

Measuring self-efficacy in music

Laura Ritchie^{1,2} and Aaron Williamon²

¹ Department of Music, University of Chichester, UK

² Centre for Performance Science, Royal College of Music, London, UK

For the musician, belief in one's abilities is of paramount importance to performance success. A fully comprehensive means of measuring musical self-efficacy, however, has yet to be devised and validated. This paper reports a pilot of three new instruments for measuring musical self-efficacy beliefs. Fifty-three tertiary music students completed three questionnaires pertaining to (1) *general* musical self-efficacy, as well as self-efficacy beliefs relating *specifically* to (2) musical learning and (3) performing. The questionnaires were shown to be robust, each achieving a high score for internal consistency. Summative scores were created casewise for each questionnaire, and correlations were found between self-efficacy scores and the self-regulated learning behavior "seek advice from peers, teachers, or others," as measured using a new self-regulated learning questionnaire. Students were significantly more self-efficacious for learning than for performing, and scored lower still on the general scale. Each of these measures correlated with students' self-rated abilities on a range of musical skills and attributes, including musicality, level of perseverance, and the ability to manage stage fright.

Keywords: self-efficacy; self-regulated learning; practice; performance; teaching

Between the conception of an idea, the acceptance of a challenge, and the achievement of a goal is a course of events greatly influenced by a person's beliefs. Although there are many psychological influences on people's actions and achievements, self-efficacy has been shown to have the greatest predictive power of attainment (Zimmerman *et al.* 1992). Self-efficacy encompasses a person's self-beliefs in their abilities to carry out criterial tasks to achieve outcomes (Bandura 1996). It was initially studied in research on phobias (Bandura 1977), and since, the highly self-efficacious person has been

shown to exhibit qualities of resilience and perseverance, a notable capacity to set incremental goals, and a high level of achievement on set tasks (Zimmerman 2000).

The qualities exhibited by a self-efficacious person and the relationship of these beliefs to attainment hold clear relevance for the performing musician. Musicians spend countless hours refining their skills. While studies in academic settings have begun to unpick various components of self-efficacy and have created tools for investigating self-efficacy beliefs, they have featured in only two studies within music. McCormick and McPherson (2003) first explored the predictive power of self-efficacy beliefs by asking 332 students, between the ages of 9 and 18 representing a wide variety of abilities, a single question about their anticipated results just prior to a graded music exam. In a follow-up study, McPherson and McCormick (2006) examined self-efficacy by asking a similar sample an expanded question covering the areas tested in the graded exam. Although these studies have pioneered the investigation of self-efficacy in music (and thereby offer valuable insight into this important construct), there is as of yet no agreed means of measuring it.

The research reported in this article is based on adaptations of a generalized self-efficacy questionnaire used previously in academic contexts. As these beliefs are task-specific, some authors (e.g. Schunk 1996) have suggested that a generalized measure neither adequately corresponds with a domain of functioning nor represents the skills involved in carrying out specific, domain-related tasks. Therefore, the generalized questionnaire was adapted to address music, and then two further questionnaires were devised to address self-efficacy for learning and performing specific musical tasks.

METHOD

Respondents

Music students from the Royal College of Music, London, and the University of Chichester (n=53; 16 male, 35 female), with a mean age of 22.8 years (SD=4.2), volunteered to take part in this study. A full complement of Western classical instruments (including voice) were represented in the sample.

Materials

The validated “General Self-efficacy Scale” of Sherer *et al.* (1982) was employed as the basis for a new “General Musical Self-efficacy Scale.” Only minimal wording changes were made in adapting the original. For example,

“When I make plans, I am certain I can make them work” became “When I plan a musical activity, I am certain I can complete it successfully.”

