

Naturally emerging self-regulated practice behaviors among highly successful beginning recorder students

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ABSTRACT The purpose of this research study was to extend current scholarship on self-regulated practice behaviors of young instrumentalists to the general music recorder classroom. This qualitative study explored the reflections of successful beginning recorder players in relation to the self-regulated practice model. Interviews were conducted with three high-achieving third-grade recorder players and responses were coded for themes relating to self-regulated practice. Results support the notion that self-regulation is an important component of effective practice and implications for music educators are explored. The study represents an unprecedented examination of the practice behaviors of children just beginning recorder study, and provides music educators with practical, research-based strategies for improving group recorder instruction in the elementary grades.

KEYWORDS: *general music, meta-cognition, self-regulation, strategic practice*

Introduction

Musical practice and its constituent strategies have long been a subject of interest for musicians, researchers and music education professionals worldwide. All parties are interested in how musical skill develops through practice, how practice can be approached most effectively, how expert musicians utilize specific strategies during efficient practice and how these techniques might be explicitly taught to aspiring young musicians. In general, research has shown a positive relationship between deliberate practice and musical achievement (Ericsson, Krampe, & Tesch-Romer, 1993; Jørgensen, 2002; O'Neill, 1997; Sloboda, Davidson, Howe, & Moore, 1996; Williamon & Valentine, 2000) and it is widely accepted that 'formal effortful practice is a principal determinant of musical achievement' (Sloboda et al., 1996, p. 287). It has also been suggested that as musical expertise develops, distinct changes in practice behaviors emerge (Barry & Hallam, 2002; Gruson, 1988; Hallam, 1994), implying that explicit instruction in these strategies might improve efficient practice as students develop as musicians.

Hallam (2001) defined effective musical practice as ‘that which achieves the desired end-product, in as short a time as possible, without interfering negatively with longer-term goals’ (p. 28). She also listed a range of tasks, stating that successful musicians must be able:

to recognize the nature and requirements of a particular task; to identify particular difficulties; to have knowledge of a range of strategies for dealing with these problems; to know which strategy is appropriate for tackling each task, to monitor progress towards the goal and, if progress is unsatisfactory, acknowledge this and draw on alternative strategies; to evaluate learning outcomes in performance contexts and take action to improve as necessary in the future. (2001, p. 28)

Clearly, practice is a complex and multi-faceted undertaking that requires a compendium of related musical and metacognitive skills that develop over the course of many years. The implication for educators is that they need to provide young students with an awareness of the components of effective practice early on in their musical careers. Armed with these skills, they might engage in more productive practice sessions, progressing more quickly and avoiding the ‘sheer tedium and frustration that can result when children have no clear idea of why and how they should be learning’ (Pitts, Davidson, & McPherson, 2000, p. 54).

