



# A Method for Studying Music Practice: SYMP (Study Your Music Practice)

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## BACKGROUND & AIMS

- Learning to play new music provides a natural laboratory for studying the development of the complex motor and mental skills required for music performance.
- Empirical observation of practice has been successfully used to test the application of psychological theories of expert memory, problem solving, and motor control to the domain of music (Chaffin & Logan, 2006).
- To facilitate empirical study of music practice, we have created SYMP (in Microsoft Excel 2007) to summarize music practice that has been previously recorded on audio or videotape.
- The program allows a person to transcribe music practice and readily obtain graphic summaries and statistics showing how practice was organized and which passages and difficulties were a focus of attention.
- SYMP differs from other transcription tools for music (SCRIBE) or language (e.g. ELAN) in that the data can be more flexibly reviewed by measure or beat, musical structure, type of practice, starts/stops, practice segments, etc. with graphical representations as well as raw data for direct analysis with statistical software (e.g. SPSS, SYSTAT, MATLAB).

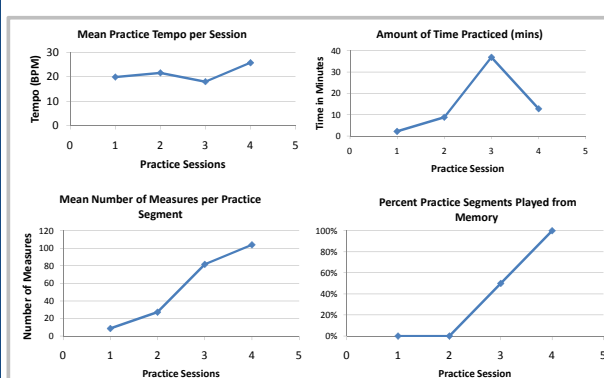
## IMPLICATIONS

- By helping musicians to study themselves, as well as their colleagues and students, we hope to learn more about what musicians actually do when they practice.
- We expect that empirical study of music practice will lead to strategies for making practice more effective and rewarding, and less frustrating and time consuming.

## REFERENCES

- Chaffin, R. & Logan, T. (2006). Practicing perfection: How concert soloists prepare for performance. *Advances in Cognitive Psychology*, 2, 113-130.
- Chaffin, R., Lisboa, T., Logan, T., & Begosh, K.T. (2009). Preparing for memorized cello performance: The role of performance cues. *Music Psychology*, in press.

**Step 3:** The Performer/Researcher receives a summary of the data in graphical form. The examples show how the user can track changes across sessions for: practice tempo, amount of time practiced, number of measures played overall, and from memory. (The charts for Step 3 are sample data.)



## USING SYMP

**General Layout:** SYMP contains 5 modules. The first module is where the data from the practice and from the music is entered. The other 4 modules provide a graphical representation of the musician's data and summary statistics for the researcher. The data used below for illustration is from Chaffin, Lisboa, Logan and Begosh (2009).

**Step 1:** The Performer/Researcher inputs data for each *practice segment* (uninterrupted playing of the piece): Start and end times (green columns), and the bar where playing starts and stops (yellow columns). S/he can also enter additional information about the practice, e.g., which hand(s) were used, whether the score was open (red columns). The blue columns are auto-generated based on the data from the previous columns and from the data collected in **Step 2**.

User enters practice information										SYMP generates the blue boxes below									
Practice Sessions	Segment	Start Time on Video Tape (mins)	Start Time on Video Tape (seconds)	Amount of Time Talking (seconds)	Start Bar	Start Beat	Stop Bar	Stop Beat	Purpose of practice	Hands	Reading Score/memory	Time Playing (seconds)	Number of measures played	Tempo for each segment	Structural Features Sum	Basic Features Sum	Interpretive Features Sum	Performance Cues Sum	
15	1	0	47		1	1	9	1	2	1	2	32	8.00	15.00	6	10	10	0	
15	2	1	19		9	1	23	1	2	1	2	55	14.00	15.27	5	54	0	9	
15	3	2	34		9	1	19	1	1	1	2	47	10.00	12.77	1	36	0	5	
15	4	3	01		9	1	15	1	2	1	2	24	8.00	15.00	1	17	0	2	
15	5	3	25		13	1	19	1	2	1	2	30	6.00	12.00	0	26	0	3	
15	6	3	55		15	1	23	2	2	1	2	32	8.50	15.94	4	39	0	7	
15	7	4	32		1	1	45	1	1	1	2	52	12.00	12.12	12	225	0	48	
15	8	7	01		35	1	37	1	1	1	2	32	2.00	2.31	0	9	0	1	
15	9	7	53		31	1	34	2	1	1	2	18	3.50	11.07	0	13	0	6	
15	10	8	11		34	1	35	2	1	1	2	20	1.50	4.50	0	4	0	0	
15	11	8	31		23	1	58	2	2	1	2	108	35.50	19.72	11	167	0	81	
15	12	10	19		45	1	50	2	2	1	2	58	5.50	5.69	4	41	0	20	
15	13	11	17		49	1	63	1	2	1	2	69	14.00	12.17	3	97	0	52	
15	14	12	26		62	1	63	1	1	1	2	38	4.00	6.32	3	36	0	22	

**Step 2:** The Performer/Researcher inputs information about the musical structure of the piece and about the musician's decisions about technique, interpretation, and performance. A "1" indicates that the feature or cue (e.g. a section boundary) is present in that bar. A "0" indicates that it is absent. This information will later be related to the information from Step 1 about how the musician practiced.

