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Cognitive strategies in sight-singing : the development of an inventory for aural skills pedagogy — Source link

Guillaume Fournier, Maria Teresa Moreno Sala, Francis Dubé, Susan A. O'Neill

Institutions: Laval University, Simon Fraser University

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Guillaume Fournier[1]
Maria Teresa Moreno Sala[1]
Francis Dubé[1]
Susan O'Neill[2]

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[1] Université Laval, Québec, Canada
[2] Simon Fraser University, Burnaby, Canada

Introduction

Each year, thousands of new students with a limited mastery of conventional music notation are admitted to college-level music programs in North America. Despite extensive private music instruction and theory classes during their high school years, many entering instrumentalists and vocalists are barely able to play music at sight and transcribe simple melodies; these students often fall short when asked to sight-sing a single line (Asmus, 2004; Davidson, Scripp & Welsh, 1988; Fournier, 2015; Thompson, 2004; Vujović & Bogunović, 2012).

Most music curricula include musicianship (aural skills/solfege) classes with specific training in sight-singing to assist students in acquiring and improving their music reading skills. In addition to gaining practical skills for many professional contexts (Floyd & Bradley, 2006; Scripp, 1995; Thompson, 2003), sight-singing training is recognized as an effective means to foster musical understanding (DeBellis, 2005; Karpinski, 2000; Ottman, 1956; Rogers, 2004; Scripp, 1995; Scripp & Davidson, 1994). Recent research also suggests that sight-singing has a positive influence on sight playing performance (Kopiez & Lee, 2006; Kopiez & Lee, 2008; Mishra, 2013; Mishra, 2014). While we recognize sight-singing training as an essential part of students' musical development, it remains the nightmare of many college-level music students and poses one of the greatest pedagogical challenges for their teachers.

The extant literature on sight-singing pedagogy at the college level is somewhat scarce and offers very limited guidance for teachers. Although we know that sight-singing performance is associated with fundamental rhythmic and melodic skills, experimental

research has revealed that interval and rhythmic training has only small positive effects on sight-singing performance (Barnes, 1960; Parker, 1978; Stegall, 1992). In addition, several studies have shown links between academic success in sight-singing and predictors such as entrance tests (Harrison, 1987; Harrison, 1990; Harrison, 1991; Ottman, 1956; Rodeheaver, 1972; Schleuter, 1983), academic ability (Chadwick, 1933; Harrison, 1990; Harrison, 1991; Harrison, Asmus & Serpe, 1994; Rodeheaver, 1972), and musical experience (Brown, 2001; Dean, 1937; Furby, 2008; Harrison, 1990; Harrison, 1991; Harrison & al., 1994; Thostenson, 1967). However, these predictors are situated largely beyond the influence of aural skills teachers, who remain powerless in the face of such exogenous factors. To address this problem, some researchers have turned their attention to the cognitive dimensions of sight-singing.

Cognitive strategies

In educational research, cognitive strategies have been extensively studied over the last few decades. This work has contributed to a better understanding of general learning mechanisms and helped to reveal experts' representations of cognitive strategies for many school subjects (see, for example, Oxford, 2011; Pressley & Woloshyn, 1995; Weinstein & Mayer, 1986). Empirical studies have shown that explicit strategy instruction is an effective teaching method (Chiu, 1998; Donker, de Boer, Kostons, Dignath van Ewijk, & van der Werf, 2014; Dignath & Bütter, 2008; Dignath, Bütter & Langfeldt, 2008; Hattie, Biggs & Purdie, 1996). However, in sight-singing research, the literature remains limited: we found

only six research studies dealing with strategic issues, and there was no clear relationship between these studies.

Killian and Henry (2005) investigated strategies in individual sight-singing preparation and performance with 198 high school choristers. They asked participants to sight-sing two melodies with and without a 30-second preparation time, and they videotaped both preparation and performance for strategic analysis. On the basis of their observations, the researchers developed a list of strategies and analyzed each video for the presence or absence of these strategies. The analysis indicated that the best sight-singers differed in their use of specific strategies: they more frequently tonicized, sang out loud during preparation time, physically kept the beat and made better use of their time. From these results, two quasi-experimental studies were carried out. Henry (2008) investigated the effectiveness of teaching desirable strategies on sight-singing performance to 63 high-school students. As a result of a 30-minute treatment, the number of desirable strategies significantly increased between pretest and post-test. However, the positive effects on sight-singing performances were limited to low-level sight readers. In a similar study done with 73 high-school choristers, Stevenson (2010) did not come to the same conclusion. The teaching of the strategies in that study did not lead to sight-singing performance improvement.