Self-regulation theory and instrumental practice

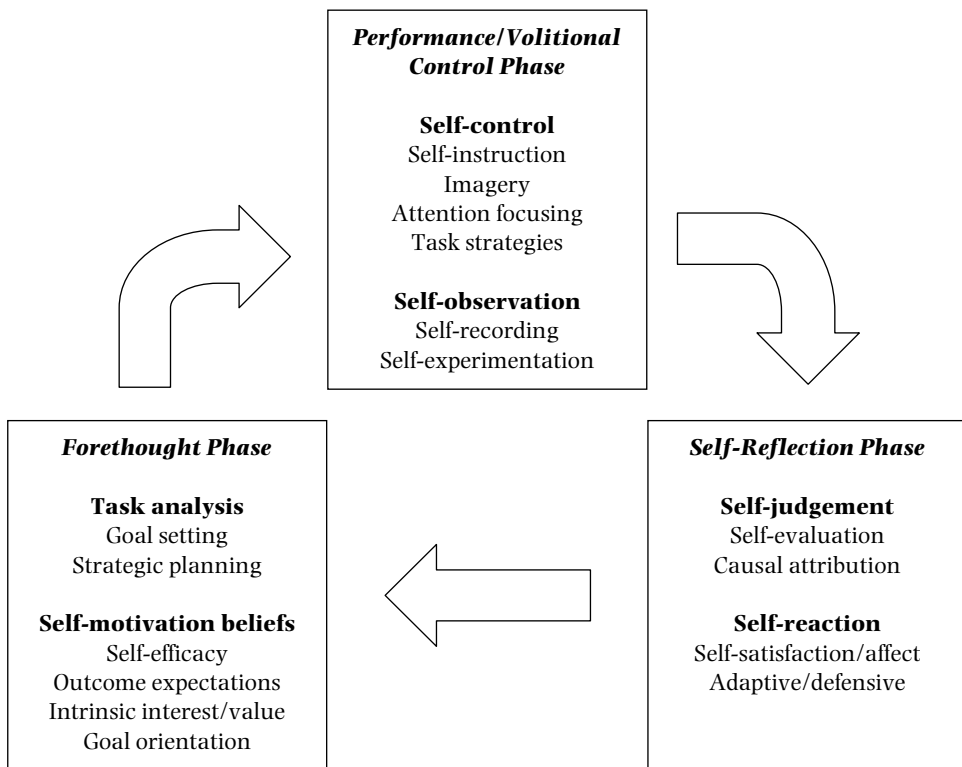
In recent years, researchers have embraced the theory of self-regulation as a useful framework through which to explore the processes involved in effective practice. Zimmerman described self-regulation as a process that emerges when students are ‘metacognitively, motivationally, and behaviorally active participants in their own learning process’ (1986, p. 308). Self-regulation in this sense ‘is not seen as a fixed characteristic, but rather as a set of context-specific processes that students select from in order to accomplish a task’ (McPherson & Renwick, 2001, p. 170). Zimmerman (1994, 1998) outlines six psychological dimensions related to self-regulation ‘which appear to be consistent over a range of disciplines such as music, sports, and academic learning’ (McPherson & Renwick, 2001, p. 170). It is thought that self-regulated processes employed during instrumental music practice affect or relate to one or more of the dimensions forwarded by Zimmerman. Table 1 outlines these six psychological dimensions of self-regulated learning (Motive, Method, Time, Behavior, Physical Environment and Social Factors) and identifies self-regulatory processes associated with each.

Zimmerman conceived of self-regulated learning as an ‘open-ended cyclical process that occurs in three phases: forethought, performance/volitional control, and self-regulated learning’ (McPherson & Zimmerman, 2002, p. 340; see Figure 1). Additionally, Zimmerman (2000) suggested that:

self-regulation has social origins and emerges in four distinct levels: observation, emulation, self-control, and self-regulation. Technically this is not a developmental model, but a hierarchical learning model based on the proposition that learners who follow the sequence will learn more effectively and in a more self-regulated way. (McPherson & Zimmerman, 2002, p. 343; see Table 2)

TABLE 1 *Dimensions of musical self-regulation, based on McPherson & Zimmerman (2002)*

Psychological dimension	Self-regulation process
Motive	Self-set goals, self-reinforcement, and self-efficacy
Method	Self-initiated covert images and verbal strategies
Time	Time use is self-planned and managed
Behavior	Performance is self-monitored and evaluated
Physical Environment	Environments are structured by self
Social Factors	Help is sought personally

FIGURE 1 *Self-regulated learning cycle phases, reprinted from McPherson & Zimmerman (2002).*

This conception of the emergence of self-regulated learning implies that its component skills and strategies can be taught across ages and are not developmentally dependent but hierarchical in nature.

