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The Embodied Nature of Horse Human Communication: A Feasibility Study of an Equine Assisted Intervention; Benefits for Horses and Humans

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Abstract

This chapter presents the findings from a feasibility study of an equine assisted intervention (EAI) which is currently referred over 160 people with mental health and behavioural problems each year. Performing a feasibility study may be indicated when, there are few previously published studies or existing data using a specific intervention technique. The framework used for this feasibility study has been designed to underpin public health feasibility studies and outlines eight areas of focus which will be addressed here: Acceptability, demand, implementation, practicality, adaptation, integration, expansion and limited efficacy testing. The efficacy testing includes results from before and after measures completed by referrers of individuals to the course with $n=336$ participants (normally social workers or teachers). Overall scores for the eight outcomes measured showed statistically significant improvement for 293 of the participants two months after completing the course. The eight outcomes measured were calmness, assertiveness, empathy, communication, confidence as a learner, analysis and planning, taking responsibility and focus and perseverance.

Keywords: equine assisted, mental health, behaviour change

1. Introduction

This chapter presents the findings from a feasibility study of an equine assisted intervention (EAI) which is currently referred over 160 people with mental health and behavioural problems each year. Performing a feasibility study may be indicated when, “there are few previously published studies or existing data using a specific intervention technique” [1].

The framework used for this feasibility study has been designed to underpin public health feasibility studies and outlines eight areas of focus which will be addressed here [1]: Acceptability, demand, implementation, practicality, adaptation, integration, expansion and limited efficacy testing.

2. Background to equine assisted interventions (EAI's)

In the broader equine intervention related literature there have been studies showing positive impacts on wellbeing through equine assisted therapy with individuals suffering with disabilities, [2–10] chronic illness physical or mental [11–14], or individuals with eating disorders [15–17]. The potential benefits of equine assisted psychotherapy or experiential therapy have also been studied although outcomes have been mixed in terms of the efficacy of interventions with some studies showing positive results and some no effect [18–25].

Research by Dell's [26] (equine assisted education) captured the improved communication skills and pride the young participants gained while interacting with horses. Hemingway et al., [27] also described the positive impact of an EAI with young prisoners in a young offender's institution who said they felt calmer, and importantly more positive about learning with the prison guards reporting some improvements in behaviour whilst incarcerated. A qualitative study on an intervention in Guatemala which teaches natural horsemanship to reduce violence produced positive changes particularly in relation to increased calmness [28].

Pendry and Roeter [29] published a randomised controlled trial evaluating the effectiveness of an EAI which uses natural horsemanship to improve child social competence. The findings showed improvements with a moderate effect size for 5th to 8th grade children. In 2014 Hauge et al. [30], reported on a waiting list cross over design research study undertaken with young people aged 12–15. Those in the intervention group reported an increase in perceived social support compared with the control group which was statistically significant. In 2015 Boshoff et al., [31] shared the results from an experimental study, which measured subjective well-being, problem focused coping, and emotion focused coping. The findings from the study showed some positive changes for young men living in a custodial school.

Nimer & Lundahl [32] published a meta-analysis of animal assisted therapy for young people which showed a moderate positive affect for young people with autism, medical, behaviour and emotional issues. Two recent systematic reviews suggest a need for future studies to include when publishing detailed insights into the intervention and in addition to consider using both validated measures and a qualitative exploration [33, 34].

Two systematic reviews have been published [35, 36] considering the impact of equine assisted therapy on physical issues for adults living with disabilities and schizophrenia respectively. These reviews both found that studies lacked any randomisation within the sample and an adequate sample size. The reviews did show however that studies that have been published so far do report some positive outcomes in relation to a range of physical, behavioural and social issues.

A small study has considered equine assisted therapies impact on depression, anxiety, mindfulness and sleep quality. All areas showed statistically significant improvement, but the sample was small, and the intervention used within the study not well described [37].

EAI's have also been studied by occupational therapists. A pilot study [38] aimed to test an occupational therapy intervention offered in an equine environment and assess preliminary effects on occupational performance goals, behaviour, and social functioning of youth with autism. The findings showed there may be improvements in occupational, behavioural, and social outcomes for this group. Next steps in research terms included refining feasibility measures and implementing a randomised controlled efficacy study.

