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Music Teachers' Ability to Identify Healthy and Unhealthy Vocal Behaviors

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Abstract

Teachers across all disciplines are at elevated risk for voice disorders, yet researchers indicate that many educators lack comprehensive knowledge of behaviors that support vocal health. This study examined whether music K-12 teachers (n = 79) could accurately identify healthy and unhealthy vocal behaviors while viewing short video clips of teaching. Behaviors were classified as healthy or unhealthy a priori by a licensed speech-language pathologist with expertise in voice disorders. Some participants correctly identified drinking water and using nonverbal commands as healthy strategies, and recognized throat clearing as an unhealthy behavior. In contrast, most teachers struggled to recognize behaviors such as talking over singing, maintaining proper posture, and turning the entire body toward students when speaking rather than turning only the neck. While some participants successfully identified and rated easily observable behaviors as healthy or unhealthy, subtler behaviors were less frequently identified. These findings suggest that, although some music teachers may recognize obvious vocal health practices, others are unable to do so. Also, many were unable to identify more subtle behaviors that can influence vocal health. The results underscore the importance of incorporating explicit instruction about vocal behaviors into teacher preparation programs. Implications for both teacher training and future research examining how recognition of healthy practices translates into actual classroom behavior are discussed.

Keywords: *vocal health, music teachers, vocal hygiene, voice disorders, vocal habits*

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Music Teachers' Ability to Identify Healthy and Unhealthy Vocal Behaviors

Teachers of all subjects are recognized as a group at risk for voice disorders (Roy et al., 2004; Smith et al., 1998; Titze et al., 1997; Zhou & Niu, 2015), and they report significantly more voice problems than professionals in other fields (Cutiva et al., 2013). Teachers at the K-12 level who self-reported voice complaints experienced a broader range and higher frequency of vocal symptoms, including hoarseness and throat dryness, compared to teachers who did not self-report voice complaints (Rodrigues et al., 2013), and these symptoms interfere with daily activities and quality of life (Chen et al., 2010). Vocal problems also affect teachers' ability to work consistently. Giannini et al. (2015), in a case-control study using the Conditions of Vocal Production-Teacher (CVP-T) and the Work Ability Index (WAI), found a significant association between voice disorders and decreased work ability. Collectively, these studies demonstrate the significant personal and professional impact of voice disorders among teachers. The researchers point to the need for a closer examination of vocal health research, everyday vocal behaviors, and knowledge of vocal problems and healthy vocal practices. Although this body of research focuses on teachers, similar vocal demands are present in other music leadership contexts, where sustained voice use is also required.

Vocal Health Research and K-12 Teachers of All Subjects

The treatment of voice disorders for teachers and the associated work days lost are estimated to cost approximately $2.5 billion in societal expenses (Verdolini & Ramig, 2001). Consequently, researchers emphasized prevention over reactive treatment. Hazlett et al. (2011), in a comprehensive literature review of professional voice users, highlighted prevention of voice disorders as a key implication for vocal health. De Alvear et al. (2009) emphasized:

> It is also necessary to improve teachers' preventive culture and their self-consciousness about vocal problems so that they start considering their vocal health a preventive objective, instead of assuming voice disorders as inevitable consequences of their job or eventual diseases to be treated. (p. 134)

Researchers have suggested that vocal health training might be able to prevent vocal abuse (Duffy & Hazlett, 2004; Richter et al., 2016; Smith et al., 1998). However, Roy et al. (2001) noted that vocal hygiene alone may not suffice for treating teachers with existing vocal problems, and Hackworth (2007) found significant improvements only when music teachers received both vocal hygiene instruction and behavior modification. Despite issues like dropout and non-compliance in their study, Ohlsson et al. (2016) concluded that vocal hygiene programs can have preventive effects. Fritzell (1996), in a comprehensive study across occupations, found teachers to be particularly vulnerable to voice disorders. Fritzell said, "teachers constitute a particularly vulnerable group and need voice care much more often than might be expected from a statistical point of view" (p. 10). Van Houtte et al. (2011) reported that

25% of teachers sought medical care, approximately 20% missed work, and only 27% had received any vocal care training. Recommendations for vocal health training include public speaking and presentation skills, foundational vocal knowledge (anatomy, medical management), and ongoing instruction throughout a teacher's career.