The literature related to self-regulated music practice is still limited, although it has grown markedly over the past three decades. A number of survey and interview

TABLE 2 *Developmental levels of regulatory skill, reprinted from McPherson & Zimmerman (2002)*

Level	Name	Description
1	Observation	Vicarious induction of a skill from a proficient model
2	Emulation	Imitative performance of a general pattern or style of a model's skill with social assistance
3	Self-control	Independent display of the model's skill under structured conditions
4	Self-Regulation	Adaptive use of skill across changing personal and environmental conditions

studies have investigated cognitive strategy use among professional and student musicians (Austin & Berg, 2006; Hallam, 2001; McPherson, 1997; McPherson & McCormick, 1999; Nielsen, 1997, 1999, 2001). Additionally, several longitudinal studies grounded in self-regulatory theory have provided the research community with rich descriptive data regarding the naturally emerging practice behaviors of children, identifying strategies employed during practice and implications for educators (McPherson, 2005; McPherson & Renwick, 2001; Pitts et al., 2000). In general, a synthesis of the self-regulated practice literature indicates that musicians (expert and novice) attaining high levels of musical achievement tend to engage in strategic and metacognitive approaches to practice (Hallam, 1994, 1997; McPherson, 1997; McPherson & McCormick, 1999; Nielsen, 1997, 2001). Research also suggests that children demonstrate lower levels of metacognitive awareness than expert musicians and have a tendency to consider repetition of selections or 'playing through the music' as representative of practice (Gruson, 1988; Hallam, 1997; Renwick & McPherson, 2000).

Self-regulated strategy use in practice

McPherson (1997) explored the cognitive strategies employed by high school instrumentalists in relation to their ability to sightread, play by memory, play by ear and improvise. Results indicated that across performance measures, the highest achieving musicians were those that 'had a rich repertoire of strategies which they used when preparing to perform' (p. 70). McPherson highlighted the importance of instructing students in strategic practice and also emphasized the importance of encouraging aural and creative activities that seem to play a vital role in musical development beyond the reproduction of printed music.

A study conducted by McPherson and McCormick in 1999 provided additional information regarding the self-regulated components of student musicians' practice. The authors surveyed 190 Australian pianists (9–18 years of age) preparing for their graded performance examinations, a population considered to be high achieving based on their involvement in this assessment. The results of the self-report questionnaire indicated that higher levels of practice correlated with increased cognitive

engagement and intrinsic motivation. The authors contend: 'It may be the students who are more cognitively engaged while practicing not only tend to do more practicing but are also more efficient with their learning' (p. 101).

A 2001 study by Hallam investigated the metacognitive strategies applied by professional musicians and novice string players (aged 6–18 years) as they undertook individual practice. Hallam found that professional musicians used a wide range of variable metacognitive strategies adopted in response to their particular needs during a practice session. Professional musicians were able to 'identify their own strengths and weaknesses, assess task requirements, and develop strategies to overcome particular task difficulties and optimise performance' (p. 37). Conversely, novice musicians had a smaller, less developed repertoire of strategies on which to draw, and they were not focused on improving performance through the use of metacognitive techniques. Similarly, Nielsen (1997, 2001) investigated strategy use among college-level organ players, identifying several key self-regulating practice behaviors including goal setting, strategic planning, self-instruction, task-specific strategies and extensive self-evaluation. Both authors commented on the wide range of strategies employed by their respective subjects and Hallam posited that it is a common 'knowledge base that enables [professional musicians] to assess the requirements of a task, identify difficulties, recognize errors, monitor progress and take appropriate action to overcome problems' (Hallam, 2001, pp. 37–38).

A 2006 survey study exploring the self-regulatory habits of sixth-grade band and orchestra students found that inexperienced players engaged in less strategic practicing, while a strategic approach emerged in more motivated and regulatory students after even a short period of study (Austin & Berg, 2006). Strategies employed by highly motivated and self-regulated learners included repetition, simplification, mental rehearsal, marking music, consulting aural models and self-evaluation.

