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**Optimizing Optimal Experiences: Practical Strategies to Facilitate Flow for 21st-Century
Music Educators**

Leonard Tan and Hui Xing Sin

Abstract

In 1990, psychologist Mihaly Csikszentmihalyi warned against an excessive emphasis on how well music learners perform rather than on the experiential aspect of music in and of itself. While the former approach is, in his words, “a source of psychic disorder,” the latter approach offers access to “flow”: the optimal, enjoyable, meaningful, and happy state. What might an approach to music education that aims to optimize optimal experiences (i.e., flow) look like? This article presents concrete strategies to facilitate flow experiences in music classrooms and rehearsal halls by drawing on flow theory, research findings, and the authors’ own professional and applied experiences. The authors clarify the nature of the flow experience, sketch the benefits of flow, and propose ten strategies to facilitate flow for music educators.

Keywords: flow, learning music education, practical strategies, psychology, 21st-century skills

Even when children *are* taught music, the usual problem often arises: too much emphasis on how they perform, and too little on what they experience. Parents who push their children to excel at the violin are generally not interested in whether the children are actually enjoying the playing; they want the child to perform well enough to attract attention, to win prizes, and to end up on the stage of Carnegie Hall. By doing so, they succeed in perverting music into the opposite of what it was designed to be: they turn it into a source of psychic disorder.¹

These words, written three decades ago by Hungarian-American psychologist Mihaly Csikszentmihalyi in *Flow: The Psychology of Optimal Experience*, appear particularly disturbing in light of the fact that music offers one of the quickest access to “flow,” a psychological state of optimal functioning that is at once enjoyable, happy, and meaningful.² When students are in the flow state while making music, they are totally immersed and appear to lose themselves in the musical activity. How might music educators turn music from being “a source of psychic disorder” *back* to what “it was designed to be,” that is, a flow-inducing experience? In writing about 21st-century education, author and educational technology consultant Cheryl Lemke described flow as “learning with the intensity cranked up—when the learner is at the top of his or her game.”³ Accordingly, what might 21st-century music educators do to optimize optimal experiences (i.e., flow) in their classrooms or rehearsal halls?

In his book *Music Matters*, American philosopher of music education David Elliott emphasized the importance of flow in his Praxial Philosophy of Music Education, and noted that flow experiences are crucial for the acquisition of meaningful music making, personal growth, and musicianship.⁴ For Elliott, the experience of flow through music cuts across cultural borders and time; he explained that “musicers” (i.e., people who make music) engage in “musicing” (i.e.,

active music making) and experience flow through the process. Indeed, research has found that flow may be experienced through engagement in a wide variety of musical activities, including performing, composing, and listening to music.⁵ Flow experiences have also been documented among participants of large ensembles, chamber music, and young children engaged in musical activities.⁶

Given the importance of flow, the purpose of this article is to present concrete strategies to facilitate flow experiences in music classrooms and rehearsal halls by drawing on flow theory, research findings, and the authors' own professional and applied experiences. The authors do so by clarifying the nature of the flow experience, sketching the benefits of flow, and proposing ten strategies to facilitate flow for music educators. Finally, the authors conclude with the value of flow experiences in 21st-century music education.

What is Flow?

According to Csikszentmihalyi, flow is a psychological state where people are so absorbed “in an activity that nothing else seems to matter”; the experience is so rewarding that people engage in an activity for its own sake.⁷ Also known as “peak experience,” “optimal performance,” or simply being “in the zone,”⁸ there are nine dimensions that characterize the flow experience: (1) *challenge-skill balance*, where people’s skill levels are sufficient to meet the challenges of the activity; (2) *clear goals*, where people know precisely what their actions lead to; (3) *immediate feedback*, where people know how well they are doing instantaneously; (4) *unity of action and awareness*, where people’s minds are completely focused on the activity; (5) *concentration on the activity*, where people are so absorbed in an activity that they are free from distractions; (6) *sense of control*, where people experience such a sense of being in control that they are not concerned with failures; (7) *loss of self-consciousness*, where concern for how

people are perceived by others disappears; (8) *transformation of time*, where time seems to either quicken or slow down; and (9) *autotelic experience*, where an activity is done simply for the experience itself.⁹