Environmental factors, such as poor classroom acoustics, contributed to voice complaints (Cutiva & Burdorf, 2016). Cutiva and Burdorf (2015) measured sound levels and reverberation times in classrooms and found that high noise levels around schools increased reported voice symptoms. Particularly, high noise levels surrounding the school (main streets, airports, commercial areas, etc.) led to an increase in reported voice symptoms. This is consistent with earlier findings that music teachers perceive the most vocal stress associated with noise in and around the classroom (Hackworth, 2006; Hackworth, 2009). Students' ability to understand disordered voices in noisy environments may also be impaired, particularly for nonnative speakers and students with hearing or language deficits (Schiller et al., 2020).

Teaching effectiveness can be compromised by vocal problems. In one study, teachers reported vocal fatigue at the end of the day (60%), hoarseness (55%), and some degree of vocal effort (81.5%) when teaching (de Alvear et al., 2011). Sapir et al. (1993) found that more than half of surveyed teachers considered their voice a constant source of stress or frustration, often due to its interference with teaching.

While research addressed teachers' vocal health broadly, some researchers focused specifically on K-12 music teachers. Brown (2020) examined music teachers' self-perceptions of vocal health and job-related stress, finding a relationship between stress and vocal health that may contribute to teacher attrition. Baker and Cohen (2017) reported that training could reduce vocal misuse among music educators and therapists. Grady and Brunkan (2022) investigated how choral educators incorporate vocal health, anatomy, and pedagogy into rehearsals, concluding that "the longevity of healthy singing depends on choral music educators/conductors' continued learning and applying best practices in vocal health and pedagogy for all singers" (p. 153). Hackworth (2023) also stressed the importance of vocal disorder prevention education for music teachers. Given evidence of significant vocal health risks among middle school choral teachers, Schwartz (2009) highlighted the need for systematic vocal health education during preservice preparation. Overall, evidence supports vocal health training as a critical component of music teacher education.

Although a substantial body of research has examined vocal health in teachers, much of this work relies on self-reported data, including teachers' perceptions, experiences, and self-assessments of vocal use and symptoms. Fewer studies have employed experimental or intervention-based designs that examine the effects of specific vocal health strategies on behavioral or health outcomes. This distinction is important, as self-reported awareness of vocal health does not necessarily correspond to the ability to recognize or implement healthy vocal behaviors in practice. The present study addresses this gap by focusing on teachers' ability to identify observable vocal behaviors in controlled video examples.

Vocal Behaviors

Vocal behaviors in the classroom can be conceptualized as either *healthy* or *unhealthy* based on their potential to support or compromise vocal efficiency, tissue health, and cumulative vocal load during prolonged voice use (Titze, 1994; Verdolini & Ramig, 2001). Healthy vocal behaviors are those that reduce vocal demand, promote efficient phonation, and minimize unnecessary muscular tension, such as maintaining hydration, using voice conservation strategies, and supporting balanced posture and alignment (Boone et al., 2020; Roy et al., 2004). In contrast, unhealthy vocal behaviors increase vocal effort or phonotraumatic risk and include behaviors such as speaking in noisy environments, habitual throat clearing, and voice use in suboptimal postures, which have been associated with the development or aggravation of voice problems in teachers (Sapir et al., 1993; Titze, 2006). Accordingly, the present study focuses on a set of classroom-relevant vocal behaviors that are both frequently discussed in the vocal health literature and commonly observed in music teaching contexts.

Drinking Water

Researchers studied the effects of hydration on the voice and found that their results support the general idea that hydration may improve vocal fold function (Franca & Simpson, 2012; Laver et al., 2019). Franca and Simpson (2012) studied the effects of hydration by purposely creating a dehydration condition (fasting for 12 hours) in female subjects, and subsequently rehydrating subjects by having them drink one liter of water over a period of 20 minutes. Their conclusions included the idea that rehydrating the vocal folds replenished enough moisture to create an ideal condition for vocal fold movement. Similarly, Laver et al. (2019) reported that systemic hydration was associated with improvements in acoustic and phonatory measures of voice, supporting the inclusion of hydration as a foundational component of vocal hygiene practices.

