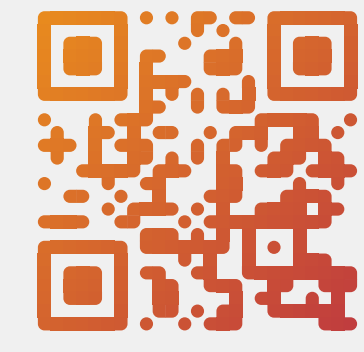




Martin A. Miguel
miguem3@mcmaster.ca



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Does switching partners enhances learning of non-verbal communication in partner dancing?

Martin A. Miguel¹ Jonathan Cannon¹ Laurel Trainor¹

¹Department of Psychology, Neuroscience & Behaviour, McMaster University, Hamilton, ON, Canada



3' speech

Results

Details

Previously...

- Improvised partner dancing affords meaningful connections and enhanced physical fitness, coordination, memory and self-confidence [Lakes et al., 2016].
- To coordinate movements with partner, a leader-follower system is often employed [Kaminsky, 2020].
- Non-verbal communication skills must be developed (i.e.: visual and haptic gestures) [Kimmel, 2019].
- These skills are learnt by trial and error.

Our question

Is switching partners a better learning strategy than dancing with the same partner?

- Same partner:** dancing repeatedly with the same partner allows repeated work on errors
- Switching partners:** less work on repeated errors is compensated by exposure to different errors and ways to communicate

Hypothesis: partner switching may allow generating a more effective and general communication framework faster

Our contribution

Experimental design:

- Focus on **followers**
- Experienced confederates as leaders
- New step sequence per trial only known to leaders

Pilot results:

- Steps could be performed by participants (Fig 1)
- Repeated trials induce improved synchronization (Fig 3)
- Pilot shows benefit of changing partners (Fig 2, 4), while new data shows benefit of same partners (Fig 3)

