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Proceedings of the Fifth International

Technological Directions in Music Learning

Conference

Dr. Scott D. Lipscomb, Editor
Institute for Music Research
The University of Texas at San Antonio

IMR Press

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PRE-SERVICE MUSIC TEACHER ATTITUDES TOWARD AN INTERNET-BASED PRESENTATION OF THE MCCLOSKY TECHNIQUE FOR VOCAL RELAXATION

Richard S. Repp
University of Illinois
rrepp@uiuc.edu

The fact that one cannot turn on the television or open a magazine without being inundated with information about the popularity of the World Wide Web (WWW) and other aspects of technology-based education has not escaped music educators. One reason music educators have taken notice of the phenomenon is because of the increased presence of technology in their schools. Even though schools are dedicated to increasing Internet access for their students, doubts remain among practicing teachers as to whether the Internet improves education. Teachers' attitude toward the technology are of the utmost importance. The pedagogical material presented with technology must be acceptable to teachers or the computers will simply to be left unused in classrooms.

We cannot solve the questions regarding the value of these resources without further research into specific areas of music pedagogy applied to presentation on the Internet. Since the technologies are so new, little time has elapsed for researchers to validate the effectiveness of the new learning tools. The technology does not exist in a vacuum. In order to make the technology more than an expensive conversation piece, we must find ways of incorporating technology into our lives and daily activities.

Since teachers are active users of voice—often in a loud environment—the use and misuse of the voice is a concern to the profession. Teachers report that voice problems have interfered with their job performance and future career options (Smith, Gray, Kirchner, & Heras, 1997). Teachers are able to improve their voices by reducing abusive behavior in the classroom (Chan, 1994).

Despite the spread of technology, the number of studies directly pertinent to music education is minimal. Studies specifically concerning singing and voice production are even less prominent. Some articles on the use of video exist, but many are for its use for the appreciation of vocal music such as opera (e.g. Teter, 1991). Studies concerning voice are more likely to focus on easily measurable phenomena such as intonation (e.g. Buck, 1991). Therefore, a need exists for study in the areas of technology and vocal health. In this study, I seek to involve both domains.

The present study grew out of two earlier research efforts. In 1995, I completed a study entitled "Internet Research Tools for Vocalists" (Repp, 1995) which explored the various avenues for research in voice that were available on the Internet. In addition to Internet exploration, I used a series of interviews and on-line research to determine the attitudes of voice teachers and other voice professionals toward Internet resources. In another study entitled "Technology Based Music Instruction" (Repp, 1996), I designed a quasi-experimental study of the needs and effects of WWW pages dealing with Technology-Based Music Instruction (TBMI) on music education students. The focus of the project was the dissemination of information for pre-service music educators wishing to increase knowledge of TBMI.

This study is a report of the extent to which the attitudes of pre-service music teachers were affected by an Internet-based presentation of a voice relaxation process known as the McClosky technique for vocal relaxation. The technique is a self-administered massage therapy covering six areas: the face, tongue, swallowing muscles, jaw, larynx, and neck (McClosky, 1978; McClosky & McClosky, 1975). The experiment contains both quantitative and qualitative techniques in a descriptive paradigm. The subject group (N=28) was chosen from an undergraduate course in choral methods for instrumental majors at a large mid-Western university.

Specific areas of concern were: the attitudes of the subject group toward the McClosky technique, attitudes toward educational technology (specifically its feasibility in the area of vocal production), and how teaching experience, experience with technology, and vocal training correlate with each of these areas. A report of the incorporation of these techniques into the daily phonation practices of the population was

noted. An evaluation of the presentation as an acceptable representation of the McClosky and a discussion of how World Wide Web (WWW) pages can best be designed to improve attitudes were also included.

I was not attempting to determine if the technique was effective in improving the phonation of the subject group. Because of over 50 years of clinical and teaching experience, the McClosky technique for voice relaxation was assumed to be effective in promoting healthy phonation. I also did not intend to design a method of teaching vocal relaxation that was comparable to hands-on instruction. The face-to-face session between a teacher and student is a very powerful bond that I believe cannot be matched by any technology available in the foreseeable future. Instead, I hoped to devise a treatment that was deemed worthwhile by the subjects in the study.

The participants were assumed to have an interest in maintaining healthy phonation because all participants were pre-service teachers who will presumably make a living using their voices. The use of computer technology and the WWW was assumed not to have either a novelty or disruption effect on the participants. The level of technology was familiar to the subject group.