Nonverbal Commands

Focusing students' attention does not always have to involve speaking. A teacher may rest and preserve the voice by using nonverbal commands (Doherty, 2011). Nonverbal commands not only help preserve the voice but can have other positive effects in the classroom. These positive effects can include gaining students' attention, signaling that it is time to transition from one activity to another, or aiding communication with students whose first language is something other than English (Battersby & Bolton, 2013).

Body Position

Studying muscular tension in the vocal mechanism and body position, Kooijman et al. (2005) found that assessing the relationship of tension and body position is paramount in diagnosing voice disorders. This assessment may lead some SLPs to anecdotally suggest that teachers maintain a forward-facing posture when addressing a group of students in a music

classroom, enabling students to better hear instruction and preventing the teacher from having to strain the voice. SLPs might also recommend that teachers opt for a seated position while playing the piano and conducting a choir, instead of a standing position that requires bending forward over the keyboard and straining the neck.

Talking Over Music

Persistent speaking over music or ambient noise can contribute to vocal problems (Smith & Sataloff, 2006). Even if teachers are aware of background noise in the classroom, they might not realize how often it causes them to speak louder or the potential risks involved in doing so (Schwartz, 2012/2013). Brown (2017) found that music teachers with vocal issues more frequently talked over singing or playing instruments, suggesting a habit that may contribute to dysphonia. Brown's conclusions were that teachers could become skilled at using more nonverbal gestures. This would help them become more aware of when they were talking during music making and work to reduce incidents of it.

Clearing the Throat

Throat clearing may be detrimental to vocal health because it can cause irritation and potential damage to the vocal folds, leading to chronic inflammation and long-term voice problems. Researchers have shown that frequent throat clearing can become habitual, and investigators warn that it "becomes a habit that can contribute to the swelling of the vocal folds. As the folds swell, the individual feels the need to cough or clear the throat even more, aggravating the situation further" (Smith-Vaughn et al., 2013, p. 408). This cycle of irritation and swelling has implications for professional voice users, including teachers, whose vocal demands may exacerbate the effects of repeated throat clearing. Other researchers suggested that habitual throat clearing can serve as the source of a voice problem that interferes with everyday speech, potentially resulting in conditions such as vocal nodules, polyps, cysts, or vocal hemorrhaging (Heman-Ackah et al., 2008).

Teachers' Limited Knowledge of Vocal Problems and Healthy Vocal Behaviors

Researchers have suggested that many teachers have limited awareness of the vocal risks associated with teaching and how these risks may affect their vocal health. Only 38% of teachers in one study specifically made a connection between the act of teaching and the occurrence of voice problems (Smith et al., 1998). Thomas et al. (2006) studied female student teachers and female workers in the general population, both groups having voice complaints. Less than one-half of the student teachers and less than one-fifth of the general population had awareness of the risks their professions posed on their voice. The student teachers had neither a sense of the impact of risk factors on their voice, nor did they understand how risks in future teaching might negatively impact their voices. Although some researchers found a more general lack of awareness about voice disorders, others have concluded that teachers

want to know more. In Yiu's (2002) study, teachers were interested in learning more about strategies to care for their voice, and this implies they do not already have knowledge of vocal hygiene behaviors.

Even teachers with some vocal health awareness may still have limited knowledge. Being unaware of voice care seems to be the case more than having the wrong information. One researcher stated, "Though the teachers and MAE [Master of Arts in Education] students knew more about voice care than the general university population, they were still highly uninformed, potentially leaving them vulnerable to vocal hazards in the teaching profession" (Kuchler, 2012, p. 46). Kuchler's conclusion was that more participants responded with *I don't know* to questions on Kovacic's Voice Care Questionnaire (KVCQ) than incorrect responses, implying they are more unfamiliar with voice care than misinformed about it. Kuchler also said it is difficult to determine how long it may take to make healthy vocal behaviors habits because that has been largely unstudied to date.