Two further papers explored cognitive strategies for pitch representation with 100 professional musicians (Thompson, 2003) and 23 college-level music students (Thompson, 2004). Using questionnaires and interviews, the researcher asked participants to describe their strategies while resolving different musical tasks. Content analysis revealed six metaphors to capture the full extent of strategies used for pitch representation: the followers,

the button-pushers, the contour-singers, the tonal thinkers, the builders and the pitchers. The author also observed that better sight-singers tended to make more frequent use of tonal strategies.

Finally, Vujović and Bogunović (2012) explored the use of cognitive and metacognitive strategies in sight-singing with 89 conservatory music students. They created a 28-item questionnaire that investigated the students' music backgrounds and strategic reflections. To help introspection, participants were asked to sight-sing three melodies, but no performance was recorded. Participants were asked to fill out the questionnaire at home. Analysis showed that students who possessed more numerous sight-singing experiences were more concerned about musical understanding and wider structures, such as harmonic progressions. Furthermore, they tried to hear the notes in their mind before singing. Beginners were more concerned with small relationships, such as intervals, and used their instrument more frequently to check for mistakes.

Study aims

Taken together, past research indicates that better and weaker sight-singers use different strategies, but the scope of the findings remains limited. Only a small number of strategies have been identified in previous studies, with huge variations in the descriptions provided. Further, each past study was differently oriented. While Killian and Henry (2005) were interested in strategies exhibited during sight-singing preparation and performance, Thompson (2003; 2004) concentrated on pitch strategies, and Vujović and Bogunović (2012) focused on metacognition issues.

To make better use of existing knowledge, the purpose of our study is to build a comprehensive inventory of cognitive strategies related to sight-singing which brings together wide ranging literature and perspectives on the topic. This study aims to provide a framework that will be useful for future work in aural skills teaching and research.

Method

Research design

To explore the cognitive strategies used in sight-singing and to generate a comprehensive inventory, we adopted a qualitative inductive research approach based on grounded theory (Thornberg, 2012). In order to reveal a full range of perspectives on sight-singing strategies, we combined interviews and document analysis in the same data corpus.

Data collection

Research publications. We included most of the publications surveyed above (Killian & Henry, 2005; Thompson, 2003; Thompson, 2004; Vujović & Bogunović, 2012) and added a study that addresses specific questions about sight-playing preparation strategies (McPherson, 1994). We did not include Henry (2008) and Stevenson (2010) in our corpus of data because they have investigated the same strategies found in Killian & Henry (2005).

Professional books. An extensive search revealed only two professional books covering topics related to sight-singing in a college-level context. Rogers (2004) contains an important chapter on aural skills in which several approaches to sight-singing are presented. Karpinski (2000) offers broad pedagogical reflections on aural skills pedagogy at the college level.

Three chapters are dedicated to the descriptions of approaches in sight-singing. Even though none of these chapters addresses specific questions on cognitive strategies, we include them because they demonstrate broad pedagogical reflections about sight-singing processes.

Sight-singing manuals. Some sight-singing manuals contain texts to contextualize the exercises and provide advice to get the most from the practices. They reveal conceptions of sight-singing processes and can sometimes be interpreted in terms of cognitive strategies. As the number of publications could be very high, we chose to include the two textbooks reported in a survey conducted with aural skills teachers in our region (Tremblay, 2014): *A New Approach to Sight Singing* (Berkowitz, Frontier, Kraft, Goldstein, & Smaldone, 2011) and the *Manual for Ear Training and Sight Singing* (Karpinski, 2007).

College-level music students (n=4). Bearing in mind that our sample needed to reveal the most contrasting perspectives on sight-singing strategies, we used a purposeful sampling from a list of 52 volunteers in the second year of a college-level music program. Information about their music experiences and their level in aural skills classes served as a rationale to choose a sample representative of different points of view. Two participants were recruited from the advanced aural skills classes, but each showed a very different musical background: one started to study music at six years of age; the other started at age 15. Two students were also selected from low-level aural skills classes: one who had been studying music since the age of 18 and the other since the age of four. All participants were contacted by email and accepted the invitation to take part in interviews.

Aural skills teachers (n=2). For recruitment of music teachers, we also adopted a purposeful sampling technique from a list of seven possible participants. Two teachers with

specific experience were first contacted: one who works frequently with advanced students, the other with expertise in teaching beginners. Both were contacted by email and agreed to join the study. Prior to conducting semi-structured interviews, we first obtained ethical approval for this project from the Comités d'éthique de la recherche avec des êtres humains de l'Université Laval [2014-234] and the Comité d'éthique de la recherche du Cégep de Saint-Laurent [SL-2014-14].

Interview Guide

We developed a semi-structured interview guide following recommendations by Boutin (2001) and Sauvayre (2013). In the first part of the interview, participants were asked to share their personal history of sight-singing training. They were asked to select different problems they encountered in their school career and to point out some tips and solutions that helped them to overcome their difficulties. In the second part, the focus was on their actual use of strategies. To explore this, we asked participants to sight-sing, either out loud or in their mind, the melody No. 106 from Dannhäuser (1891), and to describe their emerging thoughts while they were producing each single tone. In the last part of the interview, each participant was asked to formulate advice about sight-singing they would like to share with new students. Just before closing the interview, each participant was invited to discuss any other issues he or she thought might be related to our study.

