pupil's attention will be moved towards the class in a positive way before they are aware of it, which will enhance

			perceptiveness to the teaching materials
8	Maximizing the effect of the use of song	Play songs accompanied by listening instructions, and interrupt them for questions and comments	Pupils are actively engaged in listening and will not drop out when they do not immediately understand what the song is all about (see also Cruse, 2006; Hobbs, 2006 on the use of videos in class)
9	Maximizing the effect of the use of song	Provide the lyrics in print or on screen to be read while listening to the song	A modality effect (Moreno & Mayer, 1999) will enhance both comprehension and storage in memory
10	Pupils provide a proper analysis of a text or show in-depth understanding of a concept introduced by this text	Present the text as a song and play the song or parts of it twice	Pupils will be relatively open to taking a closer look at the text, because repetition of a song is more acceptable than repetition of a spoken text or a simple reread of a printed text

As the HLTs only describe the selected intervention, they do not say anything about any other activities adopted, such as discussing the content of the song. Therefore, it may seem that an important 'design parameter', i.e. dialogue, (Schrijvers, Murphy, et al., 2020) is missing. However, in most cases several aspects of the songs were discussed though in order to test HLT 7-10, the amount of discussion varied.

Although all of the HLTs are intended to capitalize in one way or another on music's assumed ability to enhance either perceptiveness to or clarity of the learning materials, or both, they do not all capitalize on Musical Foregrounding (MF), for example, if a song is used just to make the class livelier and more engaging, while the lyrics do not contribute to the content of the class, one cannot speak of MF. Only HLTs which assume that the content of the lyrics is appreciated more, or heard, understood, or remembered better because it is presented along with music, presuppose MF.

Most of the HLTs could not be tested by measuring cognitive gains in the form of test results, at least not within the current experiment. Only the effect of a few interventions on gist recall, relevant to HLTs 1, 2 and 9, was measured in some of the test items. Verbatim recall, which did not fit the aim of the class, was tested in a midterm evaluation survey.

The other HLTs, and the processes underlying them, were assessed only in evaluation surveys. These measures may not provide 'hard' evidence but nevertheless give insight into the process. They all are purposeful, including the HLTs concerning attention and engagement. Though they may not seem to be related to the aim of historical reasoning, there is no literary learning without attention (Hanauer, 1999).

3.4 Measurements

Measurements seeking to understand pupils' HLTs, as outlined in Table 3 comprised two evaluations and a test, each relating to the texts presented to them.

3.4.1 Mid-term evaluation

The mid-term evaluation, after three lessons, consisted of ten questions. First, the participants were asked to rate on a five-point scale from (1) completely disagree to (5) strongly agree, whether they agreed with the statements that the pieces of music made the classes more fun (HLT 3, 6); that they clarified the teaching materials (HLT 4, 5); that they made the language more understandable (HLT 4, 6); that they enhanced focus (HLT 3, 6), and that the participant was more actively engaged in a lesson with music (HLT 3, 6).

Subsequently, the participants were asked which of the pieces of music they felt positive about, which ones they felt negative about, what a contrafact is, and what polyphonic means (HLT2). Finally, there was a recognition task (HLT 1, 2) in which the participants were presented with two fragments of song lyrics - two lines from 'Slaet op den trommele' (Beat the drum):

Tonschuldig bloed, dat ghy hebt vergoten Tonschuldig bloed, roept over u wraeck.

(The innocent blood thou hast shed
The innocent blood cries for revenge on thee.)

and two lines from 'Duyvelsliedeken' (Devil's song):

Sy duyzenden doen smerten Die hun noyt deden leedt

(They have hurt thousands Who never hurt them)

Both fragments had similar content (anger about violence against innocent people), but different forms. The long repetitive lines are typical for 'Slaet op den trommele'; the shorter ones perfectly fit the melody of the Dutch national anthem ('Wilhelmus van Nassouwe') which was already popular by then and was used for 'Duyvelsliedeken' (or: 'Henricus van Nassouwe'), a protest song against the violence used by Wilhelmus van Nassouwe's brother Frederick-Henry ('Henricus') in the Catholic south of the Low Countries. The participants were asked to tell which songs these fragments came from. They could choose from 'Duyvelsliedeken', 'Slaet op den

trommele' and two other songs, which were covered in each class: 'Merck toch hoe sterck' and the Dutch national anthem: 'Wilhelmus'.

3.4.2 Test

The test consisted of 14 questions. Six were related to topics which were taught 'music rich' in a few of the groups, and 'music poor' in the other groups. All these questions were related to HLT 1 and/or 2, as they all tested gist-enhanced recall. One was related to polyphony and Rhetorician poetry; one was related to contrafacts. There was also one question about Petrarchism, in which a new Petrarchan text was presented, and one about jocular literature and urban culture (neither of which referred explicitly to the music). Finally, there were two questions on the choruses in *Gijsbrecht van Aemstel* (one question about each chorus). As the whole course can be considered music rich, the other questions can also be viewed as questions about topics discussed in a music-rich course, but these topics were not directly related to the music played.

In retrospect, the test may have been less balanced than was intended. The questions on contrafacts and jocular literature were not only related to one of the paired songs, but also to other songs which were played or discussed at a later stage. Furthermore, the participants were asked to relate both the *Gijsbrecht* choruses to the main story of the tragedy, but the questions were not equally generous with information beforehand. As a consequence, the results of only a few questions could reliably be related to group differences in the use of stimuli.