A large portion of neglect of the voice may be because teachers are simply not aware of the best ways to care for their voices (Stephenson, 2018). Teachers may also be in denial about vocal problems (Natour et al., 2015; Mehta et al., 2016). When a researcher studied three musically trained elementary music teachers in a case study to gain an in-depth explanation of their perceptions of voice use in teaching, none of the teachers had received any type of vocal health training (Stephenson, 2018). Stephenson gathered information through interview, observation, the Voice Handicap Index (VHI), and the Singing Voice Handicap Index (SVHI). Findings indicated that teachers often overlook vocal care due to more immediate demands on their time. Stephenson stated, "Our voices are integral to who we are and what we do, and yet they are often overlooked in importance until they are damaged." (p. 215). It is interesting that all three teachers in Stephenson's study self-reported no vocal problems or mild vocal problems on the VHI and the SVHI; however, Stephenson noted that at the time of the interview, two teachers were hoarse and one had to reschedule the interview due to having lost their voice. This may suggest that teachers often view themselves as vocally healthy, but in fact have symptoms that they either do not see as a problem or are unaware of the shortcomings (Natour et al., 2015, p. 15; Mehta et al., 2016). Stephenson (2018) stated, "If teachers are not aware of the connection between what they choose to do, what they are required to do, and how these truths are evidenced in their voice, then teachers cannot make concrete choices about their vocal health" (pp. 206-207).

A lack of awareness can lead to a failure to seek treatment for voice disorders (Russell et al., 1998). When Schwartz (2012/2013) studied middle and high school choral directors, findings indicated that teachers may be unable to accurately self-report vocal problems due to a general lack of awareness. When comparing voice care knowledge between subjects with and without dysphonic voice disorders, Fletcher et al. (2007) found those with voice disorders demonstrated less knowledge of vocal care than subjects with healthy voices. When teachers misuse their voice, a type of vocal damage known as dysphonia can occur. Dysphonia is defined as any abnormality in the voice, such as hoarseness (Mosby, 2012). Brown (2017) studied dysphonic and nondysphonic high school music teachers, investigating how much

time they spent talking in the classroom. Findings showed that dysphonic teachers were more likely than nondysphonic teachers to talk for extended periods of time, more likely to talk over noise, and more likely to talk over students making music.

As stated earlier, although Kuchler (2012) observed that participants who had experienced vocal health training responded with *I don't know* significantly fewer times than those with no training, it seems more information is needed to determine if teachers who have training are capable of identifying healthy and unhealthy vocal behaviors. There could also be a disconnect between what participants believe and what is actually happening. Da Costa et al. (2012) reported that 68% of respondents said they knew how to avoid voice problems. Meanwhile, a large number of researchers reported widespread voice disorders among teachers (Chen et al., 2010; Cutiva et al., 2013; da Costa et al., 2012; Roy et al., 2004; Russell et al., 1998). If there are a high number of vocal problems reported by teachers, yet teachers claim to know how to avoid vocal problems, there may be a disconnect. The purpose of this study was to determine if music teachers could recognize healthy and unhealthy vocal behaviors when viewing short video clips of music teaching.

The research questions guiding this investigation were:

1. When viewing short video clips, what vocal behaviors, if any, can music teachers identify as healthy or unhealthy?

2. If able to identify vocal behaviors as healthy or unhealthy, can music teachers describe the vocal behaviors they see?

3. How healthy or unhealthy do music teachers rate the vocal behaviors they identify in video clips?

Method

Research Design and Expert Consultation

This study investigated whether K–12 music teachers could identify healthy and unhealthy vocal behaviors in short video clips of classroom teaching. Prior to data collection, I consulted with a licensed speech-language pathologist (SLP) to discuss common vocal demands encountered by music teachers and to determine which vocal behaviors would be most representative of everyday classroom practice. Applying clinical expertise, the SLP selected six vocal behaviors and classified them as either healthy ($n = 3$) or unhealthy ($n = 3$). The healthy behaviors were: (a) drinking water, (b) using nonverbal commands, and (c) facing students with the entire body rather than turning only the neck. The unhealthy behaviors were: (a) talking loudly over music, (b) clearing the throat, and (c) using poor posture while conducting from the piano.