Benefits of Flow

Flow has been associated with a number of benefits, including affective, psychological, social, and creative ones. Affectively, flow has been found to be an important predictor of music students' subjective well-being and life satisfaction.¹⁰ In other words, music students who experience flow frequently during musical activities are generally happier with their lives; they experience positive affect (e.g., enthusiasm and confidence) more often. Psychologically, flow experiences during band rehearsals have been linked with a number of adaptive dispositions, notably grit while practicing, commitment to band, and mastery goal orientations (i.e., participating in band for its own sake and intrinsic value, as opposed to participating in band to perform better than others).¹¹ Socially, experiences of flow while jamming in a musical group have led to an increase in empathy between group members.¹² Research has also found associations between flow and creativity among university students engaged in group composing, validating the established links between flow and creativity noted by Csikszentmihalyi himself.¹³

Flow is an autotelic experience (i.e., it is intrinsically rewarding). Accordingly, flow promotes intrinsic motivation, an important aspect of education.¹⁴ Indeed, longer engagement with practice has been found to be influenced by the tendency to experience flow during music activities.¹⁵ A study whose participants were ninety classical instrumental musicians found that when participants are in flow, they enjoyed their musical practice, which may in turn result in a lasting love for music and music-making.¹⁶ Flow while practicing has also been linked to

practice efficiency, indicating that those who tend to experience flow during their practice sessions are also more likely to be efficient; the converse is true.¹⁷ The benefits of flow extend beyond the practice studio to the performance itself. Research with music students has found significant negative associations between flow and performance anxiety, suggesting that the more one is in flow, the less one is likely to experience anxiety while performing.¹⁸ This is crucial as performance anxiety is maladaptive and impairs one's performance, regardless of age and the amount of training received.¹⁹

Facilitating Flow

Given the importance of flow in music and music education, a guide that provides practical ideas on how music educators may facilitate flow in their music classrooms or rehearsal halls is important. To be clear, there are no shortcuts to flow.²⁰ However, “being overly intent on attaining flow probably will deny musicians the very experiences they seek.”²¹ Trying too hard to attain flow is akin to trying too hard to fall asleep the night before an important meeting the next morning. Still, one cannot *not* try to sleep early the night before. To plan for an early night, one needs to be rather intentional about, for example, not drinking coffee after dinner, turning off electronic devices one hour before bed, or listening to relaxing music. In other words, one draws on a number of indirect ways to create factors conducive for an early night without worrying about it excessively. Once the worry sets in (i.e., trying too hard), the plan backfires (tossing and turning on the bed; feeling frustrated over “Why am I *still* not asleep?”). Furthermore, to develop the habit of sleeping early, one needs to be intentional about creating factors conducive for an early night over a period of time. Once sleeping early becomes a habit, one does not have to try anymore. As philosopher Edward Slingerland puts it, one “tries not to try.”²²

In like vein, a set of practical strategies to facilitate flow experiences in music classrooms or rehearsal halls cannot be overly contrived. It would be quite unnatural for a director to go, “Hey band, let’s do these to get into flow right now!” Flow cannot be approached in the same direct manner as asking students to “aim and throw the ball into the basket.” Instead, like sleeping early, flow in musical contexts is probably best approached indirectly via its facilitating factors. Although flow cannot be taught, increasing its likelihood is possible by enhancing the preconditions that lead to flow experiences. In what follows, the authors draw on the professional and research literature on flow as well as their personal experiences to propose ten strategies that music educators may draw on to facilitate flow in their classrooms and rehearsal halls.²³

1. ***Consider challenge-skill balance.*** One important prerequisite for entering the flow state is establishing the balance between the challenge of a task and the individual’s skills. The task must be challenging enough to capture a person’s attention, but not so challenging that it cannot be accomplished. When the challenges are deemed too high by the person, anxiety results; on the other hand, if the challenge is deemed too low, the outcome is boredom. Flow occurs at the “sweet spot” between boredom and anxiety, when the perceived challenges are balanced with one’s perceived skills.²⁴ Accordingly, music educators should plan pedagogically sound lesson plans and rehearsals by matching the challenge of the musical tasks with their students’ skills.²⁵ For example, directors of large ensembles should program literature that is neither too difficult nor too easy; similarly, general music teachers can plan music and movement classes where the challenge-skill balance is considered. The consideration of challenge-skill balance takes place throughout the school year and may occur even within a single class or ensemble rehearsal. For example, when a particular passage

has clearly been mastered, the director may up the tempo or task the students to shape it differently. Conversely, when a particular passage is too challenging, the director may rehearse it at a tempo that the students can technically manage.²⁶ In so doing, music educators maximize opportunities for flow experiences—every class, every week, every month, and every year.

