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The Mechanism of Action of an Equine Assisted Intervention

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Emotions and Learning....

Though long alluded to, there is now an accumulation of evidence of the vital contribution that emotion makes to learning. The present study combines physiological and experiential methodologies to explore the ‘landscape’ of people’s learning during the intervention under study.



Click here to play a 4 minute video of the intervention under study: TheHorseCourse (UK)

<https://vimeo.com/222624036>

Click here to visit TheHorseCourse.org



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Learning about learning.....

- Learning is profoundly linked to attention, motivation and emotion (Fazelpour & Thompson 2015) however all this complexity is experienced by us as one moment in time (Bayne 2010).
- Our research collected data on multiple aspects of this `whole` the methodology is termed hetero phenomenology (Dennett 2007).



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How did we develop our research question?

Qualitative Literature –

*Many emotions
experienced by
participants:*

Patience

Respect

Empathy

Calmness

Pride

Quasi-experimental studies found:

*Improvements in social
competence (Pendry
2013).*

Feasibility study

*81% of participants
improved core skills
including calmness and
72% reduced problem
behaviours*

*(Hemingway 2018 in
review)*

***What part does
emotion play in
learning to
behave differently?***

Emotion enhances learning creating behaviour change.



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Data Collection

- Psycho-physiology data collected, heart rate, heart rate variability, breathing, skin conductivity response (SCR) and neurological/emotional measurements (facial EMG).
- Qualitative interviews undertaken while participants watch themselves on video with the horses to gain their cognitive perceptions during the learning process.
- Observation of the horsemanship videos synchronized with the psycho-physiology data and the qualitative responses.



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Skin Conductivity Response

- This is when the skin momentarily becomes a better conductor of electricity when either external or internal stimuli occur that are physiologically arousing. Arousal is widely considered to be one of the main dimensions of an emotional response. It is not the same as the skin's response to heat or exertion.
- Arousal has been found to be a strong predictor of attention and memory. Many different kinds of events can elevate your response including strong emotion, a startling event or a demanding or novel task.

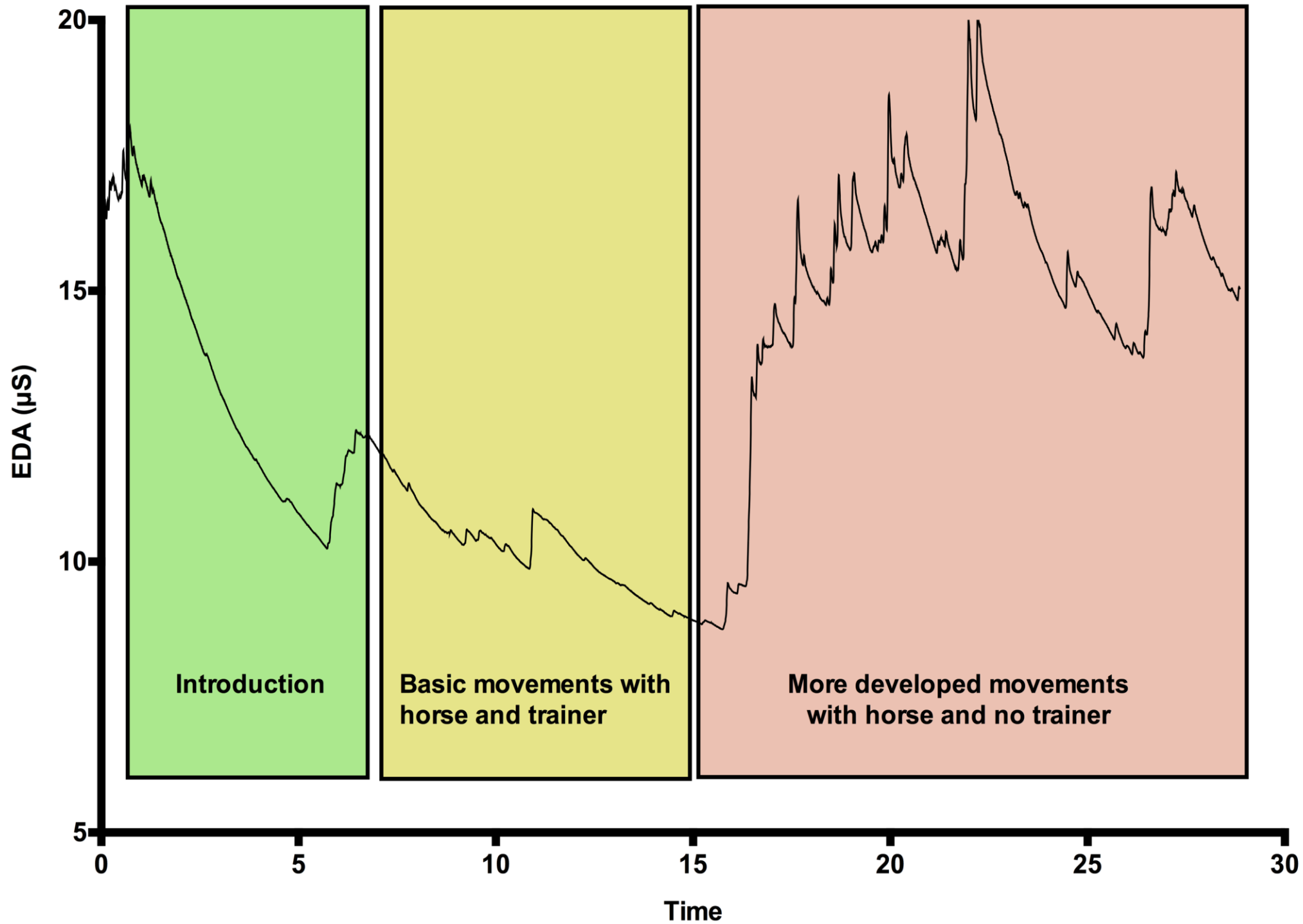
Temporal Shift in Emotions during this Learning Experience