Some behaviors might be more easily identified than others. The SLP pointed out that

turning the neck repeatedly while talking or singing can cause vocal stress, but it was unknown if any teachers would be able to recognize this subtle behavior. Similarly, the standing position while playing piano necessitates leaning over the keyboard (often with the shoulders hunched) and straining the neck to see and address the students. This behavior might also be somewhat difficult to identify as an unhealthy vocal behavior.

Video Preparation

As established by previous researchers, short video excerpts have been used to examine participants' understanding and perception of teaching-related behaviors (Blocher et al., 1997; Killian, 2001; Standley & Madsen, 1991). In the present study, video clips were intentionally designed as controlled examples to isolate individual vocal behaviors rather than to represent the cumulative vocal demands of a full teaching episode.

To create the video clips, four music teachers were recruited to perform the designated behaviors while teaching. Each teacher was coached to ensure accurate portrayal of a single targeted behavior per clip. Recordings were captured using a third-generation iPad with an autofocus 5-megapixel iSight camera and HD (1080p) video capability. Clips were edited to 15–20 seconds, with the duration selected to provide sufficient visual and auditory context while minimizing confounding variables such as duration, intensity, or frequency of voice use.

The categorization of healthy or unhealthy for the vocal behaviors in the video clips was intended to reflect behaviors commonly discussed as *supportive of* or *potentially detrimental to* vocal health when used habitually in classroom settings, rather than diagnostic judgments based on brief exposure. Short video excerpts were used to focus participants' attention on specific teaching actions rather than on instructional change. That decision is consistent with prior video-based research examining teachers' initial noticing of instructional behaviors (Seidel & Stürmer, 2014). Table 1 summarizes the video clip topics and their corresponding classifications.

Table 1
Video Clip Content

Video clip topic	Label
Teacher takes a sip of water while conducting a rehearsal	Healthy
Teacher uses nonverbal commands while teaching	Healthy
Teacher turns entire body towards the group she addresses (rather than just turning her head)	Healthy
Teacher talks over the singing	Unhealthy
Teacher clears his throat multiple times	Unhealthy
Teacher is standing while playing piano and conducting, hunching over and straining the neck	Unhealthy

Participants and Recruitment

Participants were K–12 music teachers (n = 79) from the southeastern United States. Recruitment occurred via email invitation, with a reminder sent two weeks later. A total of 450 recruitment emails were distributed. Of these, 55 were returned as undeliverable or indicated that recipients were retired or on leave, resulting in 395 viable invitations. The response rate was 20%. Most participants taught at the elementary level (77%), with the remainder at middle school (15%) and high school (8%). The sample included 46 women (58%) and 33 men (42%), with more than half (57%) reporting over 10 years of teaching experience. Only 13% had completed a course in vocal health or vocal pedagogy, and 33% had attended a workshop or conference session on vocal health. See Table 2 for a complete listing of demographic information for participants.

Table 2

Demographic Information for Participants

Categories	Percentage of total (*N*=79)	*n*
Gender		
Female	58%	46
Male	42%	33
Self-described	0%	0
Age		
18-26 years	22%	18
27-36 years	20%	16
37-46 years	25%	20
47-56 years	31%	24
57-66 years	2%	1
Teaching Level		
Elementary School	77%	61
Middle/Jr. High School	15%	12
High School	8%	6
Subject		
General Music	52%	42
Choir	31%	24
Band	12%	9
Orchestra	0%	0
Other	5%	4

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Categories	Percentage of total (*N*=79)	*n*
Years of Teaching Experience		
1-4 years	29%	23
5-9 years	14%	11
10+ years	57%	45
Vocal Problems		
Diagnosed	0%	0
Undiagnosed	2%	1
Both Diagnosed and Undiagnosed	10%	8
None	69%	51
I Don't Know	19%	15
Ever Been Under a Physician's or Therapist's Care for Vocal Problem?		
Yes	7%	6
No	93%	73
I have taken:		
A course in vocal health	13%	10
A workshop or conference session on vocal health	33%	26
Neither	54%	43

Procedure

The study was approved by the university's Institutional Review Board, and the six video clips were embedded in a Qualtrics survey. The video clips were available to participants for eight weeks. Teachers who agreed to participate viewed the six video clips and were given the following instructions for each:

1. Watch the video clip. Do you believe this teacher is performing a behavior that might be healthy or unhealthy for their voice?