3.4.3 Final evaluation

The final evaluation consisted of 15 questions. First, the participants were asked to rate on a scale from (1) 'totally disagree' to (5) 'strongly agree' whether they agreed with seven statements, the first five of which were the same statements they had rated in the mid-term evaluation. They also rated the statements that listening to a song twice is less boring than reading a text twice or having it read out twice (HLT 10), and that the participant was given a better picture of the period through the music (HLT 4).

Next, the participants were presented with a list of songs and pieces of music from the course and were asked to mark the word 'gehoord' (heard), which was printed beneath each title, if they thought they had heard the piece. They were also asked to mark with '+' and '-' which songs they thought were or were not worth recommending. (HLT 4, regarding song choice).

Third, they were asked ('yes/no/from time to time') whether the effectiveness of the class was enhanced when the teacher sometimes interrupted a song for a question or a comment (HLT 8). This was the only opportunity they were given to add a short explanation to their answer.

Finally the participants were asked to rate on a scale from (1) 'absolutely not' to (5) 'very' how recommendable they thought the following teaching methods were: listen to a piece of music and read the lyrics in print (HLT 9); watch a clip and read the lyrics in print (HLT 9); listen to a clip with a fixed image and no lyrics (HLT 9); watch a clip with lyrics and various images (HLT 9); watch a clip without the lyrics, with a picture of the singer (HLT 9), and watch a video, or listen to a piece of music at the beginning of the class without an introduction (HLT 7, 8).

3.5 Analyses

Regressions with the variable 'music rich', indicating whether a topic or a text was taught with music or not, were conducted on the recall questions and the recognition task in the mid-term evaluation. The results of the test were analysed using a mixed model regression with three variables (music rich, question, and question*music rich) as fixed effects, and with random intercepts for participant*group and group, on a variable representing the normalized score per question per participant (i.e., the participant's score divided by the maximum score for that question). An explorational Principal Axis factor analysis on the Likert-scale ratings in the final evaluation was used in order to obtain variables which could be used to investigate the effect of musical and literary sophistication. Mixed model regressions were run on these variables with the subscales of the Gold MSI as fixed factors and a random intercept for group. All analyses were conducted using SPSS.

3.6 Ethics statement

The board of the Institute for Cultural Inquiry at Utrecht University (ICON) sought and received approval from its Ethical Review Committee for Linguistics (ETCL) in order to conduct this research. The headmaster of a regional combined secondary school consented to the research taking place in the school. All parents were informed and were given the opportunity to opt out of use of their children's results for the research which none of them did. Finally, all pupils were informed and were free not to complete the evaluation, and their test results were anonymised.

4. RESULTS

4.1 Recall (HLTs 1, 2 and 9)

Two recall questions and a double recognition task were included in the mid-term evaluation, and six items in the test assessed gist recall for the songs. Figure 1 shows the number of correct answers per question per group. A visual inspection of the differences per group yields several remarkable observations. Given the fact that the introduction of the concept of polyphonic song was illustrated with a clear example in groups 2, 3 and 5, whereas the introduction of the concept of the contrafact was

illustrated with a clear example in groups 1 and 4, it is noteworthy that the scores in group 2 show an inverse pattern, and that the scores for polyphony are relatively high in groups 1 and 4.

The scores for the recognition task are even more puzzling. Groups 2 and 3 heard the complete version of 'Slaet op den trommele' and one verse of 'Duyvelsliedeken', whereas the other groups heard the complete version of 'Duyvelsliedeken' and only one verse of 'Slaet op den trommele'. It is therefore rather surprising that groups 2 and 3 have higher scores for the recognition of both songs, whereas in the other groups, a majority of the participants thought the fragment from 'Slaet op den trommele' came from 'Duyvelsliedeken' and the other part came from one of the other songs.

Regressions on these four variables with the variable 'music rich', indicating whether or not a topic or a song was taught with music, revealed that the variable 'music rich' predicted the contrafact score (R^2 = .09; F(1) = 12.18; t = -3.49; p= .001), the recognition of 'Slaet op den trommele' (R^2 = .18; F(1) = 28.6; t = 5.35; p< .001), and the recognition of 'Duyvelsliedeken' (R^2 = .28; F(1) = 49.10; t = 7.01; p< .001). However, 'music rich' does not significantly predict the scores for polyphony, and the recognition of 'Duyvelsliedeken' seems to be supported by a music-poor instruction.

30 25 20 ■ Group 1 ■ Group 2 15 ■ Group 3 ■ Group 4 10 ■ Group 5 5 0 Contrafact Polyphony Slaet Duyvel

Figure 1. Mid-term evaluation, recall test and recognition task, number of correct answers per group

Concerning the test, there were substantial differences in scores between the groups. However, it was clear that these differences occurred in both target questions and questions that could not be influenced by whether or not teaching

was music rich. The differences must partly be due to overall differences between groups and individuals within them.

In order to investigate the effect of 'music richness', respecting these overall differences, a mixed model regression with music rich, question, and question*music rich as fixed effects, and random intercepts for participant*group and group was run on the normalized test scores; that is, the original test scores per item divided by the maximum score per item, eliminating the differences between, for example, a three-point question and a two-point question. The results showed significant effects of music rich, question, and question*music rich, indicating that the scores for three questions, i.e., 2, 3 and 8b, were lower in music-poor conditions (see Table 4).