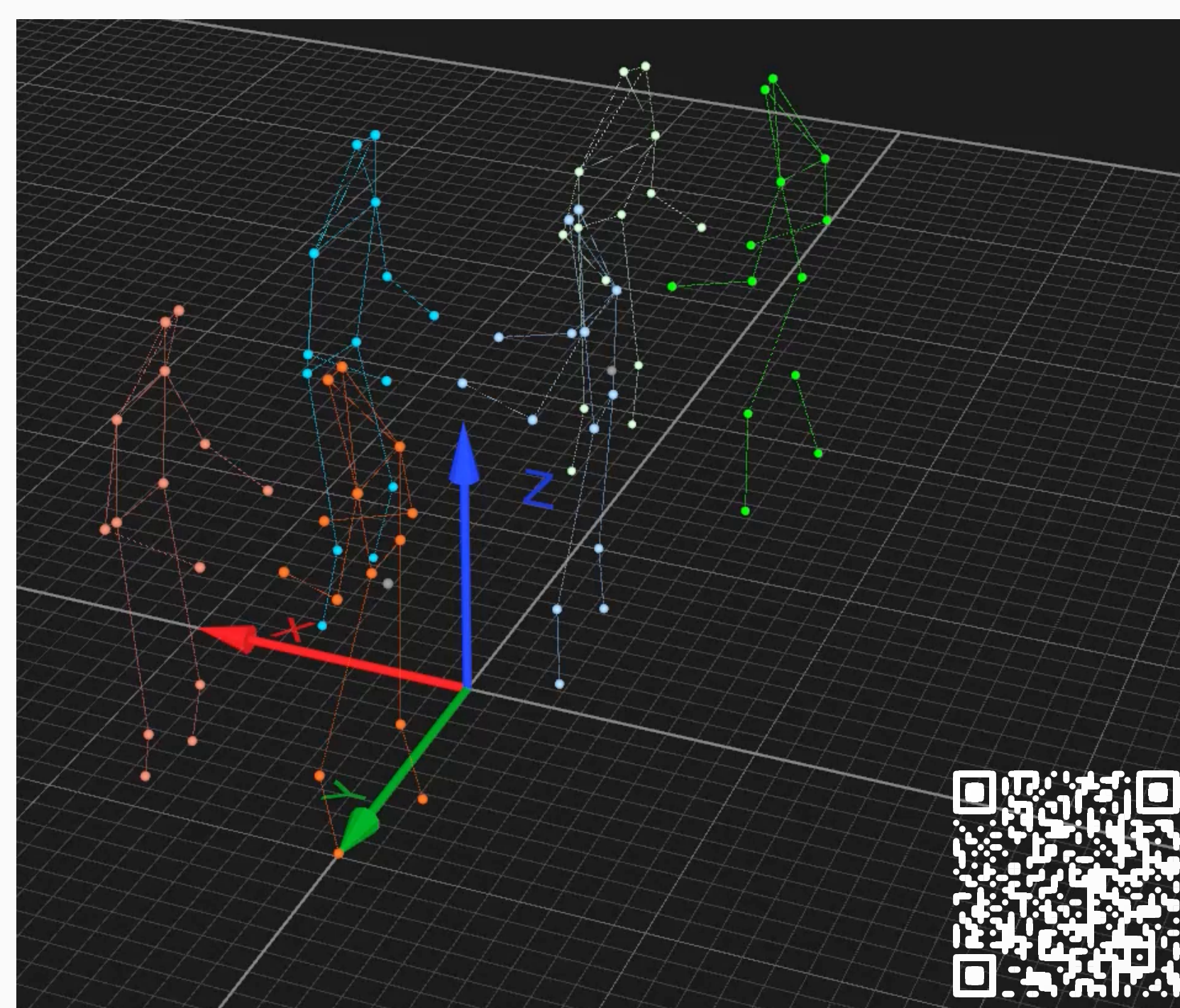


Figure 1. Motion capture from partner-switching pilot (QR to video sample of hard trial)

