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Incorporating Motivation Into Your Model of Motor Learning

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WHEN WE EXAMINE THE PROCESS of coaching a singer to acquire new skills or capabilities, several variables are at play. The impacts of practice conditions such as augmented feedback and attentional focus have all been discussed by several authors in this journal, and they remain critical to success in the learning endeavor.¹ The level of attention paid to these elements is justifiable, given that they are the elements of teaching and learning that are most recognizable as under the control of the teacher or coach. They, however, ignore the element that is perhaps most crucial to learning process: learner motivation.

In this periodical, at least two authors have directly addressed the question of motivation in the singing studio. In 2006, Jo Clemens published the results of study examining rapport in the singing studio and its effect on student motivation, noting that a feeling of relatedness between teacher and student fosters student motivation.² Four years later, Robyn Frey-Monell penned a thorough overview of the social cognitive theories of motivation, including application for the singing teacher.³

In the subsequent eight years following Frey-Monell's overview, research regarding the impact of motivation on learning and the factors influencing a learner's motivation has continued apace. In particular, a new model of motor learning has recently been proposed that includes the "motivational and attentional influences on behavior."⁴ Previous models of motor learning have focused primarily on how practice conditions influenced learning outcomes. Lines of research that used these models produced findings that indicate that practice conditions that make performing the new skill more difficult actually foster improved learning of the new skill. Wulf and Lewthwaite, however, argue that such models do not account for how practice conditions can influence learner motivation, and as such are inadequate to fully explain the complexity of the motor learning process.⁵ An important implication of this new model is that it calls into question the magnitude of learning benefit that is to be had by placing the learner in difficult performance environments. Such difficult circumstances (and the corresponding reduction in performance capability) may have a demotivating effect on the learner—offsetting some of the gains in task-related information accuracy. Wulf and Lewthwaite argue:

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We act when future prospects provide a sense that positive outcomes will occur, and perhaps particularly when we believe we will be the agents who bring these positive outcomes to fruition. It is therefore perhaps not surprising that conditions that enhance learners' performance expectancies . . . or support their need to feel autonomous facilitate motor learning.⁶

SUCCESS BEGETS SUCCESS

A 2015 study examined the causal effect of past success on future performance among professional golfers.⁷ The study examined the performance of golfers in professional tournaments in which preliminary rounds are used to either qualify or disqualify players for the final rounds. In the study, players who qualified for the final rounds by slim margins performed better in subsequent tournaments than players who were disqualified for the final rounds by equally slim margins. This effect was larger when the subsequent tournament had higher value purses to be won. These results suggest that past success may somehow enable improved performance in later tasks—particularly when the stakes are raised.

It does not take much effort to imagine a correlating set of circumstances that students of singing may face. Consider the NATS National Student Auditions and the Metropolitan Opera National Council Auditions. If the results of the golf study hold true, the students who are on the cusp, but advance to the national round of the NATS auditions will perform better in the following year's Met auditions than those students who are on the cusp but do not advance. On the surface, this stands to reason; the better singers will continue to rise to the top. This research, however, indicates that on the whole, the singers' success in future auditions is *caused* by their success in past auditions, not simply *correlated* with it. This causal relationship appears to be directly related to the learner's self-efficacy—a person's situation-specific sureness of his/her ability to successfully perform a task to result in a positive outcome.⁸

In a more controlled study, Luigi Pascua et al. investigated the impact of “enhanced performance expectancies” on the learning of an unusual throwing skill.⁹ Half of the subjects in this study were provided with bogus (falsely positive) feedback regarding their performance in comparison to their peers. In so doing, the research team effectively increased those subjects' self-efficacy

regarding this task. The subjects' *learning* of the new skill was measured using retention tests (the ability to perform the skill following a period of time removed from practice) and transfer tests (the ability to transfer the skill to another new, but related task). The results indicated that those subjects who were told they were performing better than their peers during practice performed the skill more accurately during retention and transfer tests (i.e., they *learned* the skill more successfully).

To be clear, the indication here is not that students should be lied to in order to boost their self-efficacy; rather, the results indicate that perhaps being successful during practice sessions (or at least experiencing the perception of success) may be more important to learning the skill than was previously thought. If this is the case, and a learner's self-efficacy is to be regarded as an important element in the learning process, how can we as teachers and coaches influence that self-efficacy in the learning environment we foster?