Table 4. Mixed model regression on normalized test scores

Main effects						
Fixed				Random		
	Df	F	р		Wald Z	Ρ
Intercept	1	271.54	.000	Residual	26.36	.000
Music rich	1	10.15	.001	Part.*group	4.40	.000
Question	13	15.35	.000	Group	1.14	.152
Q*M. rich	5	8.54	.000			
Parameter estimat	es					
		t	р	Est	SD	
Intercept		5.22	.000			
Music poor		.76	.448	.05	.07	
Music rich		red				
Question 1		1.23	.216	.06	.05	
Question 2		2.73	.007	.23	.08	
Question 3		2.03	.043	.21	.10	
Question 4a		3.51	.000	.16	.05	
Question 4b		5.14	.000	.24	.05	
Question 5		4.24	.000	.37	.09	
Question 6a		-0.90	.713	04	.05	
Question 6b		6.93	.000	.32	.05	
Question 6c		1.81	.071	.08	.05	
Question 7a		2.81	.005	.13	.05	
Question 7b		-1.14	.255	11	.09	
Question 8a		red				
Question 8b		1.78	.094	.16	.09	
Question 8c		-0.37	.713	02	.06	
Q2*Music poor		-3.71	.000	38	.10	
Q3*Music poor		-1.87	.062	20	.11	
Q5*Music poor		-1.26	.210	12	.09	
Q7b*Music poor		1.56	.119	.16	.10	
Q8b*Music poor		-3.12	.002	32	.10	

4.2 Opinions (other HLTs)

The first items of both evaluations were almost the same, which makes it interesting to compare the group scores for both. As Table 5 shows, in most groups, except for

group 2, the differences are rather small and not significant. However, the results for group 2 are not reliable as the end evaluation was completed by only six pupils.

Table 5. Perceived effect of music on class. Mean ratings per item, per evaluation, per group (SDs in brackets)

Group	More fo	un	Clar. TM		Clar. lang	g.	Focus		Active	
(N _{mid} /N _{end})	mid	end	mid	end	mid	end	mid	End	mid	end
1 (28/22)	3.54	3.63	3.14	3.20	2.93	2.96	2.54	2.35	3.04	3.29
	(1.07)	(0.87)	(0.97)	(0.66)	(1.05)	(1.02)	(1.23)	(0.98)	(1.14)	(0.91)
2 (25/6 ^a)	3.30	3.00^{a}	3.11	2.33a	2.96	2.50^{a}	2.60	2.00^{a}	2.92	2.50 ^a
	(0.99)	(1.11^{a})	(1.05)	(0.87^{a})	(1.11)	(1.38^{a})	(0.75)	(0.89^{a})	(0.80)	(0.84^{a})
3 (25/26)	3.68	3.50	3.56	3.50	3.28	3.11	2.96	2.54	3.12	3.15
	(0.75)	(0.76)	(0.87)	(0.81)	(0.98)	(0.86)	(0.89)	(0.76)	(0.97)	(0.92)
4 (28/26)	3.21	3.41	3.21	3.56	2.82	2.74	2.50	2.44	3.36	3.00
	(1.07)	(0.88)	(0.99)	(0.80)	(0.94)	(0.59)	(1.04)	(0.97)	(0.83)	(0.92)
5 (23/25)	3.91	3.84	3.35	3.40	3.52	3.32	2.87	2.76	3.22	3.24
	(0.79)	(0.62)	(0.78)	(0.82)	(0.67)	(0.90)	(0.81)	(0.83)	(0.67)	(0.83)
all	3.51	3.56	3.27	3.36	3.08	3.00	2.68	2.50	3.13	3.13
	(0.97)	(0.82)	(0.94)	(0.81)	(0.99)	(0.90)	(0.97)	(0.89)	(0.90)	(0.90)

Clar. TM = Clarifies teaching materials; Clar. Lang = Clarifies language; mid = mid-term evaluation; end

Table 6 shows the results for the other Likert-scale ratings in the final evaluation. Participants were particularly positive about the effect of music on repetition acceptance. They were also positive about stimuli with lyrics, preferably in print and, as Figure 2 shows, about interruptions of the music for teacher comments and questions. Most participants thought these interruptions enhanced the effectiveness of the class. Most explanations (46) refer to clarification: language, content, what is important, or aspects of the song they would not have thought of themselves. About five mention enhanced concentration or engagement because the interruption points to important aspects of the song, or because it makes one think. However, about ten participants think an interruption is annoying, that it hampers concentration, or that they would prefer the explanation afterwards. One thinks interruptions work, although they are annoying.

⁼ final evaluation

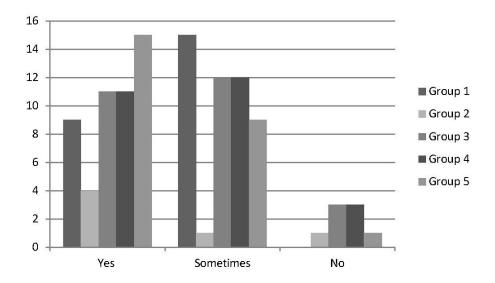
^{*}due to cancelled class N = 6

Table 6. How to use music in class, Likert-scale ratings, M (SD) per item, per evaluation, per group

	1 (N = 22)	2 (N = 6)	3 (N = 26)	4 (N = 26)	5 (N = 25)	All
Agree						
Rep. acceptable	4.21 (1.06)	3.33 (1.36)	4.15 (0.88)	3.81 (1.23)	4.24 (0.72)	4.05 (0.99)
Picture era	3.38 (0.77)	2.50 (1.05)	3.35 (0.94)	3.59 (0.97)	3.68 (0.75)	3.45 (0.87)
Recommendable						
Audio + print	4.00 (0.83)	4.17 (0.75)	3.85 (0.78)	4.03 (0.59)	4.12 (0.60)	4.01 (0.70)
Video + print	3.29 (0.75)	3.00 (1.79)	3.50 (1.03)	3.03 (1.09)	3.56 (1.04)	3.33 (1.03)
Clip with lyrics	3.25 (0.94)	3.17 (0.75)	3.12 (0.71)	3.22 (0.89)	3.44 (0.92)	3.25 (0.86)
Fixed clip	2.33 (0.96)	2.17 (0.75)	2.27 (0.83)	2.44 (0.89)	2.12 (0.83)	2.28 (0.87)
Singer in picture	2.71 (0.95)	2.33 (0.82)	1.96 (0.87)	2.33 (0.83)	2.08 (0.95)	2.26 (0.89)
Start class - intro	2.67 (1.34)	1.83 (0.98)	2.26 (1.00)	3.26 (1.46)	2.96 (1.10)	2.74 (1.13)