2. ***Set clear goals.*** Having clear goals is another prerequisite for flow.²⁷ These goals need to be clearly defined, so that students know what they are expected to do, whether in a music class, rehearsal, or performance. The goals can be made over the long term (one or several years) and over the course of a semester; they can also be set for one specific music class or ensemble rehearsal, or for a particular musical activity or piece that an ensemble is rehearsing. It is crucial to emphasize that goals need not be necessarily set by teachers alone; teachers may guide students in the goal-setting process and gradually empower them to do so. For example, music educators may model how to set goals during practice sessions by using goal-directed strategies (e.g., chunking, slowing, use of metronome, mental rehearsal, and structured routines) that have been found to enhance performance achievement.²⁸
3. ***Cultivate grit.*** Research with university instrumental students has found significant positive associations between flow and grit (i.e., “perseverance and passion for long-term goals”),²⁹ indicating that those who were “grittier” towards practicing were also more likely to be in the flow while practicing on their instruments.³⁰ In fact, compared to other variables (e.g., participants’ self-evaluative, self-reflective and practice tendencies), grit was the strongest predictor of flow.³¹ This can be explained by flow theory: as students who are “gritty” may practice more, they become more

highly skilled, allowing them to meet the demands of the music they were playing (*challenge-skill balance*), thus facilitating flow. Accordingly, teachers may consider making the cultivation of grit an important aspect of their teaching, such as encouraging students to persevere, to love what they do, and to stay focused on long-term goals.³² When students experience challenges, for example, tonguing a new passage or singing a challenging interval in the general music class, perhaps a simple “Don’t give up!” or “Let’s do it again!” is all it takes to nudge them into developing grit—and experiencing flow.

4. ***Nurture reflection.*** In addition to grit, research with university instrumental students has also found that those who were more likely to reflect while practicing were also more likely to experience flow.³³ Learners who tended to exhibit reflective tendencies also tended to be self-regulated learners (i.e., learners who are motivated to take active charge of their own learning); self-regulation in turn has also been found to predict challenge-skill balance in highly skilled musicians.³⁴ Accordingly, music educators may seek to nurture a reflective attitude by encouraging students to regularly think and reflect on their practice. Useful reflective strategies may include approaches to develop metacognition (such as reflecting on whether the chosen strategies are suitable for the practice goals), self-awareness (such as monitoring oneself for mental alertness), and thoughtfulness (such as stopping purposefully to reflect on how best to solve a particular problem).³⁵
5. ***Empower students.*** Research with music students has found that feelings of autonomy were linked to being in flow.³⁶ Flow was hampered when adults interfered with children’s musical choices,³⁷ and the autonomy to choose musical pieces was

crucial to motivating students to practice and experience joy while doing so.³⁸

Accordingly, whether selecting songs to sing or listen to in the general music class, or setting goals, planning practice sessions, repertoire selection or composing in ensembles, music educators may give their students autonomy and empower them to creatively participate in the decision making process.³⁹ This is supported by psychologists Edward Deci and Richard Ryan's well-known self-determination theory which posits that all humans have needs to make autonomous decisions.⁴⁰