Related Literature

Several attitude scales were examined in the preparation of the survey questions. Woodrow (1991) compared four computer attitude scales (i.e. Gressard & Loyd, 1986; Griswold, 1983; Reece & Gable, 1982; Stevens, 1982). Gardner, Discenza, and Dukes (1993) compared four measures of computer attitude (i. e. Ericson, 1987; Gressard & Loyd, 1984; Maurer & Simmonson, 1983; Raub, 1981). The study found that none of the tests was significantly more reliable than the others.

Since teachers are active users of voice, and often in a loud environment, the use and misuse of the voice is a concern to the profession. Otto has compiled checklists of recent research in vocal abuse (Otto, 1983), vocal therapy and vocal abuse (Otto, 1989), and vocal therapy and surgery (Otto, 1992). Large (1978) described a historical overview of the literature in the area of vocal abuse and misuse dating all the way back to Hypocrites and Aristotle. Some studies exist on voice problems specific to teachers. Smith, Gray, Dove, Kirchner, and Heras (1997) found that teachers were much more likely than the general population to report vocal problems. The study defined teaching as a high-risk occupation for voice disorders. Chan (1994) studied the effect of vocal hygiene education on a group of kindergarten teachers. The two month study exposed teachers to concepts of vocal abuse and vocal hygiene. The subject group showed a significant improvement in voice compared to a control group as assessed by acoustic measures of voice measurement including recordings and electronic measurements. Other studies of vocal hygiene and teachers include Gotias' and Starr's (1993) study of vocal fatigue among teachers and Kaufman and Johnson's (1991) exemplary preventative program for educators.

Although no research exists on the use of the McClosky technique apart from clinical experience, some studies highlight the use of similar techniques. D'Antoni, Harvey, and Fried (1995) found that alternative medicine has found its way into therapy for voice disorders. Their study defined alternative medicine as any practice without enough documentation to clinically show effectiveness. They describe alternative medicines such as Alexander technique, massage therapy, and meditation which have similarities to McClosky's teachings. The area cited which has the most direct application to the this study is massage; in particular, the use of massage in traditional Chinese medicine (e. g. Chen, 1991; Gu & Fan, 1981; Wang, Yu, & Cai, 1993).

The design, development, implementation, and evaluation of electronic technology to aid in the analysis and teaching of voice is of importance to voice professionals. Otto (1984; 1991) has prepared a checklist of research articles containing descriptions of the use of mechanical and electronic research tools for the study of voice. Teter (1996) investigated the effectiveness of the presentation of opera through the technological areas of video and audio. Ester (1992) compared computer-assisted instruction with the traditional lecture presentation in the teaching of vocal anatomy to undergraduate music students with differing learning styles. Ester (1994) developed a HyperCard stack called Hyper Vocal Anatomy to teach laryngeal anatomy to undergraduate music majors. He cites the growing interest in voice science and the importance of an understanding of vocal anatomy in the teaching of voice. Schneider, Schwartz, and Fast (1993) devised a computerized, telephone-based stress management program that was presented to the public via a free "800" telephone number. Maurer and Simonson (1991) examined anxiety and the relationship of previous coursework, relaxation exercises, achievement, and a need for cognition. Subjects

were taken from a teacher preparation course in computers. Freeman, Syder, and Nicolson (1996) designed a multimedia tutorial for students of voice therapy. The tutorial linked a transcript window to a digitized video recording of a diagnostic interview with a patient with a voice disorder. The tutorial contained guidance, assessment tasks, and commentary.

Method

Within the WWW presentation, the participants were first made aware of their legal rights as defined by the University Institute Review Board, and then were asked to complete a pre-survey. Data was collected through a WWW form and was transferred to a FileMaker Pro database using the form handling software, Lasso. Statistical analysis was performed using the SPSS software package. The pre-survey gathered demographic information as well as information concerning vocal training, experience with technology, teaching experience, and attitudes toward educational technology. Attitude measures were in the form of Likert-type responses, with a suggested rubric for each response. In addition, text blocks were added to allow for open-ended responses.

The participants were then exposed to the McClosky technique through a series of WWW pages that included demonstrative video clips, as well as text and graphics. The participants were encouraged to incorporate the technique into their daily phonation for between one and two weeks.

After the time period had elapsed, the participants completed an on-line questionnaire concerning the effectiveness of the pages. The post-survey included a measure of the subject's reaction to the McClosky technique, a report of the number of times the participant incorporated the technique into his or her daily phonation, an assessment of the effectiveness of the presentation of the pages, and repeated questions from the first survey concerning attitudes toward educational technology.

