Generaling a Movement Strategy

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At present, considerable progress has been made in the development of control mechanism models of motor skill learning. Their major contribution is to describe sensorimotor adaptation. On the other hand, we do not know much about the process of strategy development. A scientific question could be asked about different sources of information which is used to generate or modify strategies. Are there signals of affordance inherent in action or task dependent variables that help the performers to initiate solution for new pattern of action?

Dick Fosbery had struggled to clear even modest heights using the western Roll that was very popular technique at that time. After several embarrassing performances, he reverted to a technique in which he simply hurdled sideway over the bar.

He learned back, thrusting his hips over the bar and landing on his back. He went on to refine the technique over subsequent years so that he could earn a gold medal at the 1968 Olympics in Mexico City. Within a few years, nearly all thing jumpers had adapted the technique.

To fully understand strategy development and changes it will be necessary to charactering the inputs into the strategy process. Popular tasks for study action selection, such a small and fixed set of discrete actions would limit the search space to a finite set of action - outcome alternatives. Since the search space is continuous in motor control. It is also unclear if reward is the driving input for the strategy system. Rewards in many contexts is discrete a choice was either correct or incorrect. However, actions especially when they involve complex sequences of moments are much more varied. How would reward signals be used to train a strategic process with a nearly infinite action space?

Therefore, a reasonable experimental approach will require a more constrained situation, task in which there is relatively limited set of potential actions to isolate the inputs and characterize the time course of the strategic process.

Work along these lines could provide a new perspective for understanding not only the strategy change, but also spontaneous strategy development.

References

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