Rep. acceptable = Repetition is acceptable

Figure 2. 'Do interruptions for comments and questions enhance effectiveness?' Number of answers yes/sometimes/no per group



4.3 Effect of musical sophistication

In order to measure the possible effect of musical sophistication on one's perception of the effect of music in the class, a principal axis factor analysis of the first seven items in the final evaluation was run. The dataset was suitable for such an analysis, as both the KMO statistic and the Measures of Sample Adequacy for each variable were > .75, the determinant was > .00001, and Bartlett's test of sphericity was significant. Two factors with an eigenvalue > 1 were retained (see Table 7). The first factor, Engagement, seemed to represent fun, focus and active engagement. The second factor, Clarity, is also associated with fun and engagement but now related to cognitive gains, particularly clarity of language.

Table 7. Principal axis factoring analysis of the ratings concerning the perceived effect of music in the literary history class. Factor loadings > .4 are underlined.

	Engagement	Clarity				
Factor loadings						
More fun	<u>0.67</u>	<u>0.44</u>				
Clearer teaching materials	0.37	<u>0.46</u>				
Clearer language	0.25	<u>0.59</u>				
More focus	0.60	0.29				
More engagement	<u>0.84</u>	0.43				
Repetitions more acceptable	<u>0.53</u>	0.31				
Better picture of an era	0.39	<u>0.44</u>				
F	actor properties					
Initial eigenvalue	2.79	1.04				
% of variance predicted	39.87	14.91				
Rotation sums squared load	2.14	1.31				

Mixed model regression analyses on Engagement and Clarity with a random intercept for group and the five subscales of the Gold MSI as fixed factors only shows a significant effect of the Emotions subscale of the Gold MSI on Engagement (AIC 294.91; F(1) = 10.56; p = .002; AIC (intercept only) = 303.57; all other predictors were insignificant and deleted from the model. Additional ANOVAs on Engagement and Clarity with group as fixed factor did not yield significant effects.

5. DISCUSSION AND ADDITIONAL OBSERVATIONS

An experimental course titled 'Teaching 16th- and 17th-century literature with music' was taught by five different teachers in their own Dutch Language and Literature groups, as part of an educational design experiment aimed to integrate song (lyrics) as a valuable literary genre and form of language expression. However, although the main aim of introducing song in this literary history class was doing justice to poems created as song lyrics, the focus of the study was on the assumed learning effects of using music in a class, particularly a (literary) history class.

The interventions within this class were based on several HLTs, each representing a theory about the effects of a specific intervention involving music listening. Some related to enhanced recall, some to enhanced perceptiveness, two to clarification, and several others to the effects of specific ways of presenting the music. The effect of the interventions on recall was measured by means of a mid-term evaluation and a test. In addition, the pupils were questioned about other aspects of the interventions in a mid-term and an end evaluation.

5.1 Recall (HLT 1, 2 and 9)

Concerning recall, the results indicate that, in line with HLTs 1 and 2, presenting a text sung supports gist recall, which implies comprehension and provides a basis for historical reasoning.

Admittedly, the answers to Questions 5 and 7b in the test did not show a significant effect of music-rich teaching. These questions did concern information that was music rich in some classes but did not explicitly refer to the music that was presented in connection with this information. Yet, the score for Question 5 is relatively high in all groups, which may be the case because jocular literature is also associated with 'Boerenkermis', a song that was played in all groups. Moreover, the answers to other questions and the results of the recognition task in the mid-term evaluation provide evidence for gist recall.

First, the questions on polyphony and contrafacts are questions on concepts, albeit musical concepts. Remarkably, the deviant results of the fourth and the second group in the mid-term evaluation were diminished in the test. Unexpectedly high scores were lowered; unexpectedly low scores became higher. Thus, the effect of music-rich teaching seems to become visible only in the long term, which is in line with the literature (Ferreri & Verga, 2016; Moussard et al., 2014; Zumbansen et al., 2014). As for the second group, the initial low score for polyphony may be related to the fact that the teacher felt uncomfortable about the music.

Second, the puzzling results of the recognition task in the mid-term evaluation may be explained by a combination of verbatim recall and gist recall or, to be more exact, surface recall and content recall. All groups read the complete lyrics of all four songs, all of which, apart from 'Wilhelmus', contained strophes on the shedding of innocent blood. However, only in 'Duyvelsliedeken' is protesting against such practices the main content. This may explain why the participants who heard 'Duyvelsliedeken' associated the clear call for revenge in the two lines from 'Slaet op den trommele' with 'Duyvelsliedeken' instead of the linguistically more difficult lines which came from the actual song. On the other hand, the participants who heard 'Slaet op den trommele' as a song, will have recognized the rhythmical pattern and the repetitions, and could subsequently identify the other lines as belonging to 'Duyivelsliedeken'.