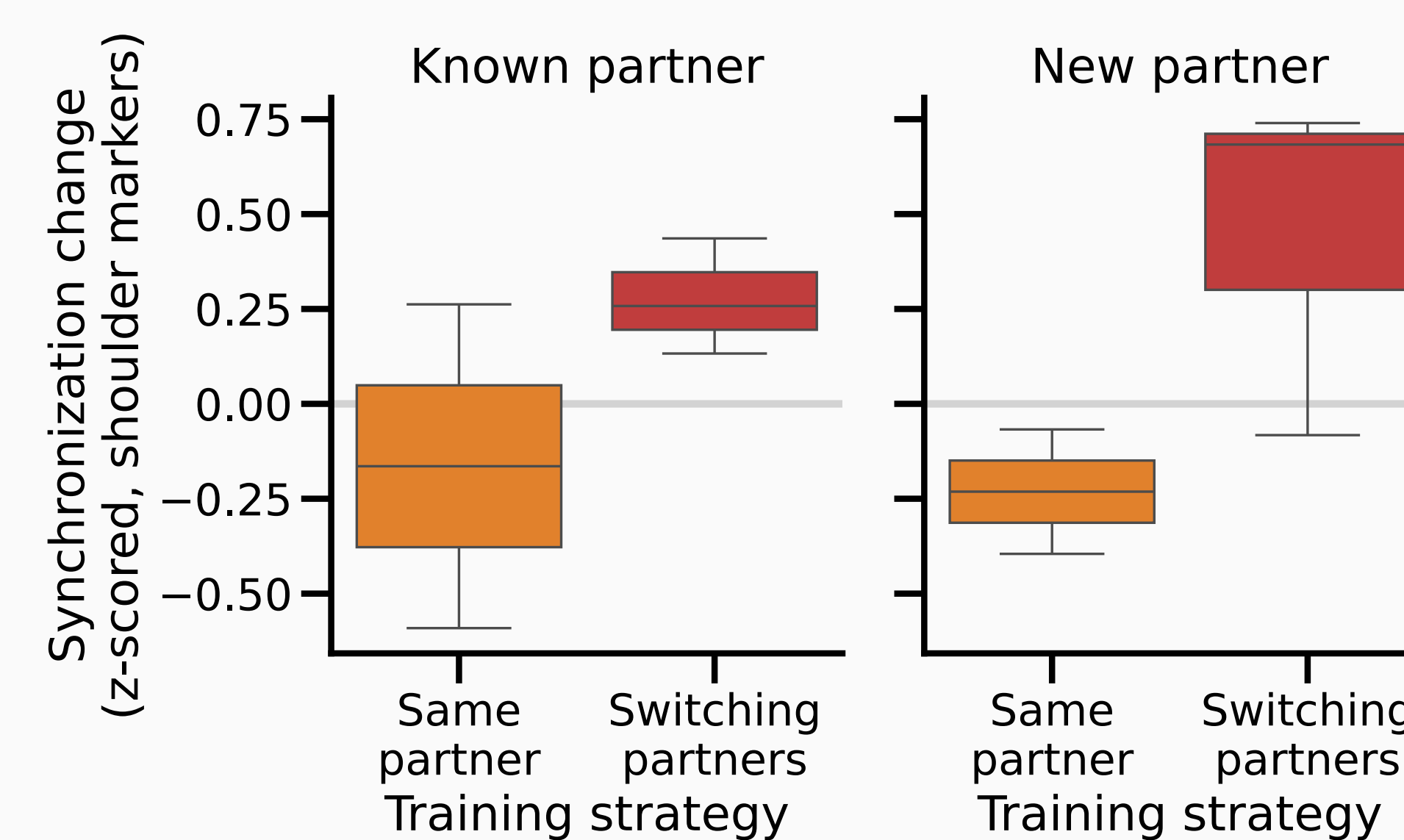


Figure 2. Change in synchronization in pre-post trials for easy condition in pilot data