As the world is currently suffering in the grip of the COVID-19 pandemic it is important to note that the intervention under study here plus other equine assisted

interventions internationally have reported increased demand to support young people particularly during the pandemic. As alternative learning or therapy providers equine assisted interventions offer non-pharmacological support for those for whom talk based therapies are not working. Particularly during lockdown and prolonged periods of isolation equine assisted support has been particularly in demand for supporting young people; albeit with strict safety measures in place and some changes made to how sessions are delivered [39].

It is also vital to consider the welfare of equines involved in this activity. Horses are highly susceptible to work stressors related to physical constraints and/or to the need to control emotions while interacting with humans. A narrative review of research [40] found that to date few studies have investigated horses' stress responses during EAIs, and further studies are recommended, with the final aim to derive a reliable multidimensional method for assessing a horse's reaction during therapeutic programs, ultimately helping professionals to better develop interventions by taking into consideration the animal's perspective. However, it is clear that the use of interventions which enable humans to consider the world from the horse's perspective as a prey animal are likely to improve the world for horses as they increase understanding of and empathy for these wonderful animals.

3. The EAI under study

This intervention is offered by a charity which operates in the South of England and is referred over 160 people every year by a variety of referrers such as Schools & Pupil Referral Units, Children's Social Services, NHS Mental Health Services, Troubled Families Local Authority Services, Offender Services and other specialist agencies such as charities working with Domestic Violence or Drug and Alcohol Services. The people referred are currently living with 2–4 issues from the list below and they are referred because they are disengaged from talk-based support.

- Attention Deficit Hyper-Activity Disorder
- Autism Spectrum Disorder
- Anxiety/depression
- Not attending school (training, work)
- Relationship difficulties
- Mood swings/impulsivity
- Self-harm
- Bullying, aggression, anger management issues
- Drug & alcohol misuse/child or parents
- Eating disorder
- Offending
- Domestic violence

- Neglect / abuse
- Parents with mental health problems
- Living in care or leaving care
- Conduct disorder

The intervention uses the principles of the Parelli Natural Horsemanship program as its philosophical underpinning and structure [41]. This approach is based on developing calmness, and partnership skills through learning natural horsemanship skills. At this introductory level this involves 'playing' with specially trained horses inviting them to respond to requests with the young person on the ground and the horse on a loose rope or at liberty. The learning is facilitated by a specialist facilitator and the students are taught how to play the seven 'games' with the horse. The course takes place in an indoor arena over 10 hours in five, two hour sessions.

The games taught are:

1. *The friendly game* (creating relaxation through touch, grooming, hanging out).
2. *The Porcupine game* (moving the horse's feet through using steady pressure, touching the horse).
3. *The Driving game* (moving the horse's feet through rhythmic pressure, not touching the horse).
4. *The Yo-yo game* (moving the horse backwards and forwards).
5. *The Circling game* (asking the horse to travel around you on the circle).
6. *The Sideways game* (asking the horse to move sideways).
7. *The Squeeze game* (asking the horse to go through, under or over something [41]).

In order to be effective, the human needs to use clear, phased assertive communication and control their body language and energy in an assertive, non-aggressive way.

4. Equine husbandry, selection, training and handling

All the horses who engage in these courses are kept outside in a natural environment (hedges, trees other horses) in friendship groups with access to shelter if they want it. The workload for each horse is logged and kept light in line with the charities welfare policy. All horse training, handling and husbandry uses natural horsemanship methods and underpinning philosophies and is informed by the charities welfare policy. The horses taking part in this intervention are trained to Parelli level 3 or above by the course facilitators (who are Parelli trained, and trained by the charity to provide this intervention specifically). In addition, rescue horses are retrained using natural horsemanship methods and then take part in the intervention and are then rehomed as appropriate through the registered rescue charity in partnership with the charity providing this intervention.

5. Methods

The methods used to answer the questions posed by the elements of the feasibility study included:

- Analysis of referral data from the charity
- Interview with the charity CEO (who set up the intervention)
- Analysis of before and after scores for participants completed by referrers

6. Results

6.1 Acceptability

The charity beneficiaries are now 600 individuals every year, out of those around 160 undertake the Restart intervention which is evaluated here, the rest benefit from lighter touch support over a longer period, volunteer activities to support the course and/or accredited training through a local college. Over the period of data collection for this study (2016–2018/19) 326 had completed the intervention with an evaluation tool (before they start the program and then two months after they finished the program) completed by their referrer. Completion rates for those who start the Restart intervention are 95%. Referrals are increasing year on year with referrers from multiple agencies as outlined sending those people for whom talk based interventions are not working. Referrers report that between 10 and 15% of their clients do not respond well to talk based interventions. During the COVID – 19 pandemic numbers did drop however the charity stayed open to support individuals with acute mental health and behavioural issues. The charity has been running for ten years and has consistently grown throughout this period.

