Interactions of Declarative and Procedural Memory in Real-Life Tasks: Validating CPR as a New Paradigm

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The Declarative Side of CPR

First Phase: Recognition and call for help
Correct sequence:
1. Response check
2. Check breathing
3. Call for help
4. Open jacket
5. Position hands

Second Phase: Administering CPR
Correct sequence:
1. 30 compressions
2. 2 rescue breaths
Repeat 5 times

Levenshtein distance between correct and recorded sequence
"12345" errors: 2
"13245" errors: 3
"CBBCBCBCBCB" errors: 3

Approach
Teach CPR and record data during learning. Have the same participants perform two lab tasks. Derive learning measures from each part. Explore correlations between all parts.

Goal
Explore whether parts of CPR are related to lab tasks of procedural and declarative learning.

The Procedural Side of CPR

Three relevant aspects:
1. compression frequency
2. compression depth
3. rescue breath volume

Errors:
- expressed on a comparable scale
- summarized into a single Procedural CPR score
- extremely similar to the Laerdal score but more fine-grained

The Serial Reaction Time Task: A proxy for procedural learning

Four-option SRTT:
- 8 blocks of 96 trials (786 total)
- 2 random blocks
- 4 sequenced blocks (sequence length: 12)
- 2 random blocks

Learning measure is the relative speed-up in the sequenced block

The rate of forgetting is the mean $\alpha$ at end of the learning session

The Serial Reaction Time Task

The rate of forgetting

0.25 0.35