Effective Practice Based on Contextual Interference

What is Contextual Interference? The contextual interference effect is a learning phenomenon where interference during practice is beneficial to skill learning and retention That is, higher levels of contextual interference lead to poorer initial practice performance than lower levels while yielding superior retention and transfer performance. [1]

In a musical practice setting this may seem counterintuitive; practicing repetitiously should lead to the best performance outcome, right? Research suggests that initially, short term performance is immediately hindered, but that long term performance ability is increased in a robust way. This leads to increased retention of practiced stimuli and serves to optimize practicing and performance - getting the most out of your hard work.

The following is a typical 1-hour practice session marked out in either practice scenarios for reference:

Time	Skill to Practice	Blocked (Sequential)	Varied (Random)
10 Minutes	A: Scales (or A:abcd)	A	B
10 Minutes	B: Long Tones	B	C
15 Minutes	C: Measures 5 to 10	C	A
15 Minutes	D: Measures 12 to 20	D	D
10 Minutes	E: Sight Reading	E	E

This has been experimentally shown in studies using a random practice schedule versus a blocked practice schedule. These blocks are intervals of time allotted to practicing a specific skill and can be ordered sequentially (e.g., AABBCC) or randomly (e.g., ABBCAC). The random schedule shuffles the order of practice around at random as well as adding random breaks or varying length. The blocked practice schedule is the sequential, or “normal” way of practicing or warming up. These blocks can also be broken down into smaller units pertaining to one block (e.g., within the A block: abcd, meaning different scales or scale types based on the reference). These results have been experimentally demonstrated in multiple studies using different instruments, voice and experimental conditions. A recent study tested the concept using clarinetists and found a similar effect. [2]

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[1] Magill, R. A., & Anderson, D. I. (2007). *Motor learning and control: Concepts and applications* (Vol. 11). New York: McGraw-Hill.

[2] Stambaugh, L. A. (2011). When repetition isn’t the best practice strategy: Effects of blocked and random practice schedules. *Journal of Research in Music Education*, *58*(4), 368-383.