Developments in self-efficacy research have stressed the need for specificity within a given field and correspondence to a criterial task (Bandura 2001). From the general musical scale, two specific scales for musical learning and performing were developed. The 17 items on the general scale were divided, wording of the statements was altered to correspond to either learning or performing, and statements that could be considered to relate to both were adapted for both scales. This resulted in two new scales, each containing 11 items. The word “try” from Sherer *et al.*'s original scale was changed to “work,” as in “The prospect of failure in this performance will just make me work harder in preparation;” the idea of *trying* (rather than just doing) was not considered conducive to painting an accurate picture of beliefs in one's abilities (cf. Bandura 2001).

Finally, statements in the learning and performing scales were made task-specific (i.e. oriented to a particular goal or event) through a preceding instruction that asked respondents to recall a recent performance in which they held a prominent role (e.g. as a soloist), to imagine that they were to perform a similar program in the next few weeks, and then to respond to the statements with this task in mind. Six items on each of the learning and performing scales were reverse coded.

Procedure

Respondents completed the questionnaires online, and a researcher was present to oversee this process. Students indicated each response on a 7-point Likert-type scale from 1 (disagree) to 7 (agree). Participants also rated their own ability with reference to their peers along 22 separate musical skills and attributes, from 1 (much less) to 7 (excellent), and completed a new questionnaire on musical self-regulated learning based on Zimmerman and Martinez-Pons's (1988) “Self-regulated Learning Interview Schedule” (see Ritchie and Williamson 2007).

RESULTS

Each scale as a whole and its internal components were tested for reliability using Cronbach alpha (α) coefficients. The general musical self-efficacy scale produced $\alpha=0.83$. The learning scale produced $\alpha=0.78$, and its components were robust. The performing scale initially yielded $\alpha=0.68$, just below the established boundary of acceptability at 0.70. The deletion of two scale items raised the overall reliability of the scale, $\alpha=0.74$. The reverse coded items

were converted, and casewise summative scores were created for the three scales, with high scores representing high self-efficacy beliefs.

Pearson correlations yielded the following relationships between the summative scores for the three questionnaires: general-learning ($r=0.59$, $p<0.01$), general-performing ($r=0.57$, $p<0.01$), learning-performing ($r=0.64$, $p<0.01$). The normalized mean scores (i.e. with each score converted to 100% of the maximum score) were: general=75.71 (SD=11.26, SE=1.56), learning=83.41 (SD=11.00, SE=1.51), and performing=79.06 (SD=11.47, SE=1.59).

A repeated measures analysis of variance (ANOVA) was carried out with the scores from the three musical self-efficacy measures as the within-subjects factors and gender (male=16, female=35) as the between-subjects factor. There were no significant differences between men and women's self-efficacy scores overall. There were significant differences between the different self-efficacy questionnaires, $F(2,98)=11.46$, $p<0.01$, partial $\eta^2=0.05$. Furthermore, polynomial contrasts showed a significant linear effect, indicating that scores to the learning scale were higher than the performing scale, $F(1,49)=8.43$, $p<0.01$, partial $\eta^2=0.04$, and a significant quadratic effect, showing a difference between the general scale and the learning and performing scales combined $F(1,49)=14.21$, $p<0.01$, partial $\eta^2=0.07$.

Pearson correlations were run to examine the relationship between students' self-efficacy scores and their ratings of their own ability with regard to 22 musical skills and attributes. Table 1 lists the significant correlations between these skills and the three self-efficacy scales; the general scale alone corresponded to six additional skills not listed in the table.

Table 1. Pearson correlation coefficients showing the relationship between musician's skills and attributes and the general, learning, and performing self-efficacy scales.

<i>Skills and attributes</i>	<i>General</i>	<i>Learning</i>	<i>Performing</i>
Quality/effectiveness of practice	0.53**	0.36*	0.30*
Musicality, interpretative or expressive skills		0.42*	
Level of perseverance	0.63**	0.30*	
Ability to manage stage fright			0.41*
Motivation and drive to excel	0.60**	0.30*	
Overall standard of performance	0.37*		0.30*

* $p<0.05$, ** $p<0.01$

Also, Pearson correlations were run between the self-efficacy scores and the summative self-regulated learning score, as well as that questionnaire's ten component questions. Significant correlations emerged between the item "seek assistance from peers, teachers, or others" and self-efficacy for musical learning ($r=0.37, p<0.01$) and self-efficacy for performing ($r=0.29, p<0.05$).