Anxious
Fearful
Excited

Thirty Minutes

Happy
Proud
Calm
Accomplished



Event 1

Account of events:

Anticipation of independently leading the horse round a prescribed route.

Self report

"I was like wondering what I was supposed to be doing as I was not that confident".

Change score (μ s): 0.681



Event 2

Account of events

D anticipates asking the horse to carry out a figure of eight.

Self report

"I felt like that was the biggest challenge yet".

Change score (μ s): -0.158



Event 3

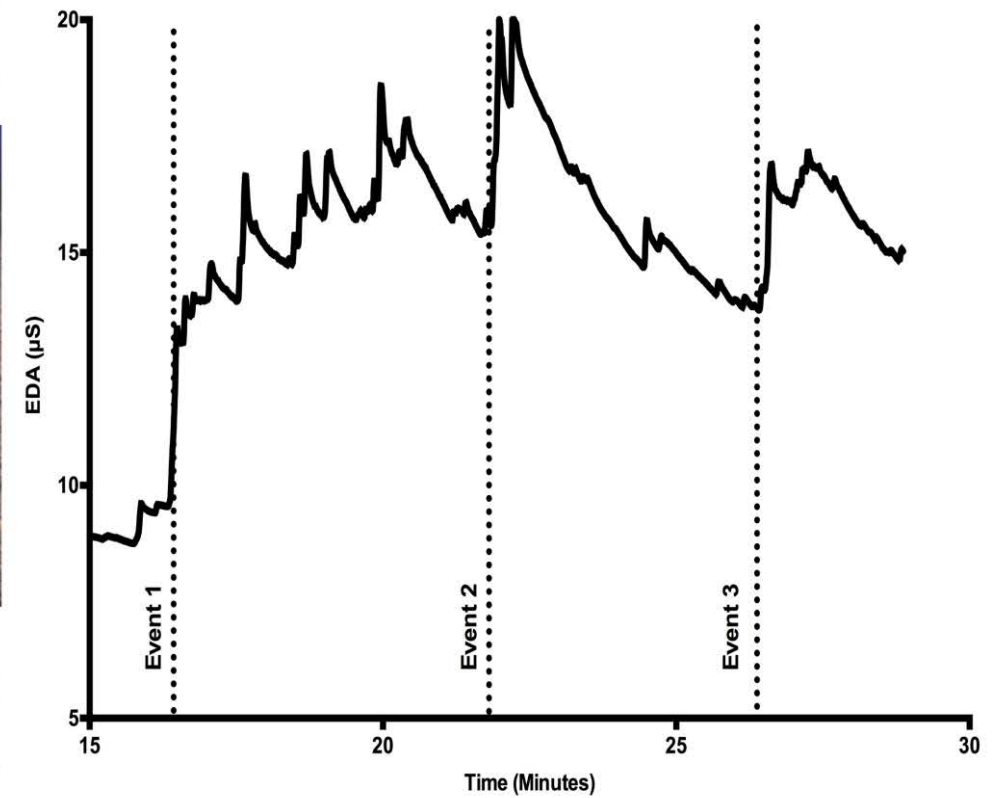
Account of events

Successfully completes asking the horse to carry out a figure of eight.

Self report

"I was correcting myself at this point, as I knew what I was doing wrong, and I felt like my abilities were becoming a lot better".

Change score (μ s): 1.823



Limitations

- *Small Sample*
- *`Healthy participants`*
- *New methodology*
- *New equipment*



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Conclusions

- Paradoxically emotional arousal appears to contribute to learning the skill of calmness.
- We found that the body learns more quickly than the mind (Damasio 1994).
- Embodied learning is an understudied and underutilised approach to behaviour change.
- A larger experimental study is needed.



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References

- Bayne T. *The Unity of Consciousness*. New York: Oxford University Press (2010).
- Damasio A.R. *Descartes' error: Emotion, reason and the human brain*. New York: Grosset/Putman (1994).
- Dennett D, *Heterophenomenology Reconsidered*. *Phenomenology and the Cognitive Science* 6 (1-2), 247-270. . (2007)
<http://dx.doi.org/10.1007/s11097-006-9044-9>
- Fazelpour S. & Thompson E. *The Kantian brain: brain dynamics from a neurophenomenological perspective*. *Current Opinion in Neurobiology*. (2015) **31**:223-229.
- Pendry P. & Roeter S. *Experimental Trial Demonstrates Positive Effects of Equine Facilitated Learning on Child Social Competence*. *Human-Animal Interaction Bulletin*. (2013). Vol 1, No.1, 1-19. Princes Trust.



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