6. ***Promote mastery-approach goals.*** According to Achievement Goal Theory, there are two distinct motivational goal orientations: mastery and performance. While the former refers to learning for its own sake, the latter refers to learning in order to perform better than others.⁴¹ Within mastery and performance goals, researchers have also theorized approach and avoidance dimensions, resulting in four distinct motivational orientations: (1) mastery-approach (i.e., learning for its own sake); (2) mastery-avoidance (i.e., learning to avoid not learning); (3) performance-approach (i.e., learning to ensure that one outperforms others); and (4) performance-avoidance (i.e., learning to avoid performing worse than others). Research with university band students has found that participants who reported higher levels of mastery-approach goals also reported higher levels of flow during band rehearsals.⁴² Accordingly, music educators can cultivate mastery-approach goals in their general music classrooms or rehearsal halls and encourage their students to learn for the sake of learning rather than to perform better than their peers.
7. ***Stay positive.*** In flow research with music students, students who tended to feel negative emotions (e.g., anger, sadness, anxiety, and fear) were less likely to have

challenge-skill balance; those with higher positive affect, on the other hand, tended to have better challenge-skill balance.⁴³ Indeed, having a positive attitude and mindset is germane to facilitating flow experiences.⁴⁴ Whether in the general music classroom or large ensemble rehearsal hall, music educators can inspire their students to be confident, take pride in their learning, enjoy and have fun while making music.⁴⁵ They can also advise students to suspend self-judgement, avoid comparing themselves to their peers, and erase unrealistic and perfectionistic expectations that may contribute to performance anxiety—the antithesis of flow.⁴⁶

8. ***Connect emotionally.*** During music making, flow goes beyond the nine dimensions to include emotional involvement.⁴⁷ Indeed, emotional connectedness with either the music, the audience, or words related to the music is crucial to experiencing flow during performances.⁴⁸ To increase emotional connectedness, music educators may use musical imageries or create musical stories that fit into the music that students are engaged in.⁴⁹ As emotionally expressive music is often flow inducing,⁵⁰ music educators, whether general, instrumental, or choral, can select music that speaks to the heart to facilitate flow experiences among their students. Finally, music educators may get “into the zone” themselves while teaching; this is especially crucial as research based on emotional contagion theory has found that flow may crossover from the teacher to the student.⁵¹
9. ***Flow together.*** Research by psychologist Charles Walker has revealed that experiencing flow with others (i.e., social flow) was more enjoyable than experiencing flow alone (i.e., solitary flow); additionally, highly interdependent team members experienced more joy than their counterparts from less interdependent

teams.⁵² Another psychologist and jazz pianist, Keith Sawyer, posited the notion of group flow: when a group performs “at its peak.”⁵³ According to Sawyer, group flow in musical contexts is greater than the sum of its parts as it can motivate individuals to perform beyond what they can do on their own; individuals inspire and rub off on one another. Research on flow in large ensemble contexts has found that string beginners find playing their instruments in groups enjoyable; additionally, orchestra offers a natural environment for students to develop their skills.⁵⁴ Flow can happen in chamber ensemble settings as well; as researchers Arvid J. Bloom and Paula Skutnick-Henley noted, “flow experiences tended to occur more often in small ensemble situations than while playing alone.”⁵⁵ Music educators, therefore, can and should create opportunities for students to make music together. Whether in duets, trios, quartets, or large ensembles, making music with others in general music and ensemble settings offer opportunities for students to flow together and experience the joy of music with their peers.

10. ***Play through from time to time.*** In rehearsals, it is often easy to be bogged down by details and rehearse in short isolated excerpts with frequent stops. While attention to details is crucial for technical mastery and establishing fine musical nuances, research in the wind ensemble context has found that frequent stops during rehearsals disrupt flow experiences.⁵⁶ This does not mean that conductors should not stop at all during rehearsals, but rather, that the frequency of stopping should be considered. Conductors may also devote time to allow their students to play through without stopping, like mini performance simulations of sorts. These need not necessarily be complete runs of entire pieces, but carefully considered stretches of music that

students have already learned. During these play-throughs, conductors should avoid being overly critical with the technical aspects of the playing; rather they should allow students to play without any interference so as to promote absorption in the process of music-making, thus facilitating flow naturally.⁵⁷

Toward the Future

In sum, to maximize flow occurrences in the 21st-century classroom and rehearsal hall, music educators may consider the ten strategies offered as a point of departure. These include considering challenge-skill balance, setting clear goals, cultivating grit, nurturing reflection, empowering students, promoting mastery-approach goals, staying positive, connecting emotionally, creating opportunities for students to “flow together” with their peers, and making time for play-throughs. When using these ideas that could be used for immediate implementation, students could become more engaged, intrinsically motivated, efficient in their practice, and less anxious while performing; indeed, they could reap the full benefits that flow experiences offer, including affective, psychological, and social ones.