Third, the fact that the results for 8b are clearer than those for 8c may be due to 8b asking for both the content of the chorus in question and the related content of the main story of the play, whereas in 8c the content of the chorus had already been given, so the question only concerned the associated content of the main story of the play. This seems to suggest that gist recall is enhanced only for song content and aspects of the music, not for associated information. The fact that it does not seem to exceed a concrete connection with the songs played indicates that it is at least partly due to MF.

Yet, the results for 8c may not give a reliable idea of the effect of music. When the author declaimed the second chorus (which he did not play) in his class and told the pupils about the situation in the play when this chorus is usually sung or declaimed, he did so in such a dramatic way that he immediately felt that he was compromising the results. Furthermore, one of the teachers who should have played the song could not find the track and therefore did not play it. However, ignoring the scores of the author's own group, the scores of the only group who did hear this

chorus is relatively high, especially taking into account that this is the group with the lowest overall score.

5.2 Perceptiveness, clarification and teaching methods (HLTs 3-10)

The ratings in both evaluations are more or less in line with HLTs 3, concerning fun and engagement, 4, about getting a better picture of an era, 6, concerning enhanced comprehension, and 8, 9, and 10, concerning specific ways to present a song. All groups tend to agree with statements related to these HLTs, although they do not think music enhances focus (HLT3). This is puzzling, because most participants are neutral or positive about the music's effect on fun and engagement (HLT3) and one would expect active engagement to go hand in hand with focus. Yet, active engagement may involve a kind of excitement in the classroom that the participants do not associate with serious, focused attention. Just like the teachers in the workshop, the pupils recommend playing songs accompanied or interrupted by questions and comments (which is in line with Cruse, 2006; Hobbs, 2006; and Schrijvers, Murphy et al., 2019, HLT 8), and making the lyrics available for reading (which is in line with Hansen & Hansen, 1991, and Moreno & Mayer, 1999, HLT 9). They also agree that music makes repetition more acceptable (HLT 10).

There is no clear relationship between the test scores and the ratings for fun, focus, activity, etcetera. The group with the lowest ratings (group 2) had the lowest test scores, but the results of the group with the highest ratings for several items (group 3) were relatively low as well. It may be that test scores and ratings are related on the individual level. However, it was not possible to investigate this.

The score related to HLT 7, concerning opening a class with music without introduction, is low; most of the participants do not think this is recommendable. Conversely, their teachers do. Two of the teachers were particularly enthusiastic about that method, whereas just seven of the pupils were. This puzzling effect may be due to an error of judgement by the teachers, but it may also be explained by the kind of effect such an intervention aims for. If it is easier to catch pupils' attention and start the class after such an opening, this may not be noticed by the pupils, but it will be noticed by the teacher. More research is required.

Like the teachers in the survey preceding this experiment, pupils were neutral about the ability of music to clarify difficult language (HLT 5). Tt may be that the higher recall scores for song versions are partly due to this effect, particularly because the answers of several teachers in the survey showed such an effect (Schotanus, 2020b, pp. 308-310). This is an important research direction for future research.

5.3 Stimuli choice (HLT 4)

Both the test results and the fun and engagement ratings support the assumption concerning song choice in HLT 4, indicating that it is not necessary to use familiar

music, at least not in a literary history lesson for pupils in the higher grades of preacademic secondary education. Most of the answers to the questions regarding which musical pieces the participants were positive about are in keeping with that. On top of that, the test results for Question 8b indicate that even the use of the almost operatic rendition of 'O kerstnacht schooner dan de dagen' (Oh Christmas eve, more beautiful than the days) by Camerata Trajectina was effective.

Other songs several participants were positive about were 'Slaet op den trommele' (18), and older versions of the Dutch national anthem, 'Wilhelmus' (either Mozart's variations, or a YouTube clip of a group singing 'Wilhelmus' with the original melody, which some of the teachers accidentally played instead of the Mozart clip) (31).

Only one song received relatively many negative reactions (16 in the first evaluation): 'Duyvelsliedeken'. Nevertheless, two participants were fairly positive about this song, and almost everyone mentioned in the final evaluation that they remembered hearing this song.

Remarkably, only four persons were explicitly positive about the 'hardstyle' remix of 'Slaet op den trommele', three of whom came from the second group, in which no one claimed to appreciate a more or less 'historical' rendition. This is also the group with the lowest ratings and scores in general, and the only group in which ten participants mentioned a song about which they felt negative. In the other groups only two, three, seven and two participants mentioned such a song. The deviating attitude towards unfamiliar, 'historical' music in the second group can partly be explained by the fact that the teacher felt uncomfortable about it as well. Nevertheless, even in this group, a positive effect of music-rich teaching was visible in several test results.

5.4 Limitations

Although the literary history course was given in five groups by five different teachers, the results should be interpreted with caution. First, all topics were in fact dealt with in a music-rich course. Consequently, the differences might have been more salient if some groups had been offered a course without music. Having said that, this could have led to unethical differences in test results. Second, the location, the population, and the educational level of the school where the course was given may have influenced the outcome, although it is not clear in which direction. Third, the course was a predominantly teacher-directed course, taught in a school where teacher-directed education was the norm until recently. However, student-directed education is increasingly common in the Netherlands, and that also applies to the school where the experiment took place. Future research should investigate whether music-rich teaching can also be effective in student-directed education.