Data Preparation

Interviews were audio recorded with a MacBook Pro and Audacity 2.0.6. To prevent any technical failure, an alternative sound recording device was used simultaneously (iPhone 4).

Prior to analysis, the interviews were transcribed in .docx and all paper documents were scanned and converted to PDF.

Data Analysis

In the first phase of analysis, we used a constant comparative approach to run a systematic open-coding thematic analysis (Paillé & Mucchielli, 2013) over research publications, professional books and sight-singing manuals. Each document was scrutinized and texts related to our definition of cognitive strategies was highlighted using Nvivo 10 and then described with emerging codes. This initial coding stayed very close to the data and generated hundreds of different codes.

Before undertaking the analysis of the interviews, we identified the most significant codes and defined the core categories. This second phase helped us to carry out a coding more focused on teachers' and students' transcripts, while remaining open to new emerging themes. Our complete categorization was then presented to three experts in cognitive strategies (in music dictation, improvisation and piano memorization) and subsequently compared with the existing theoretical literature.

With those insights, a new codebook was created and a last content analysis was carried out over the complete corpus. Finally, a review of all references related to each code was conducted to ensure that no mistakes had been inserted anywhere in the process and that the frequencies reported were accurate.

Results

Findings revealed 72 cognitive strategies grouped into four main categories and 14 subcategories: reading mechanisms (pitch decoding, pattern building, validation), sight-singing (preparation, performance), reading skills acquisition (musical vocabulary enrichment, symbolic associations, internalization, rehearsal techniques) and learning support (self-regulation, attention, time management, motivation, stress). Short strategy descriptions are given in Tables 1 to 14 with both the number of different sources in which they were found and the overall number of occurrences in the data.

Reading mechanisms

Table 1—Pitch decoding

Strategies	Sources	Occurrences
Relate to scale degrees	13	178
Relate to intervals	13	151
Compare with a previously sung note	10	23
Sing other notes to fill a leap	10	18
Compare with a reference note	7	17
Guess a note	6	17
Relate to absolute pitch	5	36
Imagine playing a note on an instrument	4	39
Substitute a note for another	3	6
Omit a note	1	6

Table 2—Pattern building

Strategies	Sources	Occurrences
Group notes to create chords or arpeggios	12	104
Look for modulations	10	50
Look for repetitions and sequences	10	25
Grasp relevant musical elements to create harmonic progressions	9	107
Look for common melodic patterns	8	25
Look for embellishing tone	7	45
Grasp relevant musical elements to create phrases	7	17
Look for scale patterns	7	14
Group notes to create melodic motives	7	14
Group notes to create rhythmic patterns	6	26
Follow the contour of the melody	5	35
Look for stepwise relationship between non-adjacent notes	4	15
Group notes to create metric patterns	4	11

Table 3—Validation

Strategies	Sources	Occurrences
Listen carefully to identify mistakes	12	45
Use a second strategy to get an extra check point	11	34
Check accuracy with a musical instrument	10	26
Try to hear and feel the music flow	9	52

Sight-Singing

Table 4—Preparation

Strategies	Sources	Occurrences
Run a routine to set up the basic musical parameters	11	69
Scan music to find special figures and challenging spots	11	24
Analyze the basic musical parameters	9	48
Use practice time to work on trouble spots	6	11
Sing out loud	3	13

Table 5—Performance

Strategies	Sources	Occurrences
Look ahead	7	17
Be aware of expressive musical elements	6	22
Anticipate the musical flow	6	12
Use physical motions to embody the pulse	5	21
Follow the piano or other singers	5	21
Move forward to recover from your mistakes	5	9
Adjust performance with an accompaniment or other voices	4	5

Reading skills acquisition

Table 6—Music vocabulary enrichment

Strategies	Sources	Occurrences
Practice with a musical accompaniment	8	30
Listen to a model	5	17
Sing exercises without reference to any notation	5	17
Vocally imitate or reproduce a model	5	12

Table 7—Symbolic association

Strategies	Sources	Occurrences
Use a solemnization system	9	130
Analyze and theorize music to become more knowledgeable about musical structures	9	41
Make constant association between sounds and concepts	9	32
Run structural reductions	4	12

Table 8—Internalization

Strategies	Sources	Occurrences
Singing in your mind	5	16
Being aware of the sensation	2	16
Gradually eliminate external support	2	11
Whistling silently	1	1

