THE IMPORTANCE OF METACOGNITION RESEARCH IN MUSIC

Rita Aiello
New York University, Department of Psychology, USA
Aaron Copland School of Music, Queens College, CUNY, Flushing, USA

ABSTRACT

Background. Over the last three decades research in metacognition has become increasingly important. Metacognition addresses one's own cognitive awareness, and affects critical thinking, learning efficiency, and problem solving. In addition, it improves the acquisition, comprehension, retention, and application of what is learned. To date there has been relatively little research that has investigated the metacognitive strategies of performance students. Traditionally, classically trained performance students are taught using a model that is based mostly on imitation. By and large, many performance students learn to play their instruments by observing the studio teachers and trying to implement the teachers' performance suggestions. Although the behavioral nature of this model has produced excellent musicians, research has shown that studio lessons tend to leave relatively little room for questions on the part of the student.

Aims. This paper discusses the value of conducting metacognitive studies in music. Moreover, it illustrates ways in which performance students could develop their metacognitive awareness and strategies.

Main Contribution. Research has shown that some beginners and intermediate performance students seem to lack definite, clear plans on how to practice their instruments, and how to integrate aspects of their musical knowledge. It is suggested that introducing students to metacognitive awareness and metacognitive strategies could help them learn more effectively.

Implications. It is recommended that seminars on metacognitive strategies become part of every music students' curriculum.

1. BACKGROUND

Research in metacognition has become increasingly important in psychology and in education (Flavell, 1979; Flavell and Wellman, 1977; Hacker, Dunlosky and Graesser, 1998; Reder, 1996;). Metacognition is the ability to reflect on one's own cognitive and learning strategies. It is "knowledge and cognition about cognitive phenomena" (Flavell, 1979, p.906). Two fundamental aspects of metacognition are awareness of and control over one's thinking (Hartman, 2001). The development of metacognitive strategies improve the acquisition, comprehension, and retention of what is learned. "Metacognitive thoughts do not spring from a person's immediate external reality; rather their source is tied to the person's own internal mental representations of that reality, which can include what one knows about that internal representation, how it works, and how one feels about it." (Hacker, 1998, p.3). Some researchers do not differentiate between metacognition and metamemory viewing metamemory as a form of metacognition in which the object of thought is memory (Hacker, 1998). Metacognitive abilities have been studied extensively in conjunction with reading, mathematics, science, and problem solving (Hacker, Dunlosky, and Greasser, 1998; Hartman, 2001). Given the valuable role that research in metacognition has within psychology and education, much more should be known regarding the strategies that instrumental performance students and professional instrumentalists use to learn, memorize, and integrate aspects of their musical knowledge.

2. METACOGNITION AND INSTRUMENTAL PERFORMANCE

Recently some studies have addressed the metacognitive abilities of instrumental music students and professional instrumentalists (Aiello, 2000; Aiello, 2001; Chaffin and Imreh, 1997; Chaffin, Imreh and Crawford, 2002; Hallam, 2001; Kostka, 2002; Miklaszewski, 1989; Rostvall and West, 2001; Williamon and Valentine, 2000; Williamon and Valentine, 2002). Experienced instrumental performers, like experts in other fields, have much more defined metacognitive abilities than those who have less music experience (Chase and simon, 1973; Ericsson, Krampe and Tesch-Romer, 1993). Professional instrumentalist can clearly assess task requirements, develop strategies to overcome task difficulties, monitor their progress, identify mistakes, relate their practicing strategies and their memory strategies to the theoretical structure of the piece. They have developed a declarative knowledge of their expertise (Aiello, 2000; Aiello, 2001; Hallam, 2001, Williamon and Valentine, 2002). Of particular interest is the work of Chaffin and Imreh who have documented in great detail the development of the metamemory processes and metacognitive abilities of a professional concert pianist (Gabriella Imreh, the second author) as she memorized the Presto from J.S. Bach's Italian Concerto (Chaffin and Imreh, 1997; Chaffin, Imreh and Crawford, 2002).