Prior to the study, the materials were evaluated by experts in educational technology, the McClosky technique, and music education. The pages were pilot tested by undergraduate music majors similar to those in the subject population. Statistical procedures were verified by an expert.

Data analysis

Quantitative analysis led to the conclusion that the pages had affected a small increase (.18 on a 7 point scale, $p<.05$) in the mean scores attitudes of the respondents toward educational technology. A question regarding educational technology and its possibilities for the use in vocal techniques did not show a significant change, but yielded some interesting results. Forty-six percent of the respondents changed their attitude towards the use of technology in vocal pedagogy, but not in a consistent direction (25% improvement, 21% worse attitude). This data suggests that a reaction to domain specific information in the area of vocal training technology was highly individualized.

Correlation among predetermined factors through a Spearman rho technique did not yield expected correlations (alpha <= .05, df=27). Despite indications in research literature that, in the general population, experience with technology correlates with attitude, no correlation between technical experience and reactions to this particular presentation proved significant. Because the subject group had similar teaching experiences, the range of responses to questions regarding experience in the classroom did not show enough variation to provide meaningful results. The factor of vocal training did yield a low to moderate correlation with attitude toward the presentation of the WWW pages (rho = .38).

Even though many of the expected correlations did not occur, some notable relationships did. Seventy-one percent of the respondents stated they practiced the technique more than once during the interim time period. Attitude toward technology had a moderate correlation (rho = .50) with the number of times the technique was incorporated into the subject's daily phonation, even though there was no need to use the computer to practice the technique. Reaction to the McClosky technique also correlated low to moderately (rho = .39) with the participants' attitude toward the WWW presentation.

Participants were also asked if they would prefer a paper or on-line version of the technique. Fifty percent of the respondents preferred the on-line version, while 18% stated a preference for a paper version (32% stated no preference). Those preferring a printed version cited access problems and embarrassment in performing the technique in a computer laboratory setting. Those with a preference for the computer cited the use of techniques such as video, interactivity, and ease of use as reasons for the preference.

Analysis of the open-ended responses helped clarify the numerical data. In general, the respondent group felt that computers were important to music education, but some doubts exist as to whether the computer could teach something as intimate as the McClosky technique.

Reaction to the technique itself varied, with mostly positive responses. A few respondents either stated that the technique made them feel uncomfortable, or were not sure if they were "doing it right" without a guide present. Some participants did not feel the technique was useful to them as non-singers, despite the fact that as future teachers they would be high-risk voice users.

Comments on the technical side of the presentation were mostly positive, with positive comments on the use of graphics. Negative comments centered around download time for the video clips and general dislike of computers.

I received conflicting comments on the use of video in the presentation. Those who took the time to download the video found it effective in teaching the technique. Unfortunately, most were not able to overcome either bandwidth problems or other technical hurdles. Several participants reported the movies crashing their systems.

Conclusions

The WWW presentation affected a change in attitude toward educational technology in a group of preservice music teachers. Attitude change toward educational technology for the purpose of vocal techniques was inconclusive. The participant group was positively disposed toward the focus of the pages, i.e., the McClosky technique for vocal relaxation. The predetermined areas of teaching experience, experience with technology, and vocal training could not be shown to have a meaningful correlation with attitude measures. Some participants in the experiment reported incorporation of the technique into their daily phonation in a meaningful way. The fact that the pages elicited a response is notable because of limited exposure to the WWW pages and the short period of time for the experiment.

The pages were a moderately effective method of presenting the information, but the subjects did not reflect as consistently positive attitude as those exposed to the technique in my personal one-to-one teaching. Attitude toward WWW pages can be improved through a liberal use of graphics, minimizing download time, and avoiding cutting-edge technologies beyond the capacity of the computer on which the user views the pages. The combination of WWW forms, Lasso, FileMaker Pro, and SPSS to handle data was effective in reducing time in analysis, but necessitated expertise during setup.

The fact that the subject group, comprised of pre-service teachers, reacted well to the presentation bodes well for the future of technology in music education. Student learning will not take place without impetus from the teacher and a willingness to explore technological avenues once they become commonplace in the classroom.

Because these pages had an effect an the attitude of the subject group and attitude is an important component of learning, further study is necessary to determine how WWW pages affect student learning. The next logical step would be an experimental study that determines whether access to such WWW pages would affect the phonation habits of a participant group. The fact that attitudes toward technology increased, the participants practiced the techniques, and attitude toward the presentation correlated with attitude toward the McClosky technique all suggest that WWW pages deserve attention to determine whether they improve learning in the area of vocal health.