Table 9—Rehearsal techniques

Strategies	Sources	Occurrences
Sing repeatedly	12	36
Complexify an exercise by coordinating several elements	8	60
Create variations in exercises	6	92
Sing the melody *a tempo* to identify sections to work on	5	6
Break down a complex task into simpler ones	4	29
Annotate musical scores	2	10

Learning support

Table 10—Self-regulation

Strategies	Sources	Occurrences
Be aware of strengths and weaknesses	10	23
Analyze the cause of mistakes	9	14
Identify skills and knowledge necessary to complete a task	6	9
Verbalize strategies	4	11

Table 11—Time management

Strategies	Sources	Occurrences
Schedule regular sight-singing practices	8	17
Balance the amount of time devoted to materials studied during practices	3	9

Table 12—Attention

Strategies	Sources	Occurrences
Focus attention on the knowledge and skills to be acquired	7	52
Keep eyes on the staff	4	7

Table 13—Stress

Strategies	Sources	Occurrences
Use logical explanations to dedramatize	2	5
Be prepared	1	2
Focus on task rather than fear	1	1

Table 14—Motivation

Strategies	Sources	Occurrences
Maintain a positive self-image	7	9
Search for enjoyable sides	6	6
Be aware of sight-singing value	4	13
Work with a partner	3	7

Discussion

Past research has adopted different approaches to the categorization of cognitive strategies. Some authors argue that cognitive strategies are nearly universal and, therefore, should be very similar across school subjects (e.g., Bégin, 2008). Others feel that they should be domain-specific (e.g., Oxford, 2011). For our part, we approached our categorization system with the aim of providing aural skills teachers and researchers with a fulsome description of all specific mental operations carried out during the typical sight-singing learning process. From this perspective, it was evident that our categorization system would place special emphasis on the strategies used for representing pitches and performing sight-singing. During analysis, we realized that our data allowed us to go much further. In fact, we gathered enough information to describe strategies related to reading mechanisms, sight-singing preparation and performance, learning processes, and metacognition.

Reading mechanisms

Our reading mechanism strategies are concerned with the core processes of music reading, and they were predominant in all our texts and transcriptions. Taken together, strategies related to reading mechanisms represented 45% of all encoded texts. During our analyses, three cues helped us to define them. First, we noticed that many of our codes were referring to atomistic musical relationships. Seeing similarities with the decoding process in text reading (Legendre, 1993; Sousa, 2009), we retained "pitch decoding" as one of our main subcategories. The strategies grouped under this heading dealt with simple pitch representations, like many of Thompson's metaphors for pitch perception (Thompson, 2003;

2004). Even if some basic strategies were used to avoid mistakes (e.g., substitutions, omissions), we sorted them into this category because they were still oriented towards the production of single notes. Scripp (1995) noticed that students tended to use them as they became more aware of their strengths and therefore could better anticipate mistakes. It is worth mentioning that our data did not reveal any decoding rhythmic strategies. Either they were too highly automatized to emerge in our corpus, or rhythmic reading is best situated in the realm of pattern recognition.

The second subcategory was created when we realized that many of our strategies could be linked to the "patterns seeking" concept described in research related to music reading (Bean, 1938; Lehmann & McArthur, 2002; Seashore, 1938; Sloboda, 1978; Wolf, 1976). Musical relationships in our data were numerous and ranged from the simplest to the most complex. In addition to those already described in the scholarly publications under analysis, such as arpeggios and scale patterns (Thompson, 2003; Thompson, 2004; Vujović & Bogunović, 2012), we recognized many other musical relationships discussed in the literature, such as common melodic patterns (Grutzmacher, 1987; Henry, 2004; MacKnight, 1975), tonal patterns (MacKenzie, Vaneerd, Graham, Huron, & Wills, 1986), rhythmic patterns (Boyle, 1970; Drake & Palmer, 2000; Elliott, 1982), harmonic patterns (Salis, 1980; Waters, Townsend, & Underwood, 1998) and metric patterns (Palmer & Krumhansl, 1990; Sloboda, 1983). Even if they share a common ground with general music reading concepts, we believe that our pattern building strategies can also contribute to auralization. For example, many participants reported having direct symbol-to-sound access when they recognized common pitch patterns.

The last group of strategies was harder to interpret, until we considered Goodman's psycholinguistic model of reading (Legendre, 1993), which includes concepts of prediction, validation, and integration. This helped us to give a meaning to strategies referring to global listening, musical flow and intuition. In fact, validation and integration strategies could be seen as a last step in the music reading process, when the musician is wondering: "Is my singing making sense?"

Reading mechanism strategies could also be seen as a continuum ranging from atomistic relationships through to a more complete musical understanding. Primary pitch decoding strategies are used to generate a first representation of tone heights. Despite their apparent simplicity, they require high-level sight-singing skills. As their use is not as easy as it seems, more strategic pitch decoding approaches could serve as tricks to reinforce pitch finding. With some pitch representations in mind, one could start the process of building music patterns. Simple musical relationships, such as arpeggios and rhythmic patterns, could be grasped in a glance, but more complex musical structures would require broader theoretical knowledge. As music reading progress, one uses constant validation strategies to ensure the music reading is still making sense. When a lapse is detected, stepping back to simpler decoding strategies is inevitable.