6.2 Demand

Since the establishment of this intervention different agencies are becoming aware of it and now the demand is outstripping supply with overall more than 1000 people having completed the course and over 160 per year now being referred just for the Restart intervention.

6.3 Implementation

The intervention which we are focusing on in this paper forms the majority of the activity undertaken by this charity. The lighter touch work with a wider group has now also picked up momentum and is benefitting more individuals, with less acute needs. This variety of offer from the charity has been developed in response to need with many individuals experiencing poor mental health and cuts in mental health services on the NHS in the UK causing wide spread need and little support in many areas.

6.4 Practicality

The main resource issues are the highly trained instructors in natural horsemanship (individuals with typically 10+ years of training). In addition, these individuals

need further development to facilitate this intervention from the charity. A physical site for the intervention is needed, and having a yard and an indoor school with a special soft surface is required in order for the charity to function all year round plus ancillary buildings for administration rest rooms etc. In addition, the site for the charity needs to be both accessible to local people in the areas from which the referrals mainly originate which is primarily areas of deprivation and able to house horses in a natural environment which needs safely fenced outdoor space for grazing and social interaction for them.

6.5 Adaptation

According to the charity CEO the intervention has not substantially changed since the first month, however the relationships within the family of those who are referred and the resilience skills within the family as a whole (where appropriate) have been identified as very important by the participants, course facilitators and the referrers. Therefore, the charity is now undertaking work with troubled families, foster families and the teams around the family to try to positively impact on these processes. This is being done both through the Restart intervention and as part of the 'lighter touch' support offered which includes longer term support for those who need it after completing the intervention and educational opportunities with local colleges to develop social skills as well as volunteering opportunities. All these have been developed through local networking and identification of local need.

6.6 Integration

This intervention is now recognised as a professional partner by Social Care, Community Mental Health Teams, Child and Adolescent Mental Health Services, Domestic Violence and Drug & Alcohol Services. It is now part of the landscape of care for schools, General Practitioners and social prescribing 'navigators'. Working across so many sectors however is demanding on the time of the charity staff and requires excellent networking and communication skills. It is interesting that all these agencies are seeing some individuals and families many times however as their 'offer' is primarily talk based there is a consistent group for whom their services are not working. Indeed, it would appear that individuals tend to get referred to this charity when they are stuck in 'treatment' being 'bounced' between services over and over again. They then do this intervention which is intended to positively influence their engagement with services, family, relationships and education.

6.7 Expansion

This charity has now replicated its programmes across eight sites in the UK. With two international sites also launched. Additional facilitators have been trained by the charity to aid replication, recruited primarily from those who already hold instructor status with Parelli Natural Horsemanship.

6.8 Limited-efficacy testing

In this study before and after measures were completed by the person's referrer to the course 326 completed scales were included in the analysis (see **Figure 1**).