However, in order to make such a determination, practitioners of technology-based music instruction must add to the research base in more than just a developmental capacity (Higgins, 1992). Follow-up studies on the effects of technology and longitudinal comparative studies with traditional teaching methods are necessary to ensure that technology is incorporated into the curriculum in the most effective manner. More studies are needed in the implementation of technology into specific areas of the curriculum. Assuming the Internet continues to be a phenomenon that captures the imagination and resources of the teaching profession, we have the opportunity at this exciting time in history to study the effects of such an implementation on the learning habits of the next generation. Missing such an opportunity—as researchers largely missed the inception of television as a culture-shaping phenomenon—would truly be a waste of potential avenues for a research-based understanding of human interaction in this revolutionary time.

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Pre-service music teacher attitudes toward an Internet-based presentation of the McClosky technique for vocal relaxation

Richard S. Repp

Technological Directions in Music Learning,
5th International Conference
San Antonio, Texas
30 January 1998

What is it?

David Blair McClosky

Open and close your jaw using your hand

(McClosky, 1978; McClosky & McClosky, 1975)

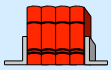
Need

- Computers
  - Otto (1992)
  - Simpson (1996)
  - Higgins (1991)
- Voice
  - Smith, Gray, Dove, Kirchner, and Heras (1997)
  - Chan (1994)
  - Gotias and Starr (1993)
  - Kaufman and Johnson (1991)

Topics addressed

- attitudes toward the McClosky technique
- attitudes toward educational technology
- how teaching experience, experience with technology, and vocal training correlate
- incorporation of these techniques into their daily phonation
- evaluation of the presentation as a representation of the subject matter
- a discussion of World Wide Web (WWW) pages

Related literature



- Freeman, Syder, and Nicolson (1996) designed a multimedia tutorial for students of voice therapy.
- Maurer and Simonson (1993) examined anxiety and the relationship of previous coursework, relaxation exercises, and achievement.
- Ester (1994) developed a HyperCard stack called Hyper Vocal Anatomy to teach laryngeal anatomy to undergraduate music majors

Research methodology

- quantitative and qualitative techniques
- descriptive paradigm
  - No control group

The subject group

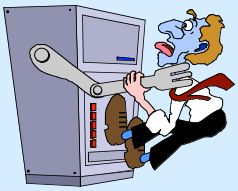
- undergraduates in a choral methods for instrumental majors course
- no voice majors
- N=28

Prior to the study the materials were evaluated by experts

- in educational technology,
- in the McClosky technique,
- and in music education.
- The pages were pilot tested by undergraduate music majors similar to those in the subject population.
- Statistical procedures were verified by an expert.

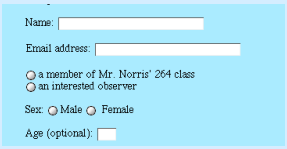
Within the WWW presentation

- a presurvey WWW form



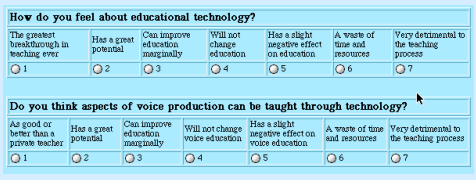
The presurvey gathered demographic information

- vocal training
- experience with technology
- teaching experience
- attitudes toward educational technology



Attitude measures were in the form of Likert-type responses,

- with a suggested rubric for each response
- text blocks were added to allow for open-ended responses.



How do you feel about educational technology?

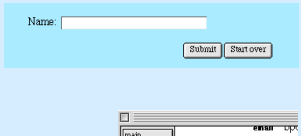
The greatest breakthrough in teaching ever	Has a great potential	Can improve education marginally	Will not change education	Has a slight negative effect on education	A waste of time and resources	Very detrimental to the teaching process
○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7

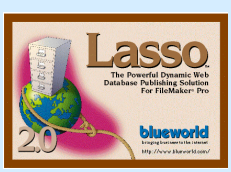
Do you think aspects of voice production can be taught through technology?