Sight-Singing

While strategies related to reading mechanisms tend to be more general, others are anchored in very specific contexts, such as preparation time before performance. In many curricula and research designs, sight-singing assessment allows preparation time before

formal performance (Brown, 2001; Furby, 2008; Hung, 2012; Killian & Henry, 1995; McPherson, 1994). With this in mind, we paid special attention to strategies related to preparation and performance situations. The number of items included in those subcategories was relatively low when compared to the strategies reported in other publications (Killian & Henry, 1995; McPherson, 1994; Vujović & Bogunović, 2012). We obtained this result because we chose to focus solely on strategies that could only be used in those specific contexts. For example, we judged that "referring to scale degree during preparation time" was not specific enough to be sorted as a preparation strategy. Instead, we considered it should belong to reading mechanisms.

Reading skills acquisition

Reading skills acquisition is concerned with strategies oriented towards learning processes in individual and group rehearsal contexts. Most of them can be sorted into a three-stage learning process that emerged from our data. In the same vein as the well-known "sound before symbol" approach (Bartholomew, 1995; Bowyer, 2015; Holmes, 2009), these strategies are oriented towards enculturation, suggesting a practical means for imprinting musical patterns. In the second step, strategies are intended to create links between sounds and symbols (Thackray, 1975; DeBellis, 2005). If the most important appear to be the constant use of a solemnization system, many theory-oriented activities are considered fundamental. The third step offers different strategies to reinforce sound internalization. Even if the encoding frequencies appeared to be low, those who described their utilization considered them to be highly effective. Finally, we were able to identify a list of task-oriented

strategies that describe concrete operations used to increase rehearsal efficacy. Surprisingly, few of the rehearsal techniques we found were reported in the scholarly publications we analyzed. Even if sight-singing practice is an integral part of aural skills training, past research has not focused on those specific strategies. Accordingly, our list remains very short when compared to those in instrumental music practice research (Leon-Guerrero, 2008; Nielsen, 1999; Nielsen, 2001).

Learning support

The remaining strategies were ubiquitous, as they seemed to assist students in every learning situation. We hesitated a long time in defining a category that captured their essence. In other studies, strategies are often grouped into four categories: cognitive, metacognitive, management and motivational (Donker et al., 2012). However, since we chose to stay close to our data, it was obvious that our categorization proposal would show some discrepancies with those common categories. We finally decided to group them under the name *learning support strategies*, drawing on Dansereau's concept that aims to "maintain a suitable state of mind for learning" (Dansereau, 1985, p. 209). Under this heading, we have included strategies related to metacognition, time management, attention, stress control and motivation. Most of our findings related to these strategies emerged during the analysis of interviews. Matters of stress and motivation, when discussed, appeared to be of primary importance for participants.

Conclusion

Our inventory provides a useful framework for future research and for assisting teachers who want to implement explicit strategic instruction in their aural skills classes. During our analysis, it became clear that our inventory benefited from combining many different sources, which enabled a rich and diverse array of strategies to emerge. It also demonstrates that the number of cognitive strategies an individual can identify consciously is much lower than those that can actually be used. In that sense, our inventory could serve as a tool to explore the teacher's current strategies and to encourage him/her to try new approaches. The way in which categorization is constructed also suggests a division of learning materials into practical themes suitable for teaching. For example, we could easily imagine a lesson in which preparation procedures are discussed with students.

Considering the lack of literature on sight-singing strategies, we also expect some benefits for research. To date, no specific framework has been available to assist quantitative research in sight-singing strategies. Our current inventory could serve as a foundation to design highly relevant questionnaires assessing strategy use in broad perspectives. This would be of great interest in defining strategic typologies or to compare the efficacy of specific strategies in performance.

Through our use of a qualitative inductive approach, we were able to define major themes in this study that are worthy of further in-depth analysis, such as our findings from the interviews that related to individual rehearsal techniques, support strategies and a three-stage reading acquisition process. It would be interesting to study which strategies are used during individual students' practices. In interviews, many participants also revealed that

stress coping and motivation were the two biggest issues they had to struggle with. This emphasizes the need for further study on learning support strategies.

Although we have taken many precautions to make the inventory as comprehensive as possible, it is not necessarily complete. Our analyses cannot extend beyond the texts included in our corpus. For example, we know from experience that many teachers make use of improvisation in their aural skills classes; however, none of our sources mentioned this. Consequently, no strategy referring to improvisation could be incorporated into our inventory. Finally, we should mention that many of our sources were to some extent interrelated. For example, it is to be expected that the manuals used in our College influence both the teachers' and the students' reflections. Despite the limitations we have just mentioned, we remain confident that our framework will provide a useful resource for aural skills teachers and researchers.

