Emphasis Change as a Training Protocol for High Demand Tasks

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Emphasis change is a training protocol in which subjects are required during training to systematically change their emphasis (effort, attention allocation) on sub-elements of a performed task. Emphasis levels are varied between few minute practice trials or performance durations. Experiments and application studies by several research groups have demonstrated the robustness of this protocol in improving the ability of performers to cope with high workload tasks. The talk will describe main variants of the emphasis change protocol and review major outcomes of its application. Emphasis change as a training protocol is argued to be a special and specific case of introducing variability to training. Other examples are the effects of training under uniform versus mixed trial blocks, and introducing a random noise component to the forcing function in the training of manual tracking skills.

It is proposed that the introduction of variability, or multiple performance alternatives early in training, influences the formation of the general task shell within which competence is developed and exercised. Variability leads to the formation of task shells in which changes of task features and demands are an integral dimension of the shell. The acquired skill includes a developed ability to adapt to changes. High demand tasks are especially susceptible to transient and local changes in task load, and hence benefit substantially from the emphasis change protocol. Moreover, the systematic control over the profile of emphasis change in training is a powerful tool in shaping up the nature of expertise and its strategic flexibility.