Some beginner instrumental music students seem to be unaware of the concept of metacognition in learning and do not seem to reflect on their thinking and leaning strategies. Beginner and intermediate piano students who can perform from memory a standard composition from the repertoire are not necessarily able to give an adequate analysis of the piece (Aiello, 2000; Aiello, 2001; Williamon and Valentine, 2002).. But it is quite possible to imagine that those same students could analyze the very same piece quite adequately if it were presented to them in the context on a theory class. When asked questions regarding the theoretical understanding of a piece they perform and that they have memorized, some of these students may feel completely at a loss and be unable to give probing (analytical) answers concerning the musical structure of the very pieces they perform (Aiello, 2000; Aiello, 2001, Williamon and Valentine, 2002). For some beginner and intermediate students there seems to be no apparent connection between what they have learned in the studio lesson and in what they have learned in their theory classes. These students seem to make no explicit transfer of knowledge from

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the performance to the theory classes and to the other classes they are taking or have taken as part of their musical education. It is as if some beginner and intermediate young performers had a compartmentalized knowledge: one compartment for the knowledge of playing the piece, and one compartment for knowing the theory of the piece.

A music performance can be achieved by focusing on developing excellent kinesthetic skills. But it is possible that one may be "fooled by the fingers". The fingers may play more than the mind is able to integrate in a cognitively meaningful way. The instrumental student should realize that a performance should be viewed as an aesthetic expression achieved by technical dexterity through cognitive music understanding. A performance projects the musical aesthetics and the mind of the performer through his/her technical dexterity. Students can benefit from asking questions about their own learning strategies. They benefit from acquiring a declarative knowledge instead of having an implicit knowledge (Aiello and Williamon, 2002).

3. METACOGNITION AND MUSIC LESSONS

Two recent studies have looked at the interaction between instrumental teachers and their students. Rostvall and West (2001) analyzed video tapes of instrumental lessons focusing on the components of the music lessons. They found that music was not addressed as phrases, rhythms, or melodies, and that the expressive qualities of music were not emphasized. teachers addressed mostly the teaching of separate notes as read from the score. The lessons left little room for students and teachers to discuss and reflect on the teaching/learning process. Kostka (2002) administered a questionnaire to college-level studio music teachers and music majors that addressed expectations and strategies regarding practicing. Although all the teachers stated that they discussed practice strategies with their students, 67% of the students reported that practice strategies were never discussed during their studio lessons.

As these data show, there is relatively little dialogue that takes place in the studio lesson between the studio teacher and the student. Why? I believe that a major reason for this is due to the fact that traditionally classically trained performance students are taught using a model based mostly on imitation. This classical music performance model is, to a great extent, based on learning from the master. From the master performer to the student. The studio teacher presents a model, and the student aspires (hopes, strives) to replicate it.

By and large, many performance teachers ask their students to imitate them; and students learn to play their instruments by observing the studio teachers and trying to implement the teachers' performance suggestions. Although the behavioral nature of the instrumental lesson has produced excellent musicians, and is essential at the beginning stages to achieve a proper sound on the instrument, it often does not foster a dialogue between the teacher and the student. It does not encourage the student to ask questions. If a student imitates the teacher to the teacher's satisfaction, it does not necessarily mean that the student has understood the musical and cognitive reasons why she has performed correctly. Such an imitation model does not necessarily foster metacognitive abilities. Given the strength of this behavioristic performance model, it is possible that some beginners and intermediate instrumental students may come to believe that learning to perform could be achieved almost exclusively by replicating what their instrumental teacher does. For these students, therefore, music performance is a behavior that is achieved in great part by relying on imitation.

Often music teachers teach the way they were taught instead of trying alternative approaches. But studio teachers can pass on the historical tradition of classical music performance AND at the same time teach metacognitively. They can help their students to create their own metacognitive abilities by encouraging them to reflect on how they practice, how they learn, how they memorize, and how they integrate aspects of their musical knowledge (Aiello and Williamon, 2002) Studio teachers, theory teachers and all those involved with the education of music students should aim to teach metacognitively. Teachers can explicitly show students how information is transferred and how thinking strategies can be verbalized. They should tell students WHY they are wrong so the students can internalize the reasons for having made the mistake in the first place. Teachers should assess what feedback they provide to students, and how their feedback ultimately improves the students' performances.

4. RECOMMENDATIONS

The use of journals could help both the students and the teachers reflect on what and how the student has learned.

Teachers should explicitly help their students develop their metacognitive capacities and acquire a declarative knowledge of music.

Teachers should aim to teach utilizing metacognitive methods.

Seminars on metacognitive strategies and the integration of music knowledge should become part of the music school curriculum.

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