2. (*Depending on the answer given for number one, participants received one of the following instructions*): Please describe the healthy vocal behavior you saw.
   Or, Please describe the unhealthy vocal behavior you saw.

3. (*If participants identified a behavior in number two, they received one of the following instructions*): How would you rate the healthy behavior you saw on a scale of 1 (slightly healthy) – 10 (extremely healthy)? *Or*, How would you rate the unhealthy behavior you saw on a scale of 1 (slightly unhealthy) – 10 (extremely unhealthy)?

If a teacher did not identify anything in the video clip that they thought was a healthy or unhealthy vocal practice, they were directed to the next video clip.

Data Analysis

Responses were analyzed by noting (a) the percentage of teachers labeling each behavior as healthy, unhealthy, or neither; (b) the percentage of teachers who correctly identified the behavior by name; and (c) the mean and standard deviation of healthy/unhealthy ratings for each behavior. This combination of categorical and descriptive data provided insight into both recognition and interpretation of vocal health practices.

Results

This study's purpose was to determine if music teachers could recognize and identify healthy and unhealthy vocal behaviors when viewing short video clips of music teaching. If teachers were able to recognize the behaviors as healthy or unhealthy, they were then asked to identify the behavior by name. Finally, they were asked to rate how healthy or unhealthy they believed the vocal behaviors were.

Drinking water was identified as healthy by 63% of participants, and 93% of those correctly named the behavior. Teachers rated it as healthy (M = 8.40, SD = 1.29). Using nonverbal commands was identified as healthy by 52% of participants, with 78% naming it correctly; ratings were also rated as healthy (M = 8.10, SD = 1.24). Throat clearing was the most widely recognized unhealthy behavior: 82% of participants identified it, with 86% correctly naming it. It received a mean unhealthy rating of 7.66 (SD = 1.66). Talking over singing was less consistently recognized, with only 24% identifying it as unhealthy, though all of those who did correctly named the behavior. Its mean rating was 7.79 (SD = 1.18).

Turning the entire body toward students (classified as healthy) was identified as healthy by 49% of participants, yet only 8% could correctly name the behavior. Ratings averaged 7.14 (SD = 2.01). Poor posture while conducting from the piano (classified as unhealthy) received mixed responses: 40% identified it as unhealthy, 47% as neither, and 13% as healthy. Of those identifying it as unhealthy, only 12% named it correctly. Its mean rating was 8.00 (SD = 1.14). See Tables 3 and 4 on the next page for clarification of these results.

Table 3

Teachers' (N=79) identification of healthy and unhealthy vocal behaviors

Vocal Behavior	Category	% healthy (*n*)	% unhealthy (*n*)	% neither (*n*)
Drinking Water % correctly identifying behavior by name	(Healthy)	63% (*50*) ↳93%	13% (*10*)	24% (*19*)
Using Non-Verbal Commands % correctly identifying behavior by name	(Healthy)	52% (*41*) ↳78%	0% (*0*)	48% (*38*)
Turning entire body towards a group when talking % correctly identifying behavior by name	(Healthy)	49% (*39*) ↳8%	0% (*0*)	51% (*40*)
Talking over Singing % correctly identifying behavior by name	(Unhealthy)	37% (*29*)	24% (*19*) ↳100%	39% (*31*)
Clearing Throat % correctly identifying behavior by name	(Unhealthy)	8% (*6*)	82% (*65*) ↳84%	10% (*8*)
Poor Posture – standing while playing piano % correctly identifying behavior by name	(Unhealthy)	13% (*10*)	40% (*32*) ↳12%	47% (*37*)

