Building a Better Oarsman:
Conceptual Integration and Motor Learning in Rowing Instruction

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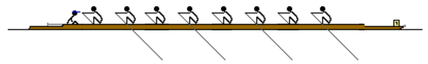


Impetus: The Skiing Waiter Blend

"One of us had a ski instructor who prompted him to stand properly and face in the right direction as he raced downhill by inviting him to imagine that he was a waiter in a Parisian café carrying a tray with champagne and croissants on it and taking care not to spill them."

- Fauconnier & Turner, 2002, p. 21

Questions

- How can visualizing a different (even impossible) activity improve performance of the present activity?
- What does the change in performance tell us about the role of conceptualization in motor learning?

Study

1. Collected samples of blended visualizations used by rowing coaches in practice sessions
2. Compared domains with which the rowing stroke was blended
3. Analyzed the conceptual blends and how they functioned to improve rowing performance

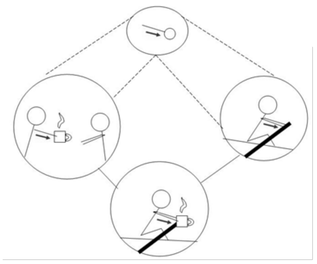
Group I: Incorporating attractors from other motor activities

Blending with athletic or everyday activities

"think about an ice skater as they push off and glide"

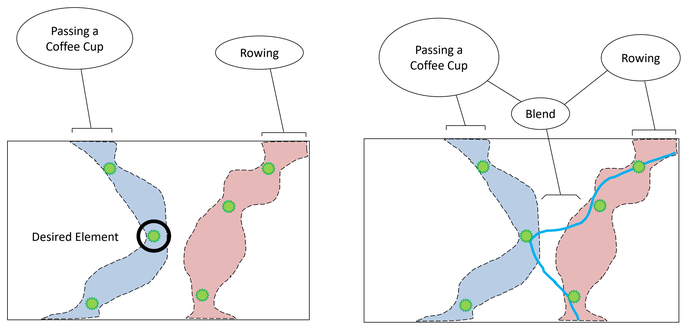
"imagine yourself hanging from a pull-up bar"

"reach forward like you're passing someone a cup of coffee"



Highlighting shared structure facilitates the incorporation of skilled movement into the target activity.

From the perspective of dynamical systems theory, the blend "borrows attractors " to reshape the trajectory through motor control state space.



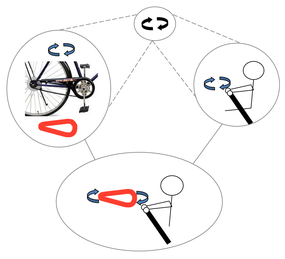
Group II: Adding image-schematic and/or force-dynamic structure

Blending with a familiar shape, path of motion, or force-dynamic gestalt

"draw a long rectangle with your hands"

"as if it were a rebound of a ball against a wall"

"trace a bicycle chain with your hands"



Projecting mental imagery onto the environment adds image-schematic structure to guide the performance of action.

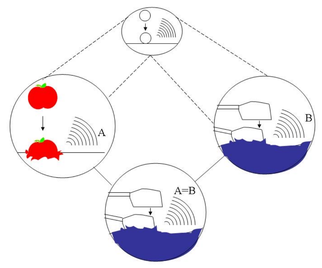
Group III: Establishing reference sensations

Blending with familiar feelings or sensations

"it's gonna feel like you're slapping the blade against the water"

"let it feel like you're pulling yourself up through molasses"

"when the oar enters the water, it should sound like an overripe tomato hitting pavement from ten stories up"



Establishing a reference sensation produces an expectation against which actual sensations can be compared, providing feedback to judge and correct performance.

Example: Blends in Action

0:18

1. and this is where you would **catch** or **grab** the water (0.5)
2. you notice her legs are in the proper position here
3. just like doing a **power clean**
4. if you were to- working with weights (0.4)
5. so she's gonna push down with her **legs first**
6. the legs are gonna go back
7. an' once the legs are extended
8. she's gonna unfold her back
9. to allow her **shoulders** to get it
10. and then she's gonna pull her **arms in**.

- Livestrong's "How to Have Proper Rowing Technique"

Conclusions

Conceptual blending influences how our bodies function and how we learn to perform complex activities. Blended visualizations work in concert with direct instruction to construct skills by:

- Borrowing attractors to produce more stable patterns of activity
- Adding imagistic structure to guide action
- Establishing reference sensations for analysis of feedback
- Helping the novice form a conceptual model of the activity

Selected References

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