Fourth, the outcomes show relatively large effects on the basis of the specific group and teacher. At least in one case, an alternative teaching technique (declaiming with a great deal of drama) seemed to be as effective as music. Even so,

a mixed model regression, with random intercepts for participant*group and group, and including the results for all questions, still shows a significant effect of music-rich teaching. Fifth, apart from recall, the other effects of music-rich teaching, including those concerning enhanced comprehension, are measured only by Likert-scale ratings in the evaluation. Future research should focus on other techniques or may include systematic observations. Sixth, although the pupils were asked to create an anonymous identification code, very few participants used this in both evaluations, and none of them wrote it on the test paper (where they also had to write their names). As a consequence, it was not possible to compare the results of the test and the evaluations on an individual level.

Seventh, concerning song choice, several issues remain open for further consideration and research. For example, if the main aims of an intervention are introducing poetic or historic concepts and bridging the gap between the world of the pupil and the world of poetry, can a song in, for example, English, Frisian, Turkish, or Berber be used (if such a song were more accessible for the pupil), or is immersion in the Dutch language too important in the long term to accept a song in another language?

Finally, it is important to note that the choice for a literary history course and for songs that were part of the curriculum limits the possibilities for investigating the use of song in the literature classroom. This is the case not only because it is unclear whether songs can be part of the curriculum in modern literary history, due to their subordinate position in the canon, but also because there are other possible applications of songs in a Dutch language and literature class. Arguably, songs are a branch of literature with specific forms, generating specific poetic effects (Schotanus, 2020b; 2021b, 2023) that deserve attention in their own right, but they also provide relatively compact examples of narrative techniques, inspiring topics to write about, and relatively accessible examples of various stylistic features (Dethier, 2003; Sitomer, 2008). For examples of other applications see Dethier (2003), Schotanus (2020b, pp. 450-453) and Sitomer (2008).

5.5 Conclusion

As part of an educational design experiment, a series of classes in 16th- and 17th-century Dutch literature was given in five groups, in which several topics were taught in a music-rich context in all groups, while other topics were taught in a music-rich context in two or three groups only. Most stimuli were song lyrics that are usually presented as poems in these classes, not as songs. Two evaluations indicated that music-rich teaching makes classes more engaging and clarifies teaching materials. Moreover, test-results show a significant effect on gist recall, which implies understanding and is necessary for literary-historical reasoning. In line with that, a substantial number of participants thought that the songs helped create a better picture of the period. In addition to the fact that it makes sense to present a song

lyric as a song and not only as a poem, the results of this study therefore indicate that using song can also enhance the educational efficacy of a literary-history class.

This result is remarkable in view of the literature (e.g., Margulis, 2014), although it is in line with the MFH (Schotanus, 2015, 2020b) and with Ferreri & Verga (2016), who hypothesized that an ecologically valid, complex musical stimulus would enhance verbal recall, and also with several authors who have claimed that music can enhance recall partly because it enhances perceptiveness to the teaching materials

In addition, the evaluation results showed interesting opinions of pupils on how music should be presented. They think that a repeated song is more acceptable than a repeated reading or declamation of a text, and they recommend playing songs accompanied or interrupted by questions and comments and making the lyrics available for reading. However, teachers and pupils did not agree on the use of music played at the start of a class, possibly because pupils are not aware of the way this affects their behaviour.

The results are neutral concerning the question whether song can clarify difficult language, though there are indications that it can. More research is required.

The results of this study indicate that there is no reason not to do justice to song lyrics as a literary art form, and present song lyrics in song in a first language class, even if they are usually covered as poems. There are several opportunities to discuss the effect of the music on the interpretation of the meaning of the words, most of them not outlined here, although there was some attention to musical effects in the class, for example to the associations provoked by the 'Wilhelmus' melody used for 'Duyvelsliedeken' (Devil's song), or the martial rhythm in 'Slaet op den trommele' (Beat the drum). What is more, the results of this study indicate that presenting song lyrics in song supports pupils' perceptiveness for the text and subsequently supports recall for the lyrics and their content, which opens up possibilities for other uses of song, such as prompting a theme for a writing class (as advocated by Dethier, 2003). Introducing song in a class may have the additional effect of making the class more engaging. However, it would be best to play a song with the lyrics printed out or projected, accompanied by listening instructions or even interrupted for comments.

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APPENDIX

Appendix A. Songs and instruments pieces of music in the order in which they appear in the course

Song (poet and/or composer, title, (performers))	URL or CD reference
Sweelinck, 'Fantasia' (Glenn Gould)	https://www.youtube.com/watch?v=iMdrWICPSvE
Anonymous, 'Nu sijt willecome' (Egidius quartet)	CD in book, Roelvink, V., Gegeven den sangeren
Van Wintelroy, 'Al is den tijt' (Egidius quartet)	CD in book, Roelvink, V., Gegeven den sangeren
Anonymous/Mes, 'Ic segh adieu' (Camerata T.)	https://www.youtube.com/watch?v=RHeejbPHFQs
Anonymous, 'Stouerliedeken' + 'Ic segh adieu'	https://www.youtube.com/watch?v=-f1MO76khow
Vos, 'Slaet op den trommele' (QkeleQ's remix)	https://www.youtube.com/watch?v=WyDaxs3LCYQ
Vos, 'Slaet op den trommele' (Van de Merwe)	https://www.youtube.com/watch?v=C3DeBtmY3i4
Vos, 'Slaet op den trommele' (Camerata T.)	CD, De Vrede van Münster (The peace of Münster)
Anonymous, 'Merck toch hoe sterck', (??)	https://www.youtube.com/watch?v=Q_2auYMS-VM
Mozart, Variazione su Willem van Nassau	https://www.youtube.com/watch?v=NOvOGjcCa5o
Datheen (?), Wilhelmus (original melody,	https://www.youtube.com/watch?v=tH06g6LIn1o
Camerata T.)	
Duyvelsliedeken (Camerata T.)	CD, De Vrede van Münster (The peace of Münster)
Brederode, Boerenkermis (Zijlstra)	https://www.youtube.com/watch?v=ahgZYmPP3Iw
Brederode, Wat jy soect soec ik mee (Zefiro	https://www.youtube.com/watch?v=C8uxU1i0_Wc
Torna)	
Huyghens, 'Hoe is't beloven' (Camerata T.)	https://www.youtube.com/watch?v=i6CvkchiOBU
Vondel/Boësset, Waer wert oprechter trou' (??)	https://www.youtube.com/watch?v=eUBFF9mAz-A
Vondel/Padbrué, O Kersnacht (Camerata T.)	CD, Theatermuziek uit de gouden eeuw (Dutch
	Theatre Music 1600-1650)

