Book of Abstracts

European Workshop On Movement Science

Faculty of Human Movement Sciences
VU University Amsterdam
May 31 – June 2, 2007
www.ewoms.eu

Organizing Committee

Peter Beek (Amsterdam, the Netherlands)
Wolfgang Schöllhorn (Münster, Germany)
Willem Verwey (Enschede, the Netherlands)

Scientific Committee

Peter Beek (Amsterdam, the Netherlands)
Axel Cleeremans (Bruxelles, Belgium)
Sten Grillner (Stockholm, Sweden)
Marc Jeannerod (Bron, France)
Wolfgang Schöllhorn (Münster, Germany)
Gregor Schöner (Bochum, Germany)
Willem Verwey (Enschede, the Netherlands)

these learning styles has been modeled through a different theory (Cleeremans, 1993, Perruchet & Vinter 2002), but it is not clear which behavioral differences may help researchers to distinguish between them. A process of learning disjoint chunks, together with the progressive composition of the resulting fragments, could end up producing a pattern of performance similar to that produced by a connectionist model that continuously learns to exploit the statistical structure of the sequence. Because different learners may be chunking the series in a different way, it is difficult to spot clear discontinuities from average RTs. On the other hand, exploration of individual data is not much helpful either, because at this level it becomes very difficult to separate random from systematic variance. This research starts by assuming that the measures of variance of RT as computed between parts of the sequence can provide us with a useful index of the continuous vs. fragmentary nature of the underlying learning process. According to PARSER, we posit that chunk learning should produce a relative increase in this measure of variance, at least over the first blocks of training. However, several experimental studies showed that this increase in variance is not observed in such continuous settings. This is true even when either color or semantic cues are added to the material in an attempt to force participants to chunk the sequence in a particular way. Given that such fragmentation effects have been widely observed in related studies using discrete sequence production tasks (Verwey, 2001), it appears that there are the continuous responses required specifically by the SRT tasks what produces the seamless, statistical learning process observed selectively in this type of tasks.

References

Cleeremans, A (1993). Mechanisms of implicit learning. Connectionist models of sequence processing. Cambridge, MA: MIT Press.

Perruchet, P, Vinter, A (2002). The self-organising consciousness: A framework for implicit learning. In R French, A Cleeremans, (Eds.) Implicit Learning and Consciousness: An empirical, philosophical and computational consensus in the making. Hove, UK: Psychology Press.

Verwey, W (2001). Concatenating familiar movement sequences: The versatile cognitive processor. Acta Psychologica, 106, 69-95.

Contextual dependent motor learning in a static environment

EL Abrahamse, WB Verwey, JH Annema

Twente University, Telephone: +31 53 4894637, Fax: +31 53 4894580, Email: e.l.abrahamse@gw.utwente.nl

This study investigated the development of contextual dependencies for perceptual-motor learning on static and task irrelevant features from the learning environment. In two experiments we manipulated task irrelevant, static context features, and measured the effect on performance in a serial reaction-time task. Experiment 1 demonstrated impaired performance after simultaneously changing display color, stimulus shape, and screen location, whereas Experiment 2 showed that this effect

was mainly caused by the sole contribution of changing the stimulus shape. These results thus indicate that contextual dependencies develop for perceptual-motor performance, but that this process is rather selective. Further experiments will have to indicate whether context change only impaired stimulus-response associations, or also sequence learning itself.

References

Wright, DL, Shea, CH (1991). Contextual dependencies in motor skills. Memory & Cognition, 19, 361-370

Implicit learning of sequences: discretness versus continuity

Stephanie Chambaron-Ginhac

Université Libre de Bruxelles, 50 Av. FD Roosevelt (CP 191), 1050 BRUXELLES – BELGIQUE, Telephone: +322 650 36 22, mail: schambar@ulb.ac.be

Chambaron, Ginhac, Ferrel-Chapus, and Perruchet (2006) failed to observe learning in a tracking task using repetitions of the continuous movement of a target. This result stands in sharp contrast with the ubiquitous evidence of learning obtained in Serial Reaction Time (SRT) tasks, which involves the repetition of discrete positional changes. In three experiments, we show that performance improvement in a SRT paradigm persists when (1) the repeated sequence is surrounded by random sequences, as in continuous tracking tasks (2) the SRT task is performed with a computer mouse rather than with keypresses and (3), the number of possible locations of the target is extended from 4 to 8, with those locations being no longer displayed continuously on screen. Although they do not offer a definitive explanation for the difficulty to learn from continuous movements, these results restrict the number of possible hypotheses. They also suggest new procedures for investigating issues yet to be explored in SRT research.

References

Chambaron, S, Ginhac, D, Ferrel-Chapus, C, Perruchet, P (2006). Implicit learning of a repeated segment in continuous tracking: A reappraisal. Quarterly Journal of Experimental Psychology, 59, 845-854.

How incidental sequence learning creates reportable knowledge: The role of unexpected events

Dennis Rünger [1], Peter A Frensch [2]

[1]Berlin-Brandenburg Academy of the Sciences, Berlin, Germany, [2]Humboldt-University, Berlin, Germany, Telephone: +49 (0)30 20370 205, Email: dennis.ruenger@gmail.com

A typical outcome of an incidental learning episode with the serial reaction time (SRT) task is that some participants are able to verbally describe the sequential regularity built into the task. However, little is known about the processes that contribute to the generation of reportable sequence knowledge. Frensch and