This article began by noting how thirty years ago, Csikszentmihalyi warned against an excessive emphasis on how well music learners perform rather than the experiential aspect of music in and of itself. Csikszentmihalyi’s words are as relevant today as they were in 1990. Indeed, flow is “the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it.”⁵⁸ It is a deeply enjoyable state that transcends time and culture.⁵⁹ While the ten strategies offered here are by no means exhaustive, they nonetheless can help, as Csikszentmihalyi would say, to turn music from “a source of psychic disorder” *back* to what “it

was designed to be”: an optimal experience for human beings that contributes to happier, more enjoyable, meaningful, and fulfilling lives.

Notes

¹ Mihaly Csikszentmihalyi, *Flow: The Psychology of Optimal Experience* (New York: Harper Perennial, 1990), 112.

² Ibid. See also, Csikszentmihalyi, *Finding Flow: The Psychology of Engagement with Everyday Life* (New York: Basic Books, 1997), 29–30.

³ Cheryl Lemke, “Learning Through Technology,” in *21st Century Skills: Rethinking How Students Learn*, ed. James A. Bellanca and Ron Brandt (Bloomington, IN: Solution Tree Press, 2011), 243–72.

⁴ David J. Elliot, *Music Matters: A New Philosophy of Music Education* (New York: Oxford University Press, 1995). See also David Elliott and Marissa Silverman, *Music Matters: A Philosophy of Music Education*, 2d ed. (New York: Oxford University Press, 2014).

⁵ Alice Chirico, Silvia Serino, Pietro Cipresso, Andrea Gaggioli, and Giuseppe Riva, “When Music ‘Flows.’ State and Trait in Musical Performance, Composition and Listening: A Systematic Review,” *Frontiers in Psychology* 6 (2015): 906. It is crucial to add that flow does not occur only in and through music, but may be experienced through a variety of activities. See Csikszentmihalyi, *Flow*, 72.

⁶ Leonard Tan and Peter Miksza, “A Cross-Cultural Examination of University Students’ Motivation toward Band and Academics in Singapore and the United States,” *Journal of Research in Music Education* 65, no. 4 (2018): 416–38; Robert C. Sutton, “Peak Performance of Groups: an Examination of the Phenomenon in Musical Groups,” (Ed.D. dissertation, Pepperdine University, Malibu, CA, 2004); Lori A. Custodero, “Observable Indicators of Flow Experience: A Developmental Perspective on Musical Engagement in Young Children from Infancy to School Age,” *Music Education Research* 7, no. 2 (2005): 185–209.

⁷ Csikszentmihalyi, *Flow: The Psychology of Optimal Experience*, 4.

⁸ Gayle Privette, “Peak Experience, Peak Performance, and Flow: A Comparative Analysis of Positive Human Experiences,” *Journal of Personality and Social Psychology* 45, no. 6 (1983): 1361–68; Brennan R. Payne, Joshua J. Jackson, Soo Rim Noh, and Elizabeth A. L. Stine-Morrow, “In the Zone: Flow State and Cognition in Older Adults,” *Psychology and Aging* 26, no. 3 (2011): 738.

⁹ The nine dimensions of flow are well-known and have been unpacked in several publications. See for example, Csikszentmihalyi, *Flow: Creativity and the Psychology of Discovery and Invention* (New York: Harper Collins, 1996), 107–125.

¹⁰ Barbara Smolej Fritz and Andreja Avsec, “The Experience of Flow and Subjective Well-being of Music Students,” *Psihološka Obzorja* 16, no. 2 (2007): 5–17; Martin Sedlár, “Relationships between Flow Experience, Life Meaningfulness and Subjective Well-being in Music Students,” *Psychologie a Její Kontexty* 5, no. 1 (2014): 89–104.

¹¹ Tan and Miksza, “A Cross-Cultural Examination,” 416–38.

¹² Emma Hart and Zeldi Di Blasi, “Combined Flow in Musical Jam Sessions: A Pilot Qualitative Study,” *Psychology of Music* 43, no. 2 (2015): 275–90.