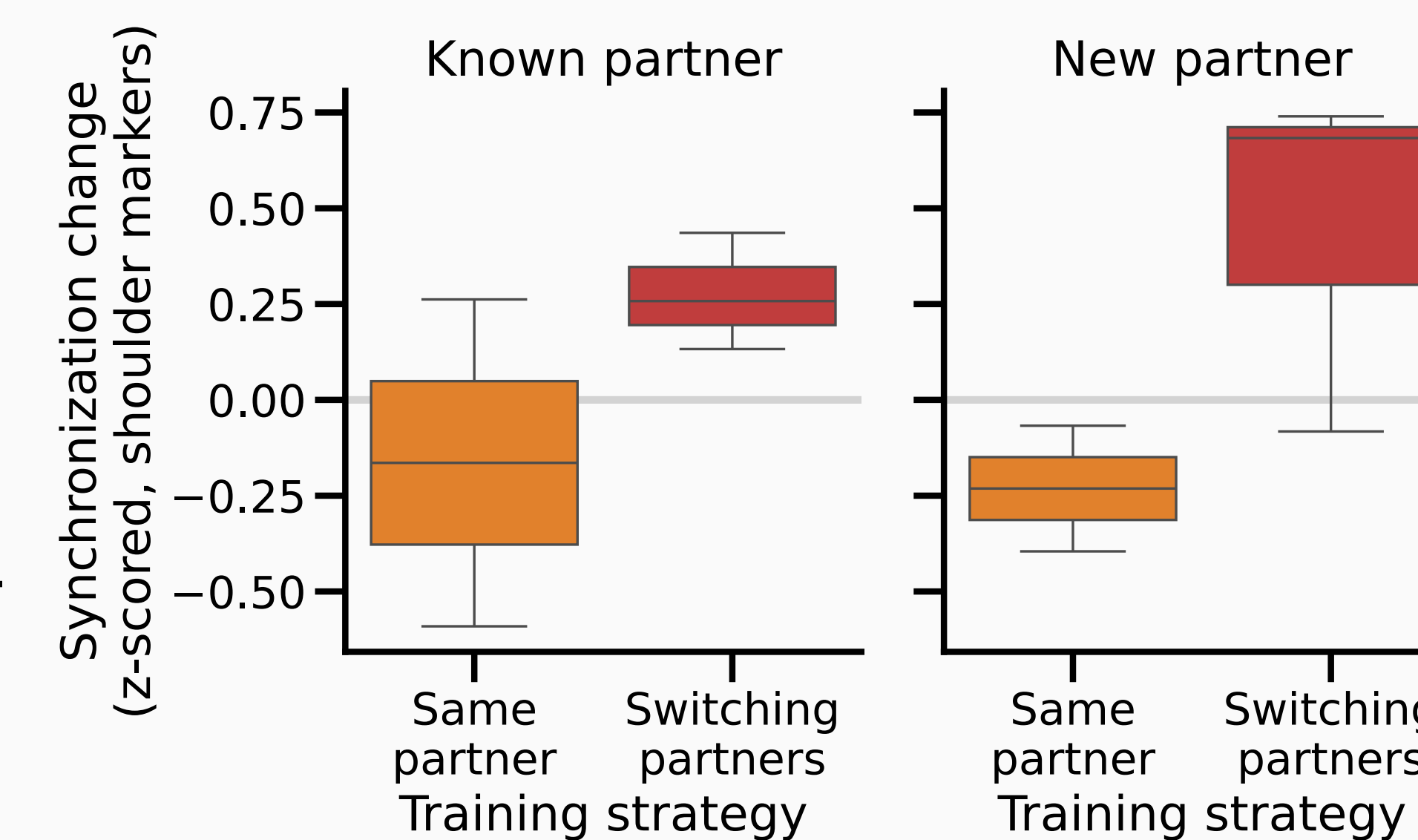


Figure 3. Change in synchronization in pre-post trials in new data

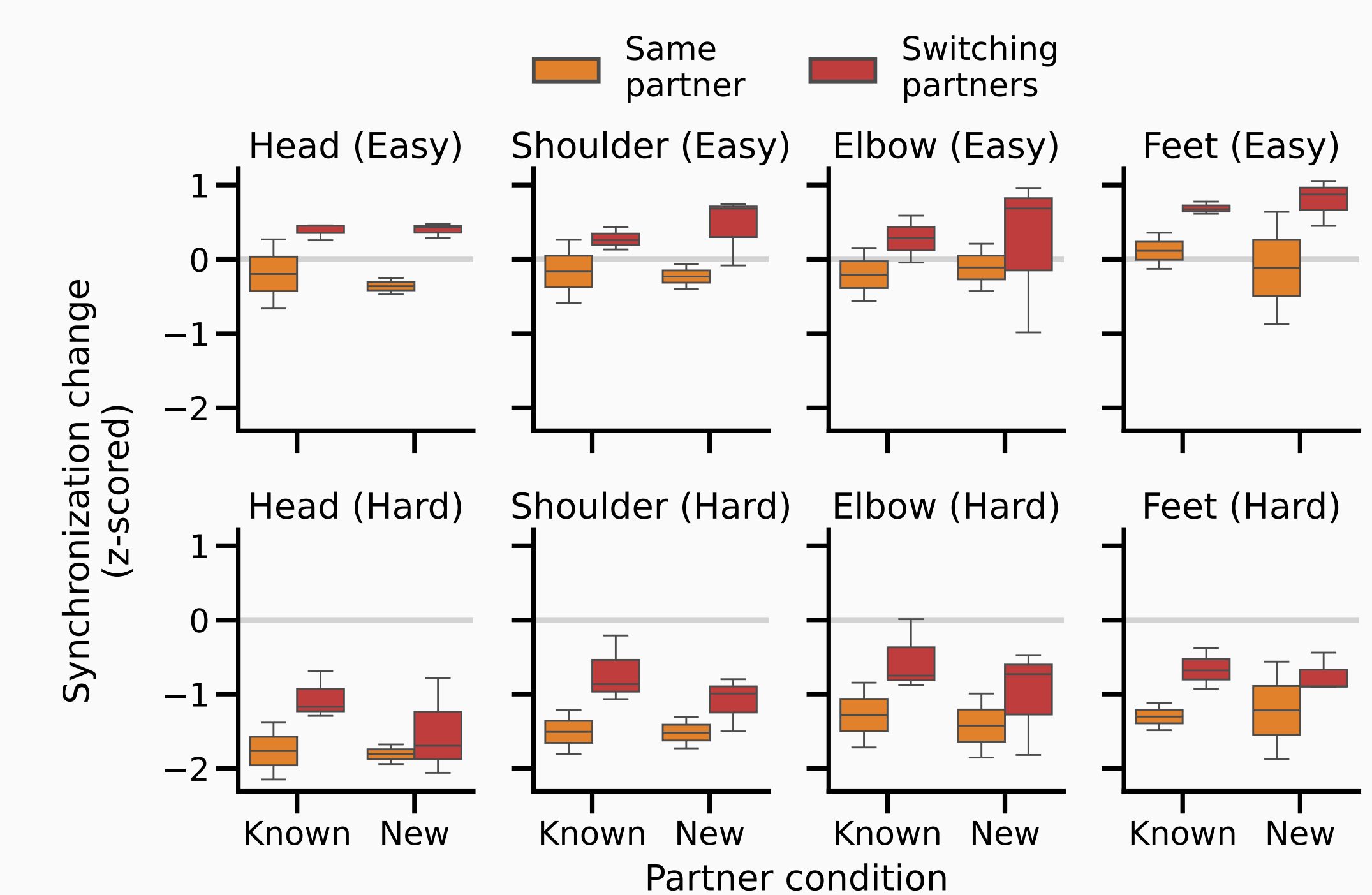


Figure 4. Change in synchronization in pre-post trials for easy and hard conditions and known and new partners for each marker group.

Methods

Task: Execute the step sequence in synchrony with your partner

- Sequence only known to leaders
- Sequence generated per trial (see **Materials**)

Participants

- Followers:** unexperienced (< 6 partner dance lessons)
- Leaders:** experienced confederates (> 6 month training and previously trained for task)
- Up to 6 followers and minimum 5 leader to allow 2 switches during training and 2 new partners during post-test.