It is apparent from the efforts of these researchers that there is some relationship between cognitive strategy use during practice and musical achievement, with high-achieving student and professional musicians utilizing self-regulating strategies more frequently and more effectively. These results suggest that educators should include instruction in metacognitive skills, and strategy selection and application, within the context of instrumental music lessons for young children in order that they may employ these skills in more efficient and effective practice sessions. In light of this research, it becomes clear that 'practice will only become purposeful and self-determined when the pupil has a range of "task oriented strategies" to draw upon' (Hallam, 1998, p. 140).

Self-regulated practice among children

A 2000 collection of case studies (Pitts et al.) found that three young wind players (aged 9–10 years) used relatively few cognitive strategies for improving their performance during practice sessions. The most common activity these children undertook was playing through assigned repertoire without stopping to correct mistakes or isolate difficult passages. The authors suggest that these case studies 'highlight the need for systematic teaching of practicing strategies' (p. 54) and further stress

that 'teachers have an important role to play in fostering skills of self-criticism and evaluation' (p. 54).

A 2001 longitudinal study by McPherson and Renwick followed the practice habits of seven young instrumentalists who were between seven and nine years of age. The researchers, who regularly videotaped practice sessions across three years, found no evidence of deliberate practice strategies being used. Rather, as with the Pitts et al. study (2000), they observed that the students spent most of their practice time playing straight through pieces without stopping to fix errors. The report highlighted the inability of the children to correct pitch errors, suggesting that students were not able to process the aural feedback provided by their instrument. It was also observed that a great deal of time was devoted to non-playing activities. The tendency to waste practice time on non-playing activities, such as changing the music or daydreaming, implies that it may be more effective for teachers to assign a series of specific practice tasks to students, particularly in the early years of practice, when self-regulation is developing.

Another interesting pattern that emerged among the participants in McPherson and Renwick's (2001) study related to rhythmic errors. The students were so rhythmically inaccurate that the researchers decided not to code rhythmic errors, deducing that the 'beginners' approach was solely based on decoding the pitch symbols in the notation and finding the matching fingerings' (p. 181). Similarly, McPherson (1994) posited that students are able to decode and play the correct pitches from the printed score without hearing the pitches in their heads (connecting note to fingerings), but that without an accurate aural representation of the rhythmic notation it is impossible for students to perform the patterns accurately. These findings further support the importance of an accurate aural model and also illustrate the need for educators to teach students how to evaluate and reflect on their own performances during practice, developing the ability to detect and address errors in performance.

In a three-year, longitudinal investigation of the practice and skill development of 157 third- and fourth-grade instrumentalists, McPherson (2005) found that the highest achievers were those that applied task-specific mental strategies very early on in the learning process. McPherson suggested that 'the sophistication of a child's mental strategies provides an important means for understanding why some [children] progress effortlessly in contrast to others who struggle and fail' (p. 5) and asserted that future research should attempt to clarify more explicitly the strategies that children apply during practice. A deeper understanding of how successful students apply strategies during practice in order to make efficient progress will allow educators to focus instructional time on providing students with these invaluable tools for improvement.

While instrumental instruction with children often takes the form of private lessons or beginning band or orchestra experiences, many children receive their first instrumental music instruction within the context of the general music classroom. General music educators are often responsible for providing comprehensive recorder instruction during weekly general music classes that may only meet for 30 minutes. Instrumental instruction in this model presents particular challenges to music educators, as there is little time for individual instruction, and, in many cases, a week

or more passes between each teacher–student contact period. In light of these limitations, it is imperative that recorder students receiving weekly instruction en masse have appropriate skills to self-instruct at home through efficient daily practice. While the body of existing instrumental practice literature might inform educators' approaches to instruction in practice, there remains a paucity of research relating directly to the musical practice of children and no existing literature relating specifically to the unique circumstances surrounding general music recorder classes.