Table 4

Ratings of vocal behaviors - healthy or unhealthy

Vocal Behavior	Rating Scale	*M*	*SD*	*n*
Drinking Water	1 (slightly healthy) – 10 (extremely healthy)	8.40	1.29	50
Using Non-verbal Commands	1 (slightly healthy) – 10 (extremely healthy)	8.10	1.24	41
Turning entire body towards a group when talking	1 (slightly healthy) – 10 (extremely healthy)	7.14	2.01	39
Talking over Singing	1 (slightly unhealthy) – 10 (extremely unhealthy)	7.79	1.18	19
Clearing Throat	1 (slightly unhealthy) – 10 (extremely unhealthy)	7.66	1.66	65
Poor Posture	1 (slightly unhealthy) – 10 (extremely unhealthy)	8.00	1.14	32

Discussion

The purpose of this study was to determine if music teachers could recognize healthy and unhealthy vocal behaviors when viewing short video clips of music teaching. If teachers were able to recognize the behaviors, they were asked to identify the behaviors by name. Finally, teachers were asked to rate how healthy or unhealthy they believed the vocal behaviors were. The study was designed as an investigation of teachers' awareness and recognition of selected vocal behaviors, rather than any type of evaluation of a deeper understanding of vocal health.

Findings suggest that music teachers can reliably identify overt vocal behaviors such as drinking water, using nonverbal commands, and avoiding throat clearing, but experience greater difficulty recognizing subtle practices such as posture, body alignment, and speaking over music. Teachers' recognition of hydration and nonverbal strategies is promising, though limited to isolated examples (e.g., a sip of water). Recognition of isolated behaviors does not necessarily indicate a deeper or more generalized understanding of vocal health principles; therefore, these findings suggest that professional development may benefit from emphasizing not only the presence of such behaviors, but also their consistent and systematic use. Teachers' ability to recognize throat clearing as unhealthy further supports its inclusion in vocal hygiene training as a clearly recognizable risk behavior. Although these findings are specific to music teachers, they may also have relevance for other musicians who lead ensembles and rely on efficient voice use in similar settings.

By contrast, the lack of consensus about talking over music is concerning. Thirty-seven percent said the behavior was healthy, 24% said unhealthy and 39% said they saw nothing healthy or unhealthy. The vocal health implications for speaking over music can be shaped by various factors such as duration, intensity, and dynamic levels; however, the purpose of the present study was not to examine these variables, but to determine whether teachers could recognize the behavior itself when presented in brief, controlled examples. The lack of agreement among participants suggests that speaking over music may be normalized within teaching practice. This normalization may potentially limit teachers' awareness of its associated vocal risks, despite evidence that it increases risk for dysphonia (Brown, 2017). These findings point to a need for explicit training to help teachers replace this habit with healthier alternatives.

Subtle behaviors such as turning the body toward students when addressing them or maintaining bad posture while playing the piano and conducting were rarely identified correctly. These results highlight the difficulty of recognizing less obvious contributors to vocal problems, especially when they do not immediately appear to strain the voice. If these behaviors are to be integrated into vocal hygiene instruction, they must be taught explicitly, with clear explanations of how posture and alignment influence vocal health.

Implications and Conclusion

Because researchers have determined that teachers often lack a clear understanding of

what constitutes good vocal health behaviors in teaching, I sought to find out if music teachers could recognize healthy and unhealthy vocal behaviors when viewing short video clips of music teaching. The results of this study demonstrate that music teachers readily identify overt vocal behaviors but struggle with more subtle practices that nonetheless affect vocal health. While teachers consistently recognized hydration, nonverbal strategies, and throat clearing, they showed limited awareness of posture, alignment, and talking over singing.

These findings reveal both strengths and gaps in teachers' awareness of vocal health. As Kuchler (2012) noted, the time it takes for healthy vocal behaviors to become habitual remains unstudied. If unhealthy vocal behaviors are used continuously, they may negatively affect student learning, making the teacher's vocal health a matter of both personal and instructional concern (Schiller et al., 2020). These results underscore the need for explicit instruction in vocal health during preservice preparation and ongoing professional development. Such training should address not only well-known strategies but also less obvious behaviors that carry long-term consequences. Future research should examine whether targeted training improves both the recognition and consistent adoption of healthy behaviors, thereby protecting teachers' voices and supporting effective classroom learning. Expanding this line of inquiry to include other ensemble-based music settings may further clarify how vocal health practices function across a broader range of music leadership contexts.

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