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- ¹³ Raymond MacDonald, Charles Byrne, and Lana Carlton, “Creativity and Flow in Musical Composition: An Empirical Investigation,” *Psychology of Music* 34, no. 3 (2006): 292–306; Csikszentmihalyi, *Flow: Creativity and the Psychology of Discovery and Invention*.
- ¹⁴ On intrinsic motivation, see for example, Richard M. Ryan and Edward L. Deci, “Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions,” *Contemporary Educational Psychology* 25, no. 1 (2000): 54–67.
- ¹⁵ Ana Butkovic, Fredrik Ullén, and Miriam A. Mosing, “Personality Related Traits as Predictors of Music Practice: Underlying Environmental and Genetic Influences,” *Personality and Individual Differences* 74 (2015): 133–38; Marcos V. Araújo and Christopher F. Hein, “A Survey to Investigate Advanced Musicians’ Flow Disposition in Individual Music Practice,” *International Journal of Music Education* (2018): 1–11.
- ¹⁶ Arvid J. Bloom and Paula Skutnick-Henley, “Facilitating Flow Experiences Among Musicians,” *American Music Teacher* 54, no. 5 (2005): 24–28.
- ¹⁷ Miksza and Tan, “Predicting Collegiate Wind Players’ Practice Efficiency, Flow, and Self-Efficacy for Self-Regulation: An Exploratory Study of Relationships Between Teachers’ Instruction and Students’ Practicing,” *Journal of Research in Music Education* 63, no. 2 (2015): 162–79.
- ¹⁸ Clive J. Fullagar, Patrick A. Knight, and Heather S. Sovern, “Challenge/Skill Balance, Flow, and Performance Anxiety,” *Applied Psychology: An International Review* 62, no. 2 (2013): 236–59; Susanna Cohen and Ehud Bodner, “The Relationship between Flow and Music Performance Anxiety amongst Professional Classical Orchestral Musicians,” *Psychology of Music* (2018): 1–16.
- ¹⁹ Dianna T. Kenny and Margaret S. Osborne, “Music Performance Anxiety: New Insights from Young Musicians,” *Advances in Cognitive Psychology* 2, no. 2–3 (2006): 103–12; Osborne and John Franklin, “Cognitive Processes in Music Performance Anxiety,” *Australian Journal of Psychology* 54, no. 2 (2002): 86–93.
- ²⁰ Csikszentmihalyi, *Finding Flow: The Psychology of Engagement with Everyday Life*.
- ²¹ Bloom and Skutnick-Henley, “Facilitating Flow Experiences,” 27
- ²² Edward Slingerland, *Trying Not to Try: The Ancient Art of Effortlessness and the Surprising Power of Spontaneity* (New York: Crown Publishing Group, 2014).
- ²³ In proposing ten strategies to facilitate flow, the authors are not suggesting that they are the only strategies; there may be more, and future authors may build on this article and future research to posit more strategies in future. In addition, it must be emphasized that the ten strategies do not map directly into the nine dimensions of flow. While the ten strategies emerged from the research and professional literature on flow, the nine dimensions are aspects of flow theory as theorized by Mihaly Csikszentmihalyi; the two are different.
- ²⁴ Csikszentmihalyi, *Flow: The Psychology of Optimal Experience*; Fullagar, Knight, and Sovern, “Challenge/Skill Balance, Flow, and Performance Anxiety,” 236–59.
- ²⁵ In addition to skill being at the right level, Vygotsky’s well-known “zone of proximal development” (i.e., what learners can do with guidance or help) may be useful as well. See, for example, Lev Semenovich Vygotsky, *Mind in Society* (Cambridge, MA: Harvard University Press, 1978).
- ²⁶ It is worth highlighting one challenge of achieving flow in large ensembles: Not every student is at the same challenge/skill level, so differentiation likely needs to occur.