SUPPLEMENTARY MATERIALS

1. Summary of the instruction letter for teachers

(For the complete text in Dutch, see Schotanus, 2020b, pp. 454-461)

The instruction letter for the course 'Literatuurgeschiedenis met muziek' (Literary history with music) was provided to each teacher in one of two versions. Parts of the instruction letter were in bold, meaning: 'this is what pupils need to remember'.

Please note that the instruction letter was meant for colleagues who were familiar with the original course, who had a theory book and a workbook at their disposal (Van der Meulen & Van der Pol, 2011), and who were free to elaborate on

their favourite topics or to include videos, art, et cetera in their lessons. Therefore, the instructions in the letter are largely in keywords, except when something new is introduced. In both versions the letter consists of five sections. It also includes answers to the questions in the booklet with poems/lyrics.

• In the first lesson, the teacher explains how the economic and cultural success of the cities in the Low Countries led to a powerful civic culture embracing Humanism, the Renaissance, Protestantism and ultimately a conflict with the Spanish king. Two important aspects of this culture were music (with the Franco-Flemish composers becoming famous all over Europe) and an increase in literature created by citizens, often organised in literary societies. Their members ('Rhetoricians') were keen on elaborate rhyming, the use of refrain lines, and a final strophe (the so-called 'prince') dedicated to someone special, usually the society's president. Furthermore, many song lyrics were meant to be sung to pre-existing melodies, which should contribute to making them popular, a practice which is called 'contrafacture'.

In both versions the teachers are instructed to play a piece of instrumental polyphonic music while the pupils enter the classroom (i.e., Glenn Gould playing Sweelinck, https://www.youtube.com/watch?v=iMdrWICPSvE).

In both versions, teachers are also instructed to play one strophe of 'Ic seg adieu' (I say goodbye), to read the entire text oud loud and to discuss it based on three questions: What is the situation in this song? How do you feel about this story? Do we recognize features connected to Rhetorician poetry? One strophe was played in all groups.

In version 1, the teachers are also instructed to illustrate polyphonous songs by playing Jan van Wintelroy's 'Al is den tijd nu doloreus; den mei staat schoon' (Although times are hard, May is a beautiful month), or 'Nu sijt wellecome' (a Dutch Christmas carol), performed by Egidius Kwartet, form a CD belonging to Roelvink, V., Gegeven den Sangeren: Meerstemmig muziek bij de Illustre Lieve Vrouwe Broederschap in 's-Hertogenbosch in de zestiende eeuw (Polyphonous music at the Illustre Lieve Vrouwe Broederschap in 's-Hertogenbosch in the sixteenth century), 's-Hertogenbosch: Adr.Heinen Uitgevers.

In version 2, the teachers are instructed to play a medieval psalm sung to the melody of 'Ic seg adieu': https://www.youtube.com/watch?v=-f1MO76khow

 The second and third lessons are dedicated to the so-called Opstand (Rebellion), i.e. the Dutch Republic's War of Independence. For the first lesson, the teacher is asked to play a hardstyle remix of 'Slaet op den trommele' (Beat the drum), a song from that war. https://www.youtube.com/watch?v=WyDaxs3LCYQ Teachers are instructed to link the Rebellion to the emergence of the rich and powerful cities in the Low Countries, the self-awareness of their citizens, and the popularity of anti-hierarchical Protestantism. Several songs should be played and discussed. In particular 'Slaet op de trommele' (Beat the drum) and 'Merck toch hoe sterck' (Note how strong). In both songs, several features of Rhetorician poetry should be identified. The literariness can be contrasted with the songs' purpose (war songs) and their popularity, which lasted into the twentieth century.

In version 1 'Slaet op de trommele' should be presented in song, in version 2 the text should be read out loud and only one strophe should be presented in song.

For the third lesson, the teachers are instructed to play Mozart's Wilhelmus Variations while the pupils enter the classroom, and after that to discuss the 'Wilhelmus', the Dutch national anthem (and the changes to its melody). The entire text should be read out loud and each strophe should be related to five 'goals': 1 Gaining money among German monarchs; 2 encouraging the Dutch people; 3 defending William of Orange's fleeing to his family's properties in what is now Germany, 4 defending William of Orange's revolt against the king of Spain with the argument that God has more authority than the king; 5 portraying William as a leader. Once again, Rhetorician features should be identified, in particular the very specific interpretation of the Prince-strophe. This is dedicated to God, not the king, which underpins the argument made that God is to be obeyed above the king.

In addition, the 'Wilhelmus' is contrasted with 'Duyvelsliedeken', a contrafact using the melody of the 'Wilhelmus' to protest against William of Orange's son Frederick Henry and his army and their cruel manners. In version 2 'Duyvelsliedeken' should be presented in song, in version 1 the text should be read out loud, and only one strophe should be presented in song.