References

Asmus, E. P. (2004). Music teaching and music literacy. *Journal of Music Teacher Education, 13*(6), 6-8.

Barnes, J. W. (1960). *An experimental study of interval drill as it affects sight singing skill* (doctoral dissertation, Indiana University). Retrieved from ProQuest Dissertations and Theses database.

Bartholomew, D. (1995). Sounds before symbols: What does phenomenology have to say? *Philosophy of Music Education Review, 3*(1), 3-9.

Bean, K. L. (1938). An experimental approach to the reading of music (Doctoral dissertation, University of Michigan). *Psychological Monographs*, *50*(6).

Bégin, C. (2008). Les stratégies d'apprentissage: un cadre de référence simplifié. *Revue des sciences de l'éducation, 34*(1), 47-67.

Berkowitz, S., Frontier, G., Kraft, L., Goldstein, P., & Smaldone, E. (2011). *A new approach to sight singing* (5th ed.). New York, NY: W. W. Norton and Company.

Boutin, G. (2011). *L'entretien de recherche qualitatif.* Québec, Canada: Presses de l'Université du Québec.

Brown, K. D. (2001). *Effects of fixed and movable sightsinging systems on undergraduate music students' ability to perform diatonic, modulatory, chromatic, and atonal melodic passages* (Doctoral dissertation, University of Oregon). Retrieved from ProQuest Dissertations and Theses database.

Bowyer, J. (2015). More than solfège and hand signs: Philosophy, tools, and lesson planning in the authentic Kodály classroom. *Music Educators Journal, 102*(2), 69-76.

Boyle, J. D. (1970). The effect of prescribed rhythmical movements on the ability to read music at sight. *Journal of Research in Music Education, 18*(4), 307-318.

Chadwick, J. E. (1933). Predicting success in sight-singing. *Journal of Applied Psychology, 17*, 671- 674.

Chiu, C. W. T. (1998). *Synthesizing metacognitive interventions: What training characteristics can improve reading performance*? Paper presented at the annual meeting of the American Educational Research Association. April 13-17, 1998, San Diego, California.

Dannhäuser, A. (1891). *Solfège des solfèges*. (J. H. Cornell, Trans.). Milwaukee, WI: Schirmer.

Dansereau, D. F. (1985). Learning strategy research. In J. W. Segal, S. F. Chipman & R. Glaser (eds.). *Thinking and learning skills.* Hillsdale, NJ: Erlbaum.

Davidson, L., Scripp, L. & Welsh, P. (1988). "Happy birthday": evidence for conflicts of perceptual knowledge and conceptual understanding. *Journal of Aesthetic Education, 22(1)*, 65-74.

Dean, C. D. (1937). Predicting sight-singing ability in teacher-education. *The Journal of Educational Psychology, 28*(8), 601-608.

DeBellis, M. (2005). Conceptual and non-conceptual modes of music perception. *Postgraduate Journal of Aesthetics*, *2*(2), 45-61.

Dignath, C., & Büttner, G. (2008). Components of fostering self-regulated learning among students. A meta-analysis on intervention studies at primary and secondary school level. *Metacognition Learning, 3,* 231-264.

Dignath, C., Büttner, G., & Langfeldt, H. (2008). How can primary school students learn self- regulated learning strategies most effectively? A meta-analysis on self-regulation training programmes. *Educational Research Review, 3,* 101-129.

Donker, A. S., de Boer, H., Kostons, D., Dignath van Ewijk, C. C., & van der Werf, M. P. C. (2014). Effectiveness of learning strategy instruction on academic performance: A meta-analysis. *Educational Research Review, 11*, 1-26.

Drake, C. & Palmer, C. (2000). Skill acquisition in music performance: Relations between planning and temporal control. *Cognition, 74*(1), 1-32.

Elliott, C. A. (1982). The identification and classification of instrumental performance sight-reading errors. *Journal of Band Research, 18*(1), 36-42.

Floyd, E. & Bradley, K. D. (2006). Teaching strategies related to successful sight-singing in Kentucky choral ensembles. *Update: Applications of Research in Music Education, 25,* 70-81.

Fournier, G. (2015). *Recension, description et catégorisation des stratégies cognitives liées à la lecture à vue chantée et à l'apprentissage du solfège chez les étudiants en musique de niveau collégial* (Master's thesis, Université Laval). Retrieved from http://www.theses.ulaval.ca/2015/32058/

Furby, V. (2008). Process and products: the sight-singing backgrounds and behaviors of first-year undergraduate students (Doctoral dissertation, Ohio State University). Retrieved from ProQuest Dissertations and Theses database.