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- ²⁷ Jeanne Nakamura and Mihaly Csikszentmihalyi, “Flow Theory and Research,” in *Oxford Handbook of Positive Psychology*, 2d ed., ed. Shane J. Lopez and Charles R. Snyder (New York: Oxford University Press, 2009), 195–206.
- ²⁸ Peter Miksza, “Relationships among Impulsivity, Achievement Goal Motivation, and the Music Practice of Collegiate Wind Players,” *Psychology of Music* 39 (2011): 50–67; Miksza, “A Review of Research on Practicing: Summary and Synthesis of the Extant Research with Implications for a New Theoretical Orientation,” *Bulletin of the Council for Research in Music Education* 190 (2011): 51–92.
- ²⁹ Angela L. Duckworth, Christopher Peterson, Michael D. Matthews, and Dennis R. Kelly, “Grit: Perseverance and Passion for Long-term Goals,” *Journal of Personality and Social Psychology* 9 (2007): 1087–101.
- ³⁰ Tan and Miksza, “A Cross-Cultural Examination,” 416–38.
- ³¹ Miksza and Tan, “Predicting Collegiate Wind Players’ Practice Efficiency,” 162–79.
- ³² Researchers (e.g., Daniel T. Willingham) have critiqued the notion that grit can be taught. See Daniel T. Willingham, “Ask the Cognitive Scientist: ‘Grit’ is Trendy, But Can It Be Taught?” *American Educator* 40, no. 2 (2016), 28–32. However, Duckworth posits that grit can grow. See Angela Duckworth, *Grit: The Power of Passion and Perseverance* (New York: Scribner, 2016), 59–69.
- ³³ Miksza and Tan, “Predicting Collegiate Wind Players’ Practice Efficiency,” 162–79.
- ³⁴ Araújo and Hein, “Finding Flow in Music Practice: An Exploratory Study about Self-Regulated Practice Behaviors and Dispositions to Flow in Highly Skilled Musicians,” in *Flow Experience: Empirical Research and Applications*, ed. László Harmat, Frans Ørsted Andersen, Fredrik Ullén, Jon Wright, and Gaynor Sadlo (Switzerland: Springer International Publishing, 2016), 25–36.
- ³⁵ Miksza and Tan, “Predicting Collegiate Wind Players’ Practice Efficiency,” 162–79.
- ³⁶ Rafael Valenzuela, Nuria Codina, and José V. Pestana, “Self-Determination Theory Applied to Flow in Conservatoire Music Practice: The Roles of Perceived Autonomy and Competence, and Autonomous and Controlled Motivation,” *Psychology of Music* 46, no. 1 (2018): 33–48. For research with similar findings in the general education context, see Julia Schüler, Kennon M. Sheldon, Mike Prentice, and Marc Halusic, “Do Some People Need Autonomy More Than Others? Implicit Dispositions Toward Autonomy Moderate the Effects of Felt Autonomy on Well-Being,” *Journal of Personality* 84, no. 1 (2016): 5–20.
- ³⁷ Custodero, “Seeking Challenge, Finding Skill: Flow Experience and Music Education,” *Arts Education Policy Review* 103, no. 3 (2002): 3–9.
- ³⁸ Rosane C. de Araujo and Margaret A. de Andraude, “A Study on Teenagers’ Musical Practice and Flow Theory,” *Musicworks: Journal of the Australian Council of Orff Schulwerk* 18 (2013): 19–25; Bloom and Skutnick-Henley, “Facilitating Flow Experiences,” 24–28.
- ³⁹ On how students can participate in decision-making processes, see Steven J. Morrison and Steven M. Demorest, “Once from the Top: Reframing the Role of the Conductor in Ensemble Teaching,” in *Vocal, Instrumental, and Ensemble Learning and Teaching: An Oxford Handbook of Music Education, Vol. 3*, eds. Gary E. McPherson and Graham F. Welch (New York: Oxford University Press, 2018): 283–300; Randall Everett Allsup, “Mutual Learning and Democratic Action in Instrumental Music Education,” *Journal of Research in Music Education* 51, no. 1 (2003): 24–37; and Heidi Westerlund, “Garage Rock Bands: A Future Model for Developing Musical Expertise?” *International Journal of Music Education* 24, no. 2 (August 2006): 119–25.