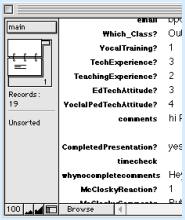
As good or better than a private teacher	Has a great potential	Can improve education marginally	Will not change voice education	Has a slight negative effect on voice education	A waste of time and resources	Very detrimental to the teaching process
○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7

Data handling

- WWW form
- Lasso
- Filemaker Pro
- SPSS

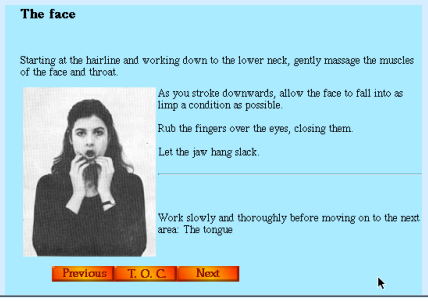






The WWW presentation

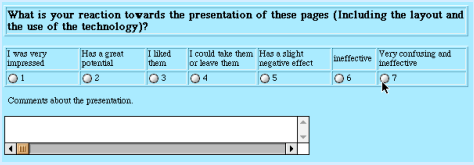
- included demonstrative video clips,
- as well as text and graphics.



The participants were encouraged to incorporate the technique into their daily phonation for between one and two weeks.

The postsurvey

- reaction to the McClosky technique,
- report of the number of times the reader incorporated the technique
- reaction to the effectiveness of the presentation of the pages
- repeated questions from the first survey



Quantitative analysis

- a small increase (.18 on a 7 point scale, $p<.05$, $N=28$) in the mean scores attitudes of the respondents toward educational technology

$$t = \frac{(\bar{X} - \bar{Y}) - (\mu_X - \mu_Y)_{hyp}}{s_{\bar{X}-\bar{Y}}}$$

Technology and vocal techniques

- 46% changed their attitude
  - 25% improvement
  - 21% worse attitude
- domain specific information highly individualized
- or question not clear

Correlations

- Spearman rho technique (alpha <= .05, N=28)
- no significant correlation with technical experience
  - Surprising
- similar teaching experiences limited range of responses
- vocal training yield a low to moderate correlation with attitude toward the presentation of the WWW pages (rho = .38)

$$r = \frac{\sum xy}{n S_X S_Y} = \frac{\sum xy}{n\sqrt{\frac{\sum x^2}{n}}\sqrt{\frac{\sum y^2}{n}}} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$

Promising

- Seventy-one percent of the respondents practiced the technique more than once.

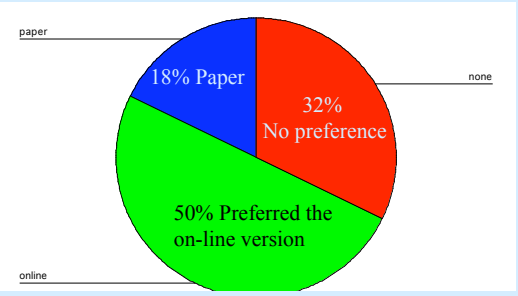
Attitude toward technology

- moderate correlation (rho = .50) with the number of times the technique practiced
  - even though there was no need to use the computer to practice the technique.

Reaction to the McClosky technique

- correlated low to moderately (rho = .39) with the attitude toward the WWW presentation
  - presentation affected response toward subject matter
  - or more supportive people gave higher scores to both

Paper or plastic?

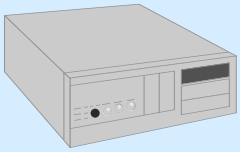


Those preferring a printed version

- access problems
- embarrassment in performing the technique in a lab setting.

Those with a preference for the computer

- video
- interactivity
- ease of use



Analysis of the open-ended responses

- computers were important to music education
  - some doubts exist as to whether the computer can teach something as intimate as the McClosky technique.

Reaction to the technique itself

- mostly positive responses.
- negatives:
  - made them feel uncomfortable
  - not sure if they were "doing it right"

Some participants did not feel the technique was useful to them as non-singers

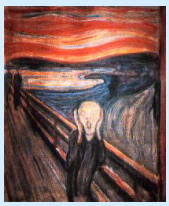
- despite the fact that as future teachers they will be high-risk voice users.
- Disappointing

Comments on the technical side of the presentation

- mostly positive
  - positive comments on the use of graphics.
- negative comments
  - general dislike of computers
  - download time for the video clips

Video

- Those who took the time to download the video found it effective in teaching the technique.
- Problems
  - bandwidth problems
  - crashes



Conclusions

- a change in attitude toward educational technology
  - despite short time period
- no meaningful correlations
  - small sample size
  - homogeneous group
- incorporation into daily phonation

Technical conclusions

- moderately effective method version
  - not reflect as consistently positive attitude as one-on-one teaching
- Attitude WWW pages can be improved
  - liberal use of graphics
  - minimizing download time
  - avoiding cutting-edge technologies

Final word

- The Internet is here to stay
- more study needed
  - not just development

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