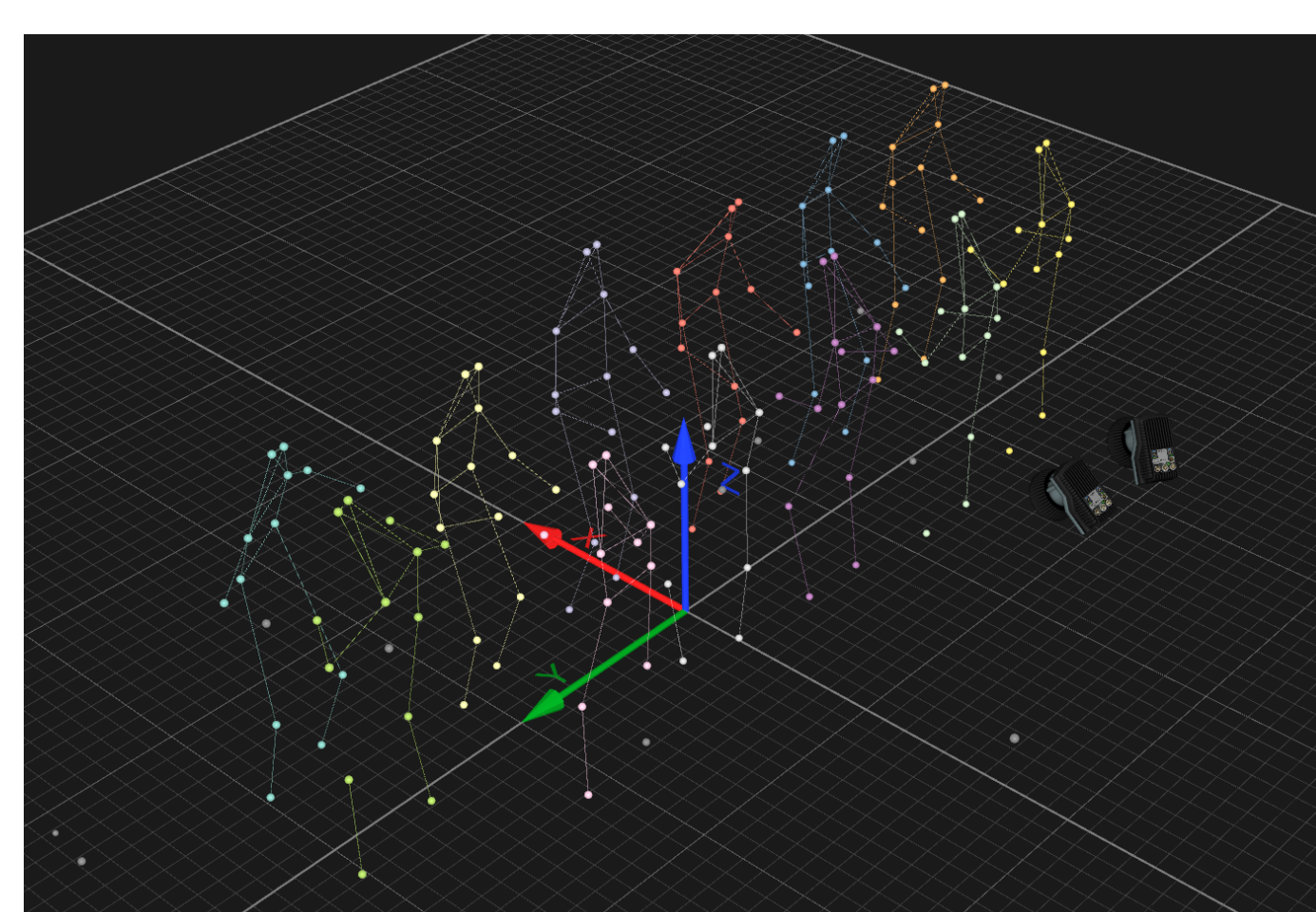
Procedure Possible dance steps are introduced at the beginning.

Trial Type	Trial Count	
	Full Procedure	Pilot
Practice	2	2
Pre-Test	4	3e + 3h
Train	8	3e + 3h
Post-Test (Known)	4	3e + 3h
Post-Test (New)	4	3e + 3h
Post-Test (New)	4	-
Post-Test (Known)	4	-

Table 1. Trial sequence. e indicates easy trials, h indicates hard trials. During Train, Switch conditions changes partners every 4 trials (2 switches).

Data collection sessions

- Pilot (same partner):** 2 couples, no switch during training
- Pilot (switch partners):** 3 couples, one switch during training
- First session (mixed):** 6 couples, 3 switched during training, 3 remained the same



Base steps

- Weight change (C)
- Step forward/backwards (F/B)
- Tap forward/backwards (F'/B')
- Feet together (T)

Steps assume full body weight on one feet. All steps but 3 change weight onto moving feet.

Step sequences

- 8 weight changes at beginning and end with middle steps randomized
- Limited displacement of 2 steps from starting position
- No change of walking direction without stepping together (no BF or FB)
- Two difficulties depending on steps used in middle:

Pilot: two difficulties

- Easy:** B x10, F x10, C x4
- Hard:** C x2, FC x3, BC x3, FFC x3, BBC x3, FT x2, BT x2

Data collection Single difficulty. Easier to read phrases.



Music: Cowbell sound overlaid to dance tempo

Song	Artist	Meter	Steps per min
Texas Flood	Stevie Ray Vaughan	12/8	63
I Can't Quit you Baby	Otis Rush	12/8	61

Materials

Analysis

