A Software Tool 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.

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

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 graphical representations of the musician's data and summary statistics for the researcher. The data used below for illustration are 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**.


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.

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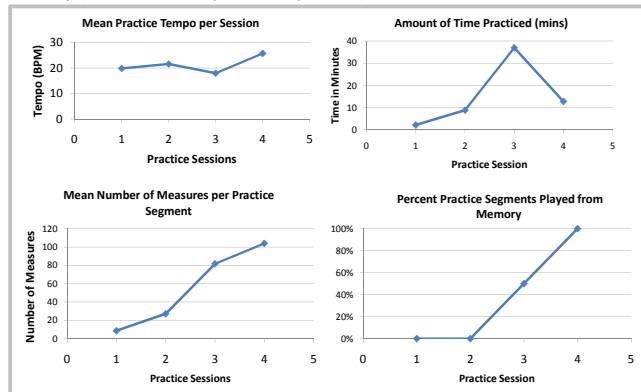
Step 4: Performer/Researcher selects which session(s) s/he would like to see in the graphs in **Steps 6 – 8** by entering the session number(s) into an auto-generated table, e.g. session 15.

Session Range	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

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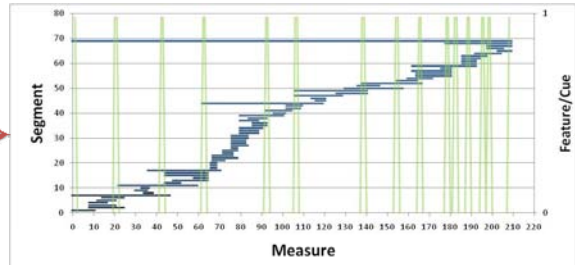
Step 7: The Performer/Researcher can ask to see where playing started and stopped in one or more practice sessions. This allows him/her to examine how starts and stops relate to the features or cues selected in **Step 5**.

Number of Starts, Stops and Features/Performance Cues in each Measure
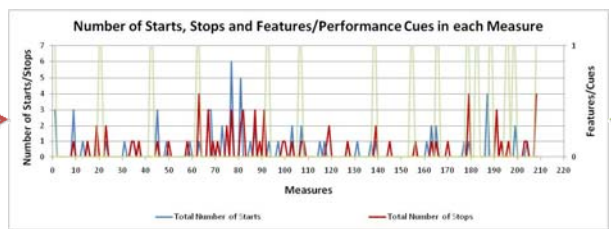
Step 8: This graphs shows the number of times each measure was repeated. This can also include one or more practice sessions. It allows the Performer/Researcher to examine how repetitions relate to the features or cues selected in **Step 5**.

Number of Repetitions and Features/Performance Cues in each Measure
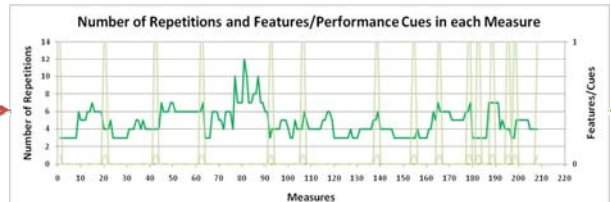
Step 9: The researcher can extract predictors and dependent measures for use in regression analyses that determine which features and cues are reliably related to the behavioral measures entered.