Grutzmacher, P. A. (1987). The effect of tonal pattern training on the aural perception, reading recognition, and melodic sight-reading achievement of first-year instrumental music students. *Journal of Research in Music Education, 35*(5), 171-181.

Harrison, C. (1987). The validity of the musical aptitude profile for predicting grades in freshman music theory. *Educational and Psychological Measurement, 47*, 477-482.

Harrison, C. (1990). Relationships between grades in the components of freshman music theory and selected background variables. *Journal of Research in Music Education, 38*(3), 175-186.

Harrison, C. (1991). Analyses of relationships between aural skills and background variables: LISREL versus multiple regression. *The Quarterly, 2*(4),10-20.

Harrison, C., Asmus, E. & Serpe, R. (1994). Effects of musical aptitude, academic ability, music experience, and motivation on aural skills. *Journal of Research in Music Education, 42*(2), 131-144.

Hattie, J., Biggs, J., & Purdie, N. (1996). Effects of learning skills interventions on student learning: A meta-analysis. *Review of Educational Research, 66,* 99-136.

Henry, M. L. (2004). The use of targeted pitch skills for sight-singing instruction in the choral rehearsal. *Journal of Research in Music Education, 52*(3), 206-217.

Henry, M. L. (2008). The use of specific practice and performance strategies in sight-singing instruction. *Update: Applications of Research in Music Education, 26*(2), 11-16.

Holmes, A. V. (2009). Effect of fixed-do and movable-do solfege instruction on the development of sight- singing skill in seven-and eight-year-old children (Doctoral dissertation, University of Florida). Retrieved from ProQuest Dissertations and Theses database.

Hung, J.-L. (2012). An investigation of the influence of fixed-do and movable-do solfège systems on sight-singing pitch accuracy for various levels of diatonic and chromatic complexity (Doctoral dissertation, University of San Francisco). Retrieved from ProQuest Dissertations and Theses database.

Karpinski, G. S. (2000). *Aural skills acquisition: The development of listening, reading, and performing skills in college-level musicians.* New York, NY: Oxford University Press.

Karpinski, G. S. (2007). *Manual for ear training and sight singing.* New York, NY: W. W. Norton and Company.

Killian, J. N., & Henry, M. L. (2005). A comparison of successful and unsuccessful strategies in individual sight-singing preparation and performance. *Journal of Research in Music Education, 53*(1), 51-65.

Kopiez, R., & Lee, J. (2006). Towards a dynamic model of skills involved in sight reading music. *Music Education Research, 8*(1), 97-120.

Kopiez, R. & Lee, J. (2008). Towards a general model of skills involved in sight reading music. *Music Education Research, 10*(1), 41-62.

Lehmann, A & McArthur, V. (2002). Sight-reading. In R. Parncutt & G. E. McPherson (eds.) *The science and psychology of music performance: Creative strategies for teaching and learning* (pp. 135-150). New York, NY: Oxford University Press.

Legendre, R. (1993). *Dictionnaire actuel de l'éducation* (2nd ed.). Montréal, Canada: Guérin.

Leon-Guerrero, A. (2008). Self-regulation strategies used by student musicians during music practice. *Music Education Research, 10*(1), 91-106.

MacKenzie, C. L., Vaneerd, D. L., Graham, E. D., Huron, D., B., & Wills, B., L. (1986). The effect of tonal structure on rhythm in piano performance. *Music Perception, 4*(2), 215-225.

MacKnight, C. B. (1975). Music reading ability of beginning wind instrumentalists after melodic instruction. *Journal of Research in Music Education, 23*(1), 23-34.

McPherson, G. E. (1994). Factors and abilities influencing sightreading skill in music. *Journal of Research in Music Education, 42*(3), 217-231.

Mishra, J. (2014). Factors related to sight-reading accuracy: A meta-analysis. *Journal of Research in Music Education, 61*(4), 452-465.

Mishra, J. (2013). Improving sightreading accuracy: A meta-analysis. *Psychology of Music, 0*(0), 1-26.

Nielsen, S. G. (1999). Learning strategies in instrumental music practice. *British Journal of Music Education, 16*(3), 275-291.

Nielsen, S. G. (2001). Self-regulating learning strategies in instrumental music practice. *Music Education Research, 3*(2), 155-167.

Ottman, R. W. (1956). *A statistical investigation of the influence of selected factors on the skill of sight-singing* (Doctoral dissertation, North Texas State College). Retrieved from ProQuest Dissertations and Theses database.

Oxford, R. L. (2011). *Teaching and researching language learning strategies*. Harlow, United Kingdom: Pearson Education.

Paillé, P. & Mucchielli, A. (2013). *L'analyse qualitative en sciences humaines et sociales* (3rd ed.). Paris: Armand Collin.