The purpose of this research was to extend current scholarship on self-regulated practice behaviors of young instrumentalists to the general music recorder classroom. This qualitative study explored the reflections of successful beginning recorder players in relation to the self-regulated practice model in an effort to answer the following questions:

- What kinds of self-regulated practice strategies emerge naturally in highly successful beginning recorder students?
- What are the implications for general music educators engaging students in recorder-based instrumental study?

Methodology

In an effort to determine what kinds of self-regulated practice behaviors emerge naturally among successful recorder players, interviews were conducted with three high-achieving first-year recorder students. At the time of the interviews, all three third-grade students (each enrolled in the same elementary school in the Northwest region of the USA) had been studying the recorder for nine months within the context of weekly, half-hour general music lessons. The three 9-year-old participants were identified by the researcher (who was also the recorder instructor) as highly successful beginning recorder students.

Each student was interviewed using a semi-structured interview protocol (Fontana & Frey, 1994) that was designed to elicit detailed information regarding the types of procedures students were using during practice sessions (see Figure 2). Students were asked about their practice routine, their approach to practice, their method for error detection and improvement, and the types of activities they pursued when practicing independently. In order to encourage honesty in response and alleviate student concern with getting the 'right' answer, students were given repeated explanations regarding the purpose of the study during the interview (Spradley, 1979). Each was assured that their responses would have no impact on their grades. In an effort to achieve accuracy in interpretation, the researcher restated each of the participant's responses (Spradley, 1979) and asked several probing and clarifying questions in order to ascertain consistency of responses and gain a deeper understanding of the participants' practice experiences. After each interview, students were asked to play two songs of their choosing to demonstrate their proficiency and provide the researcher with corroborating evidence that each was in fact capable of successful recording playing. Descriptive field notes were also recorded during the interviews and the performances.

- | Questions for Student Interviews | |
|----------------------------------|--|
| 1. | Describe what you do when you practice your recorder. |
| 2. | What do you usually choose to start with when you practice? |
| 3. | What do you do when you make a mistake? |
| 4. | How do you know if you made a mistake? |
| 5. | Do you ever practice things that aren't songs? What do you play? |
| 6. | Do you ever write down the songs you make up? |
| 7. | Do you ever sing the songs you are practicing? |
| 8. | Do you ever practice your fingers without blowing? |
| 9. | For how long do you practice? |

FIGURE 2 *Semi-structured interview questions asked of each participant.*

All interviews were transcribed and coded (Creswell, 2005) for themes relating to the six dimensions of self-regulation put forward by McPherson and Zimmerman (2002; see Table 1). Triangulation (Creswell, 2005) was achieved through a comparison and cross-referencing of transcribed interview data and impressions recorded in field notes. Additionally, responses to similar, successive follow-up questions were examined for consistency. It is important to note that none of these students received specific instruction in practice strategies, although many of the strategies discussed in this article were modeled during weekly lessons.

EMILY

Emily is a particularly self-regulated young recorder player, exhibiting many of the characteristics delineated in the model of musical self-regulation forwarded by McPherson and Zimmerman (2002). Emily begins her practice sessions by preparing her materials and making a plan for her practice session by identifying which songs need her attention. Only after she prepares her materials does she 'start to practice'. Her sessions are usually brief, lasting about five minutes each, but she will practice for 10 minutes or more if she *really* needs to practice'. She also indicated that she usually attacks newer and more challenging pieces first, later spending time on learned repertoire.

Emily takes an interesting and strategic approach to structuring her practice sessions. She states:

Well, I sort of start ... like if I don't know the song, I would start at the beginning, but if I know the first part, I would start at the part that I need to learn or the part that I need practice on ... I practice the parts I need to work on and then I add them on.

Emily instinctively adopted a part-whole approach to song-learning, isolating new or difficult parts that 'need practice' and working through those sections before running through the piece. She is clearly selecting appropriate strategies based on her needs, an obvious indication of self-regulated method. In terms of error detection, Emily recognizes two different strategies: 'I see the note on the paper and I played the wrong one or it just sounds bad.' When asked what she does when she makes a mistake, Emily said: 'I play like three notes ahead [meaning back three notes] and then I play that note and then I play it over again. If I made a really big mistake and

I was at the beginning I'd probably just start over.' Emily also indicated that she does engage in improvisation, stating that 'when I feel like it, I just play something'. She does not write down her improvisations.