MOTIVATIONAL EFFECT OF FEEDBACK

The feedback we provide in our studios can result in one or more of several effects on our students' learning processes. Feedback can reinforce behavior, inform the learner regarding performance or results, and/or produce a dependency on the feedback.¹⁰ Most pertinent to the current discussion, however, is the motivational force that feedback can impart on the learner—an effect of feedback that has traditionally been poorly understood. Recently, several studies have indicated that focusing feedback on positive outcomes, while reducing feedback after poor outcomes improves learning.¹¹ One of those studies also concluded that the mechanism by which learning was improved via positive feedback was that such a feedback condition increased the learners' perception of competence (confidence) while decreasing their state of anxiety.¹² In this study, participants were required to learn a novel golf-putting task. Half of the participants received feedback only on their most accurate attempts, while the remaining participants received feedback regarding only their least accurate attempts. On the following day, all subjects performed the task without practice or instruction as a test of skill retention. Participants who received feedback on their more accurate attempts not only performed the reten-

tion test more accurately, but also scored higher on the Competitive State Anxiety Inventory-2 (a 27 item questionnaire validated as a reliable measure of cognitive and somatic anxiety and self-confidence) than their counterparts who received feedback on their less accurate trials.

If focusing feedback on the successes of the learner rather than her/his failures is beneficial to learning, an even more powerful effect can be achieved by judiciously comparing the student's performance to that of his/her peers—a type of feedback known as social-comparative feedback. Motor skill retention has been shown to improve when learners are provided with feedback that suggests their performance is on the whole better than average, creating somewhat of a self-fulfilling prophecy regarding the learner's capability.¹³ In another study, researchers showed that positive social-comparative feedback produced greater satisfaction and desire to learn.¹⁴ While these effects are somewhat intuitive (if you tell someone they are better than average, they will eventually live up to that expectation), what I found most interesting is one study's finding that a control group, who received no social-comparative feedback, performed almost as poorly on the retention tests as the group who received feedback that they were performing worse than their peers.¹⁵ In other words, ignoring students' performance among their peer group is no more beneficial than pointing out that they are not as capable as their peers.

All of these mechanisms for improving learning via motivating feedback (increasing confidence, decreasing anxiety, or positive social comparison) are operating under a larger umbrella of enhancing the learners' expectations for their future performance. To create expectations, individuals draw upon their experience with past performance and, critically, their own perceptions of the success or failure of those past performances. Positive experiences and perceptions of past performances result in *enhanced expectations* for future performance and, in turn, *increased motivation* to continue learning.

PROMOTING AUTONOMY

In addition to enhancing learners' expectations, another means of increasing motivation and improving learning is to promote autonomy for the learner. Decades of

research have indicated that allowing an individual to exercise some amount of control over his/her environment is not only beneficial, but perhaps even necessary.¹⁶ Further, motivation appears to be tied to the perception that one can control some elements (no matter how trivial) of her/his own environment.¹⁷

One way to enhance autonomy in the singing studio is to give the student some control over elements of the practice/instructional environment. Allowing students to have input regarding delivery of feedback (timing, content, etc.), content of the lesson (to the extent reasonable within institutional demands), instructional language (inviting students to explore their own performance rather than dictating their results), or even simply the order in which individual elements may be practiced have all been shown to result in improved learning.

Allowing students to engage in more choice-making regarding their learning experience again improves their confidence and self-efficacy.¹⁸ Circling back to enhanced expectations, autonomy in the learning environment also allows students to self-select when they receive feedback. When given this opportunity, learners tend to choose to receive feedback following successful attempts rather than following less successful attempts—a feedback condition we have already discussed as beneficial to the learning process.¹⁹

FOSTERING MOTIVATION IN THE STUDIO

In previous models of motor learning theory, motivation has been largely ignored—ostensibly under the assumption that it is out of the control of the teacher/coach/instructor. Motivational consequences of instructional choices have, however, been included as a central element in the new model of motor learning proposed by Wulf and Lewthwaite. In light of this model, some suggestions can be made for creating a studio environment that fosters motivation.

First, feedback should focus on summarizing the successes of the learner, rather than drawing attention to failures. While this seems elementary on the surface, I would wager that most of us are listening to our singers with an ear to identifying and correcting what is going wrong. All too often, we then verbalize that list of what is going wrong back to our students as our primary mode of feedback. While “The Diagnosis

and Correction of Vocal Faults” is the heart of our profession, evidence suggests that the “correction” portion is best served by focusing feedback on what is not at “fault.”²⁰

Second, comparing students positively with their peers can benefit the learning process. Clearly, the ethical singing teacher cannot simply tell all of their students that they are above average. Perhaps one solution for fostering positive social-comparative feedback is to find areas in which each singer *is* performing better than most of their peers and focus feedback on that area. The learner will still have the opportunity to realize the learning benefit, and the truthfulness of the teacher’s feedback will be maintained.

Finally, students should be given the opportunity, wherever possible, to exercise agency in their learning experience. Teachers should employ language that invites students to take ownership of their lesson, assessing their performance, forming hypothesis regarding success or failure, and testing those hypotheses in subsequent performance attempts. Invite students to self-direct the timing of the feedback they receive and the form in which they receive it. Even allowing students to have some sense of control over the repertoire they learn and the order in which they practice it can result in significant benefits to their confidence, self-efficacy, and ultimately learning.

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