- Mid-term evaluation (start of the fourth lesson).
- The instructions for the next lessons are not as elaborate as the instructions for the first three lessons. The teachers should cover several topics in the same way as before, but three songs should be included. One is to be played in all groups ('Boerenkermis' [Farm fair] https://www.youtube.com/ watch?v=ahgZYmPP3Iw), one is to be played in the groups following version 1 (and read out loud the other in groups https://www.youtube.com/watch?v=C8uxU1i0_Wc), and one is to be played in the groups following version 2 (and read out loud in the groups following version 1, https://www.youtube.com/watch?v=sb41wauTma0). Both 'Boerenkermis' and 'Een oud bestevaertje en een jong meisje' are examples of jocular songs, typical of moralistic city culture, and are to be discussed in connection with other moralistic texts, drawings and paintings. The third song ('Hoe ist beloven'

[How can it be that promising]) by Constantijn Huygens) is an example of Petrarchism and is to be covered within the context of sonnets and emblems in Petrarchan style. An interesting point is that the poet (who was the personal secretary of the Princes of Orange) wrote about Petrarchan unattainable love while in fact he was missing his wife while he was travelling with Frederick Henry.

- The partition of the instruction letter suggested a writing class. For example: create a war song, a 'refrain' in Rhetorician style or a Petrarchan love song. However, there was no time for that.
- The last two or three lessons should be dedicated to Renaissance drama, And in particular Vondel's famous play 'Gijsbrecht van Aemstel'. As is the case in classical literature, the play consists of five acts, interrupted by choruses commenting on the action. Originally these choruses were sung. However, they are now usually treated as poems. Although, one of them is sometimes used as a Christmas carol. Two of these choruses were included in the lesson. The content was discussed in connection with the play's action. Again, the versions of the instruction letter differed in terms of which song was to be played and which one was to be read out loud. The songs were on a CD.

2. List of poems/lyrics in the booklet

Literatuurgeschiedenis, 16^e en 17^e eeuw, teksten [Literary history, 16th and 17th century, texts: booklet]

- 1 'Ic seg adieu' (I say goodbye) A lover says goodbye, he has to leave the town, but he will love the other until death. A song with six strophes in which strophes 1, 3 and 5 have a refrain line that differs from 2, 4 and 6. Complete lyrics: https://www.dbnl.org/tekst/duys001oude01_01/duys001oude01_01_0193.php
- 2 'Slaet op den trommele' (Beat the drum) A war song against Spain, the Catholic Church and the Inquisition. It consists of 11 short strophes, each of which has three highly anaphoric lines and a closing line. The text is both engaging and difficult, including several metaphors. There is also a 'double' prince. First a strophe dedicated to the enemy (Granvelle) and then, finally, a real prince, William of Orange. Complete lyrics: https://www.dbnl.org/tekst/duys001oude02_01/duys001oude02_01_0184.php
- 3 'Wilhelmus van Nassouwe' (William of Nassau [i.e. William of Orange]) Dutch national anthem. William tells who he is, what he and his family have done for the Low Countries, he talks about his determination to free them and states that he is still a man of honour although he has fought against his king. He has done so because the king's will contravenes God's will. It has 15 strophes, the first letters of which form William's name: WILLEM VAN NASSOV. Complete lyrics: https://www.koninklijkhuis.nl/onderwerpen/volkslied/tekst-van-het-wilhelmus
- 4 'Duyvelsliedeken' (Devil's song), Richard Verstegen (?) Text from a pamphlet against the military campaign of Frederick Henry through the south of the Netherlands in 1622, aiming for retribution. The melody of the Wilhelmus was used to criticize William of Orange's son, by 'praising' him derisively. Complete lyrics: https://www.liederenbank.nl/text.php?recordid=95623&lan=nl

5 'Een oudt Bestevaertje, met een iong Meysjen' (An elderly man with a young girl), Gerbrand Adriaansz. Bredero – Duet between a young girl and an elderly man, in which the young girl rejects his proposal with an ambiguous comment: what you are searching for, I am searching for as well. The scene is depicted in several works of art and is linked to a paragraph of Erasmus' Praise of folly. Complete lyrics: https://www.dbnl.org/tekst/bred001groo01_01/bred001groo01_01_0238.php

6 Lied voor Sterre (Song for Sterre [Star]), Constantijn Huygens – Petrarchan love song. It artfully plays with the elements of this kind of poetry. The beloved is a star which can and cannot see her lover. Hope seems to be gone. Complete lyrics:

https://www.dbnl.org/tekst/huyg001kore02_01/huyg001kore02_01_0009.php

7 and 8 'O kersnacht' (O, Christmas eve) and 'Waer werd oprechter trouw' (Where was truer loyalty). Choruses from the play *Gijsbrecht van Aemstel*. The first is a Christmas carol first depicting the cruel infanticide of Bethlehem and then asking Rachel (symbol of mourning mothers) to stop mourning, as these children are martyrs. The parallel with the play is that Amsterdam will be burnt down, but that Gijsbrecht, the city's Lord, should not mourn as the city will rise again. The second chorus claims that loyalty between partners is stronger than loyalty between mother and child. The connection with the play is that Gijsbrecht's partner Badeloch refuses to flee from the bloodshed in Amsterdam with her children as long as Gijsbrecht does not go with her. Complete lyrics:

https://www.dbnl.org/tekst/duys001oude03_01/duys001oude03_01_0025.php

https://www.liederenbank.nl/canon_top11.php?zoek=171

The lyrics of the other songs discussed in the class were not in the booklet, either because they were in the Textbook, or because they were provided by the lyric video.