One other element of self-regulation that emerged from this interview was Emily's willingness to seek out help if needed. She states: 'If there's a note that I don't understand, I ask for help.' It is especially interesting to note that this was a completely unsolicited statement, offered freely within the context of Emily's general description of her practice sessions.

Interestingly, Emily specifically indicated that unlike more advanced and expert musicians, she does not engage in silent physical practice (fingering without blowing) 'because it helps me to actually play it so I know what it sounds like'. Self-regulation is a continuum, and while Emily is extremely advanced for her age, she still needs the aural feedback provided by her recorder for efficient error detection and correction. In this sense, it is her self-awareness that is so remarkable.

These behaviors stand in stark contrast to the typical, unregulated practice behaviors that have been noted in previous research as characteristic of beginning instrumentalists. While the typical beginning instrumentalist frequently runs through pieces without detecting or correcting errors (Gruson, 1988; Hallam, 1997; Renwick & McPherson, 2000), Emily isolates new or challenging sections, actively detects errors, and takes measures to correct those errors, all examples of extremely self-regulated practice behaviors atypical of a player of her age and experience. In addition, Emily structures her practice time, engages in improvisatory music-making, and asks for help if needed, all elements of self-regulation in practice. She is clearly an exception to the norm, and as a result, achieves remarkably high levels of performance achievement despite extremely limited teacher–student contact.

AVA

When asked to describe her typical practice routine (which usually lasts for 10 or 15 minutes), Ava immediately addresses error detection and correction, indicating that she sees these components as primary features of her practice:

First I get my recorder ready and then I practice parts of the song, and if I don't play them correct, I go back to the part that I missed and I practice that for a little while, and then I keep playing, and if I miss another part I do the same thing. And when I get the song right, I move on to another song.

While she doesn't explicitly indicate goals, Ava is clearly setting out to improve the repertoire she is practicing through the use of isolation, repetition, and part–whole strategies. She also structures her practice time around this strategy, moving on only when she 'gets the song right'.

Regarding error detection, Ava also indicated two strategies:

I look at my book to see if that's the right note ... I know how it's supposed to sound and if it doesn't sound right I go back and try to fix it to sound like it's supposed to sound.

She also made reference to singing as reinforcement for her playing: 'I sometimes sing 'cause on some of the songs it has words to sing to and so after I play it I sing the part to see if it's high or low'. Clearly, Ava is integrating her knowledge of musical notation with her internal, aural model to identify errors during practice.

When questioned further regarding mistakes made during practice Ava identified several strategies:

I practice that one note that I missed, like if it goes from G to D, I practice that a couple times and then I keep going on the song ... I usually play a bigger chunk and then I put that into the song ... I usually start out slow and then I gradually go faster when I get the song down.

Like Emily, Ava also engages in improvisatory recorder play, although Ava is more specific in her comments about the kinds of activities she pursues. 'I make up my own songs sometimes. Like on [one song], I sometimes add like other parts that we don't play in class and I think it sounds nice.'

Ava's use of many practice strategies indicates a high level of self-regulation accounting for her advanced level of musical achievement. She uses isolation, repetition, manipulation of tempo, and an aural model during practice to identify and fix errors and make progress on selected repertoire. She also spends time on informal practice activities and regularly integrates singing into her practice routines.

CHARLIE

In describing his practice sessions, Charlie also began with getting his materials ready for practice and identifying areas or pieces that need attention. Interestingly, he employs a different approach to practice from the other two players, preferring to memorize all his music, and actively setting out to do so. His practice involves the decoding of the musical notation and then memorization of each piece followed by practice for fluency and polish.