Palmer, C & Krumhansl, C. L. (1990). Mental representations for musical meter. *Journal of Experimental Psychology: Human Perception and Performance, 16*(4), 728-741.

Parker, R. C. (1979). *The relative effectiveness of the Tap System in instruction in sight singing: an experimental study* (doctoral dissertation, University of Miami). Retrieved from ProQuest Dissertations and Theses database.

Pressley, M. & Woloshyn, V. (1995). *Cognitive strategy instruction that really improves children's academic performance.* Cambridge, MA: Brookline Books.

Rodeheaver, R. E. (1972). *An investigation of the vocal sight reading ability of college freshman music majors* (doctoral dissertation, University of Oklahoma). Retrieved from ProQuest Dissertations and Theses database.

Rogers, M. (2004). *Teaching approaches in music theory: An overview of pedagogical philosophies.* Carbondale, IL: Southern Illinois University Press.

Salis, D. L. (1980). Laterality effects with visual perception of musical chords and dot patterns. *Perception and Psychophysics, 28*(4), 284-292.

Sauvayre. R. (2013). *Les méthodes de l'entretien en sciences sociales.* Paris: Dunod.

Schleuter, S. (1983). A predictive study of an experimental college version of the musical aptitude profile with certain music achievement of college music majors. *Psychology of Music, 11*, 32-36.

Scripp, L. R. (1995). *The development of skill in reading music* (Doctoral dissertation, Harvard University, MA). Retrieved from ProQuest Dissertations and Theses database.

Scripp, L., R. & Davidson, L. (1994). Giftedness and professional training: The impact of music reading skills on musical development of conservatory students. In R. Subotnik & D. D. Arnold (eds.), *Beyond Terman: Contemporary longitudinal studies of giftedness and talent.* New York, NY: Ablex.

Seashore, C. (1938). *The psychology of music.* New York, NY: McGraw-Hill.

Sloboda, J. A. (1983). The communication of musical metre in piano performance. *Quarterly Journal of Experimental Psychology, 35*(2), 377-396.

Sloboda, J. A. (1978). The psychology of music reading. In J. A. Sloboda (2005), *Exploring the musical mind.* New York, NY: Oxford University Press.

Sousa, D. A. (2009). *Un cerveau pour apprendre à lire: mieux comprendre le fonctionnement du cerveau pour enseigner la lecture plus efficacement* (G. Sirois, trans.). Montréal, Canada: Chenelière Éducation.

Stegall, J. C. (1992). *The influence of isolated rhythmic training with a selected method of study on the ability to sing music at sight* (doctoral dissertation, University of Missouri). Retrieved from ProQuest Dissertations and Theses database.

Stevenson, A. R. (2010). *The effect of specific strategies on the sight-singing performance of high school singers* (Master's thesis, Western Illinois University). Retrieved from ProQuest Dissertations and Theses database.

Thackray, R. (1975). Some thoughts on aural training. *Australian Journal of Music Education, 17*, 25-30.

Thompson, K. A. (2003). *Pitch internalization strategies of professional musicians* (Doctoral dissertation, University of Oklahoma). Retrieved from ProQuest Dissertations and Theses database.

Thompson, K. A. (2004). Thinking in sound: A qualitative study of metaphors for pitch perception. *Journal of Music Theory Pedagogy, 18*, 81-107.

Thornberg, Robert (2012). Grounded theory. In J. Arthur, M. Waring, R. Coe & L. V. Hedges, *Research methods & methodologies in education*. Thousand Oaks, CA: SAGE Publications.

Thostenson, M. S. (1967). The study and evaluation of certain problems in eartraining related to achievement in sightsinging and music dictation. *Bulletin of the Council for Research in Music Education, 11*, 14-35.

Tremblay, V. (2014). *L'enseignement de la formation auditive: approches et démarches pédagogiques des enseignants des cégeps francophones du Québec* (Master's thesis,

Université Laval, Canada). Retrieved from http://www.theses.ulaval.ca.acces.bibl.ulaval.ca/2014/30588/

Vujović I., & Bogunović, B. (2012). *Cognitives strategies in sight-singing*. Proceedings of the 12th International Conference on Music Perception and Cognition (ICMPC) and 8th Triennial Conference of the European Society for the Cognitive Sciences of Music. July 23-28, 2012, Thessaloniki, Greece.

Waters, A. J, Townsend, E. & Underwood, G. (1998). Expertise in musical sight reading: A study of pianists. *British Journal of Psychology, 89*, 123-149.

Weinstein, C. F. & Mayer, R. F. (1986). The teaching of learning strategies. In M. C. Wittrock (ed.), *Handbook of research on teaching* (pp. 315-327). New York, NY: Macmillan Publishing Company.

Wolf, T. (1976). A cognitive model of musical sight-reading. *Journal of Psycholinguistic Research, 5*(2), 143- 171.