DISCUSSION

Self-efficacy beliefs are, by definition, task-specific (i.e. beliefs in the ability to carry out an action successfully) and not general beliefs about skills, even within a given field. The significant differences between the specific learning and performing scales reported here—and moreover the differences between these scales and the general scale—demonstrate the need for measurement specificity within a field according to task demands. The general scale, without having the specificity found in the learning or performing scales, reveals information not about musical self-efficacy but self-beliefs that may be considered part of a wider musical self-image.

Having insight into self-efficacy beliefs is important for both students and teachers. Academic studies (Zimmerman *et al.* 1992) have shown self-efficacy to be the greatest predictor of attainment, and this is supported by research in music (McPherson and McCormick 2006). Clearly, a predictor of attainment is desirable in such an attainment-oriented discipline.

Although the research presented here offers new means of measuring self-efficacy for learning and performing, further research using these scales should investigate the relationships of self-efficacy for musical learning and specific self-regulated learning behaviors, as well as self-efficacy for performing and actual performance attainment. It has already been shown that both musical self-efficacy for learning and for performing correlate with participants' current level of seeking assistance from peers, teachers, and others. The different skills that correlate with the specific musical self-efficacy scales (see Table 1) provide researchers further pathways to study these beliefs; qualities of the self-efficacious person, such as perseverance, resilience, and achieving highly (Zimmerman 2000), may be studied in relation to various manifestations of these skills. Furthermore, examining the learning process through self-regulation, practiced in preparation for certain set tasks, could reveal a more multifaceted picture of self-efficacy beliefs. These behaviors and their interrelationships need to be explored further and in detail from students' and their teachers' perspectives in order to achieve a full understanding of self-efficacy beliefs in music.

Gaining insight into specific musical self-efficacy beliefs promises to offer a significant advancements in formulating methods for enhancing student learning and attainment in a self-directed, self-originated way.

Acknowledgments

We wish to thank Graham Welch and the *Investigating Musical Performance* team for their assistance in piloting the self-efficacy and self-regulated learning questionnaires.

Address for correspondence

Laura Ritchie, Department of Music, University of Chichester, College Lane, Chichester, West Sussex PO19 6PE, UK; *Email*: l.ritchie@chi.ac.uk

References

- Bandura A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, pp. 191-215.
- Bandura A. (1996). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, New Jersey, USA: Prentice Hall.
- Bandura A. (2001). *Guide for Constructing Self-efficacy Scales* (revised). Available from F. Pajares, Emory University.
- McCormick J. and McPherson G. (2003). The role of self-efficacy in a musical performance. *Psychology of Music*, 31, pp. 37-51.
- McPherson G. and McCormick J. (2006). Self-efficacy and music performance. *Psychology of Music*, 34, pp. 332-336.
- Ritchie L. and Williamon A. (2007). Self-regulated learning in music. Paper presented at the *Conference on Musical Learning and Teaching*, Rochester, Michigan, USA.
- Sherer M., Maddux J., Mercandante B., Prentice-Dunn S., Jacobs B., and Rogers R. (1982). The self-efficacy scale: Construction and validation. *Psychological Review*, 51, pp. 663-671.
- Schunk D. (1996). Self-efficacy for learning and performance. Paper presented at the *Annual Meeting of the American Research Association*, New York.
- Zimmerman, B. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25, pp. 82-91.
- Zimmerman B., Bandura A., and Martinez-Pons M. (1992). Self-motivation for academic achievement: The role of self-efficacy and personal goal setting. *American Education Research Journal*, 29, pp. 663-676.
- Zimmerman B. and Martinez-Pons M. (1988). Construct validation of a strategy model of student self-regulated learning. *Journal of Educational Psychology*, 80, pp. 284-290.