I can read it, yeah, but usually I just write them down and then I know the notes on the recorder, so I can just see the notes and don't have to read them ... I usually just memorize the pieces and then I can practice them.

Charlie also enjoys improvising on the recorder and he indicates that he plays the same improvisations repeatedly, sometimes 'changing it a bit'. He does not write down his improvisations, but it seems as though he does repeat the same patterns over a number of practice sessions and during his performance he plays a well-rehearsed improvisatory bit, prefacing it by saying: 'I haven't memorized it, but' It appears that he uses the memorization strategy within the context of his improvisational activities. Charlie also reported the longest practice time, sometimes engaging in practice for an hour.

Discussion

Analysis of the interviews revealed that all six psychological dimensions of self-regulation were represented in the practice behaviors of the three participants. The students interviewed, while never directly instructed in self-regulation, were exhibiting self-regulated practice behaviors and attaining higher levels of performance achievement than their peers. While no low-achieving players were interviewed, previous research on the practice behaviors of young instrumentalists

indicates that the naturally emerging self-regulated behaviors described are unusual for students of this age and skill level (Hallam, 2001; Pitts et al., 2000).

All three students prefaced their descriptions of their practice time with a statement about preparing their materials ('First, I get my recorder ready ...'). The identification of activities involved in 'getting ready' for practice indicates an attitude that practice is a formal, important activity requiring certain material and space considerations (Time and Physical Environment dimensions). Additionally, the students made reference to the way they structured their practice time, indicating their preferred order of rehearsal (Motive and Time dimensions). All students interviewed indicated that they spend more time practicing if they have difficult or challenging things to accomplish, or as Emily said if she '*really* need[s] to practice' (Motive dimension). Each of the participants interviewed was clear in describing a goal-oriented approach to practice activities, identifying a specific method for approaching and processing unfamiliar or difficult material (Motive dimension).

While extant literature has shown a tendency for young students to 'run through' pieces without stopping to diagnose and correct problems or isolate tricky bits (Gruson, 1988; Hallam, 1997; Renwick & McPherson, 2000), each of the instrumentalists interviewed was able to articulate context-specific strategies for problem-solving during practice sessions (Method dimension). Another prevalent theme emerging from all three interviews pertained to diagnosis of errors in performance. All students were able to identify two ways to diagnose errors, both visually ('I see the note on the paper and I played the wrong one') and aurally ('It just sounds bad') (Behavior dimension).

Interestingly, Emily, Ava and Charlie all engaged in non-repertoire practice in the form of improvisatory recorder play. The students each emphatically denied writing down their musical doodles, although Charlie did say he plays the same musical improvisations repeatedly over practice sessions and played what seemed to be a well-rehearsed 'improvisation' at the conclusion of the interview. This pattern relates to McPherson's 1997 study linking strategic use with improvisational achievement, and suggests that it may be beneficial for music teachers to encourage improvisatory recorder practice activities.

In accordance with previous research (Hallam, 2001; Nielsen, 1997, 2001) there are marked variations in the practice strategies of these recorder players. Charlie, for example, was the only one of the three students who relied heavily on memorization of the music as a major component of his practice routines (Method dimension). Ava was the only student who indicated (enthusiastically!) that she often sings the recorder pieces she is learning, effectively reinforcing her own aural model and aiding in error detection during subsequent playing (Method and Behavior dimensions). Emily prefers to begin her practice sessions with new or challenging repertoire, while Charlie and Ava like to 'warm-up' with a known piece before moving on to newer or more difficult repertoire (Time dimension). Emily was also the only player to indicate that she actively sought out help when needed (Social Factors dimension). Despite differentiation among practice strategies utilized and idiosyncrasies unique to each individual, these three players all exhibit high levels of self-regulation as evidenced by their practice behaviors.