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- ⁴⁰ Edward L. Deci and Richard M. Ryan, “The “What” and “Why” of Goal Pursuits: Human Needs and the Self-Determination of Behavior,” *Psychological Inquiry* 11, no. 4 (2000): 227–68.
- ⁴¹ John G. Nicholls, “Achievement Motivation: Conceptions of Ability, Subjective Experience, Task Choice, and Performance,” *Psychological Review* 91, no. 3 (1984): 328–46.
- ⁴² Tan and Miksza, “A Cross-Cultural Examination,” 416–38.
- ⁴³ Fritz and Avsec, “The Experience of Flow and Subjective Well-being of Music Students,” 5–17; Sedlár, “Relationships between Flow Experience, Life Meaningfulness and Subjective Well-being in Music Students,” 89–104. On negative affect, see for example, David Watson and Lee Anna Clark, “Negative Affectivity: The Disposition to Experience Aversive Emotional States,” *Psychological Bulletin* 96, no. 3 (1984): 465–90.
- ⁴⁴ Carolyn L. Steckel, “An Exploration of Flow among Collegiate Marching Band Participants,” (Master of Science thesis, Oklahoma State University, Stillwater, OK, 2006).
- ⁴⁵ Bloom and Skutnick-Henley, “Facilitating Flow Experiences,” 24–28; Steckel, “An Exploration of Flow among Collegiate Marching Band Participants,” 31; Sutton, “Peak Performance of Groups,” 91–101.
- ⁴⁶ Bloom and Skutnick-Henley, “Facilitating Flow Experiences,” 24–28; Tim Patston and Osborne, “The Developmental Features of Music Performance Anxiety and Perfectionism in School Age Music Students,” *Performance Enhancement & Health* 4 (2016), 42–49.
- ⁴⁷ On emotional involvement in flow experiences, see for example, Bloom and Skutnick-Henley, “Facilitating Flow Experiences,” 24–28; Alexandra Lamont, “Emotion, Engagement and Meaning in Strong Experiences of Music Performance,” *Psychology of Music* 40, no. 5 (2012): 574–94.
- ⁴⁸ Jessica Ford, “‘Pouring Everything that You Are’: Musician Experiences of Optimal Performance,” (Master of Science thesis, Ithaca College, Ithaca, NY, 2015).
- ⁴⁹ Bloom and Skutnick-Henley, “Facilitating Flow Experiences,” 24–28; Jessica Johnson and Midori Koga, “The Art of Listening with Depth, Understanding, Flow and Imagery,” *American Music Teacher* 56, no. 3 (2006): 22–27.
- ⁵⁰ Bloom and Skutnick-Henley, “Facilitating Flow Experiences,” 24–28; Manuela M. Marin and Joydeep Bhattacharya, “Getting into the Musical Zone: Trait Emotional Intelligence and Amount of Practice Predict Flow in Pianists,” *Frontiers in Psychology* 4, no. 853 (2013): 1–14.
- ⁵¹ Arnold B. Bakker, “Flow among Music Teachers and Their Students: The Crossover of Peak Experiences,” *Journal of Vocational Behavior* 66, no. 1 (2005): 26–44.
- ⁵² Charles J. Walker, “Experiencing Flow: Is Doing It Together Better Than Doing It Alone?” *Journal of Positive Psychology* 5, no. 1 (2010): 3–11.
- ⁵³ Keith R. Sawyer, “Group Creativity: Musical Performance and Collaboration,” *Psychology of Music* 34, no. 2 (2006): 148–65.
- ⁵⁴ Vivian K. Cassie, “An Investigation of Flow Experience in Middle School Beginner String Orchestra Students,” (EdD dissertation, Columbia University, 2011).
- ⁵⁵ Bloom and Skutnick-Henley, “Facilitating Flow Experiences,” 27. It is important to note that ensemble flow has its unique challenges as well, such as the need for interdependence and the involvement of the various ensemble members. On ensemble flow, see for example, Matthew Carter, “Musical Offerings Trading as Conversation in Jazz,” (Master of Arts thesis, City University of New York, 2014).
- ⁵⁶ Barry Neal Kraus, “Musicians in Flow: Optimal Experience in the Wind Ensemble Rehearsal,” (D.M.A. dissertation, Arizona State University, Tempe, AZ, 2003).

⁵⁷ Bloom and Skutnick-Henley, “Facilitating Flow Experiences,” 24–28; Sutton, “Peak Performance of Groups,” 91–101.

⁵⁸ Csikszentmihalyi, *Flow*, 4.

⁵⁹ For more information about cross-cultural empirical research on flow in the context of music education, see Tan and Miksza, “A Cross-Cultural Examination,” 416–38.