Bar	Section	Formal Structure			Basic Features			Interpretive Features				Performance Cues			
		Major Sections	Sub-Sections	Phrases	Fingering	Shift	Hand position	Hand position	Pedaling	Dynamics	tempo changes	Intonation	Finger cues	Left hand Cues	Bowling
1	Major	1	1	1	0	0	0	0	1	1	1	0	0	0	0
2	Major	0	0	0	0	0	0	0	1	0	0	0	0	0	0
3	Major	0	1	1	0	0	0	0	0	1	1	0	0	0	0
4	Major	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Major	0	0	0	0	0	0	0	0	1	0	0	0	0	0
6	Major	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7	Major	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8	Major	1	1	1	0	1	0	0	0	0	0	0	0	0	0
9	Major	0	1	1	0	0	0	0	0	5	0	0	0	0	1
10	Major	0	0	1	0	0	0	0	0	4	0	0	0	0	0
11	Major	0	0	0	0	0	0	0	0	4	0	0	0	0	0
12	Major	0	0	0	0	0	0	0	0	4	0	0	0	0	0

**Step 4:** Performer/Researcher selects which session(s) he/she would like to see in the graphs in Steps 6 – 8 by entering the session number(s) into an auto-generated table, e.g. session 15

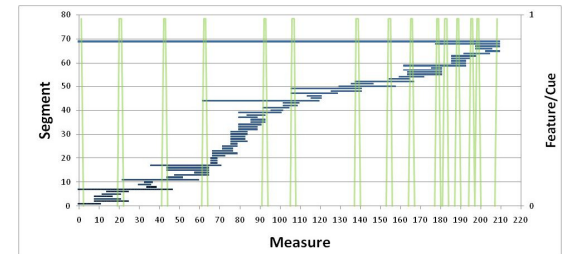
Start	End
15	15

**Step 5:** The Performer/Researcher chooses one of the musical features or cues entered in Step 1 by entering a "1" next to it in an auto-generated table.

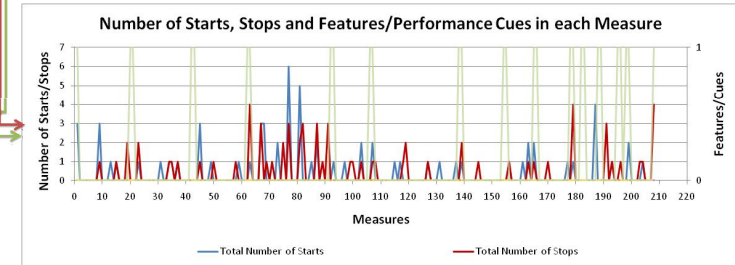
Feature/Cue	1=On, 2=Off	Line Color
Major Sections	1	Light Green
Sub-Sections	0	Red
Phrases	0	Orange
Fingering	0	Dotted-Black
Shift	0	Dotted-Orange
Hand position	0	light Blue
Pedaling	0	Dotted-Purple
Dynamics	0	Dashed-Dark Purple
tempo changes	0	Dotted-light Purple
Intonation	0	Dashed-Red
Finger cues	0	Dashed-Olive Green
Left Hand Cues	0	Dashed-light blue
Bowling	0	Dashed-Orange
Structural Features Sum	0	Aqua
Basic Features Sum	0	Grey
Interpretive Features Sum	0	Pink

**Step 6:** The Performer/Researcher can see which measures were practiced in each session. The charts read from bottom to top with each blue line representing continuous playing of the corresponding measures. The features/cues selected in Step 5 are overlaid as vertical green lines. The example shows a musician practicing a piece in sections and then playing through without stopping.

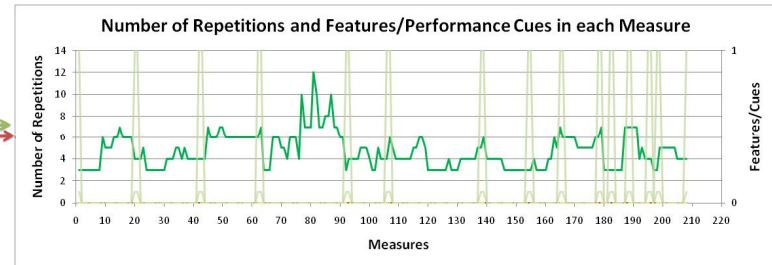
Measures Played in Successive Practice Sessions with Section Boundaries Overlaid



**Step 7:** The Performer/Researcher can ask to see where playing started and stopped in one or more practice sessions. This allows him/her to examine how starts and stops relate to the features or cues selected in Step 5.



**Step 8:** This graph shows the number of times each measure was repeated. This can also include one or more practice sessions. It allows the Performer/Researcher to examine how repetitions relate to the features or cues selected in Step 5.



**Step 9:** The researcher can extract predictors and dependent measures for use in regression analyses that determine which features and cues are reliably related to the behavioral measures entered.

For more information or to download SYMP:  
<http://www.htfdcc.uconn.edu/psyclabs/musiclab.html>