Implications for educators

The perspectives of these three highly successful and self-regulated young recorder players present several implications for music educators attempting to increase practice efficiency among their own students. In light of the task-driven philosophy of practice demonstrated by each participant, it may be more effective to indicate specific practice tasks rather than a set time limit for practice. Previous research has shown that young instrumentalists tend to spend large portions of their practice time in off-task or non-music behaviors such as daydreaming or changing materials (McPherson & Renwick, 2001). Ten minutes of practice might involve only a brief amount of actual playing. Contrastingly, a goal-orientated approach to practice delineates skill acquisition as the standard. Assigning a series of specific tasks to be completed encourages self-regulation and increases the likelihood that time will be spent on playing rather than non-playing activities.

These students employed a range of techniques for improving during practice, including a part-whole approach, tempo manipulation and isolation. Teachers might consider the possibility that instruction in self-regulated practice techniques may allow all students to progress more quickly and practice more effectively, despite limited teacher-student contact time. In an effort to encourage self-regulated practice habits, educators might foster an understanding that 'running through' the piece does not constitute good practice and facilitate the development of a repertoire of practice strategies from which to draw by engaging beginning instrumentalists in 'practicing practice' activities during class time. Repetition, chunking, isolation, pattern practice, part-whole orientation and tempo manipulation are all accessible strategic approaches for these young instrumentalists to grasp and apply, as evidenced by the strategy use of the participants of the present study.

Each participant mentioned aural cues as an indication of melodic errors ('It doesn't sound right'), suggesting that in the formative stages of music instruction, an aural model may be essential for self-guided practice. If students do not know how the piece sounds, they will be unable to detect and correct errors in pitch or rhythm. Students' ability to perform a given piece may be directly tied to their ability to listen and diagnose errors using an aural model.

Interestingly, only one of the three students interviewed actively sought help from a parent during practice sessions. This dimension of self-regulation (Social Factors) may require more direct encouragement among beginning instrumentalists. It is possible that students do not feel comfortable asking teachers, parents and peers for help, or that parents may feel ill-equipped to assist their child with music reading and playing. Children may also assume that their parents have little to offer in relation to recorder instruction. Music educators might arrange peer-led playing sessions, parent informational meetings or an extra-curricular recorder club to provide students with opportunities to seek out and find the help they need.

Music educators faced with the particular challenges associated with classroom-based instrumental instruction might consider the self-regulated model as a means for providing beginning recorder students with the skills necessary to make adequate weekly progress despite brief and often inconsistent periods of teacher-student contact. While further research on self-regulated practice behaviors and pedagogies

in the context of the general music recorder classroom is desirable, the implications presented here provide educators with a range of strategies for increasing self-regulation and practice efficiency among beginning recorder students.

Conclusion

Given that this is an initial foray into a new context for self-regulated practice research, it remains unclear whether the participants' high level of performance achievement may be attributed to their use of self-regulated practice strategies or to any number of other factors (motivation, parental support, socioeconomic factors, musical predisposition, participation in other music activities, etc.). However, based on previous research in this area, it is apparent that the naturally emerging self-regulated behaviors these students demonstrate are atypical of instrumentalists their age. While the inherent limitations of a case study design do not allow for generalization to the larger population, the data collected do warrant further investigation on a larger scale. In addition to broader investigations of the practice behaviors of beginning recorder students, an experimental study examining the effect of a recorder curriculum integrating a self-regulated model of practice would be valuable. Such a study might provide the music education community with information relating to the 'teachability' of self-regulation as it relates to music practice and the effect such instruction has on performance achievement and instrumental skill.

The present findings suggest that the use of self-regulated strategies during recorder practice may be linked to higher levels of performance achievement. These findings support previous correlations between high musical achievement and use of metacognitive strategies and provide preliminary evidence that instrumental practice research results may extend to those students learning recorder within the context of the general music classroom. These are important considerations for recorder teachers wishing to provide effective instruction within the limited time constraints associated with the general music classroom model.

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