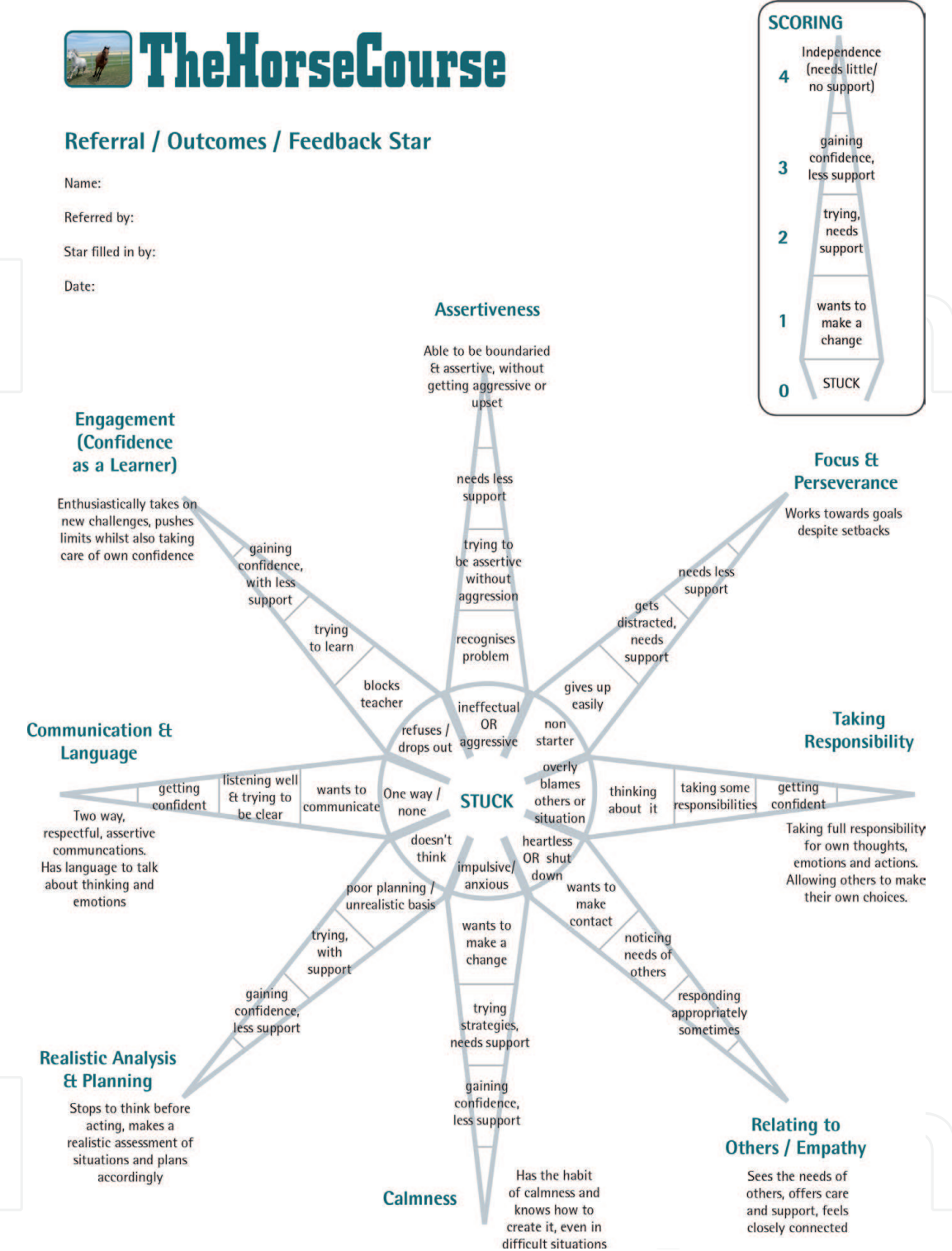


Figure 1.
Star chart.

7. Ethical considerations

The star chart tool and further assessment tool was completed electronically by the referrer. The scores were then stored on an excel spread sheet by charity staff with each participant being allocated a code number so the researcher could not identify the person or the referrer, ethical permission was gained from the researchers employing universities ethics panel. This registered charity undertakes risk assessments for all participants who are never left unsupervised with the horses.

Main reason for referral	Anxiety/ depression	Mental health diagnosis	ADHD/ ASD	Bullying/ angry/ aggressive/ violent	Lacks confidence/ bullied/ lonely/ low self esteem	Witness to domestic violence/ abuse/ neglect	Not attending school/ excluded from school	Self-harm/ suicidal	Relationship issues/ attachment disorder
N = 326	45	13	16	68	41	30	43	22	20

Table 1.
Reasons for referral.

The horses are all observed for possible stress/distress continuously throughout the course activities informed by the ethogram of horse behaviour [40] activities would cease immediately if any observations of this were made.

The sample constitutes a convenience sample of 7–68 year olds (mean age 20) accessing the course over a three year period for whom full data were obtained female = 193 male = 133. The reasons for referral are shown below in **Table 1**.

8. The star chart

The star chart (**Figure 1**) used has been developed for this EAI program. The referrer rates the young person from 0 (stuck) to 4 (independently using the skills being assessed).

Pre-test scores were analysed using cronbach’s alpha in order to assess the tools internal reliability the score was 0.9 indicating the tool has high internal reliability.

Data was analysed using SPSS and a non-parametric related sample sign test which showed statistically significant improvements between the pre and post-test scores for all eight outcomes with a significance level of p.000. Included here in **Table 2** are the numbers of positive, negative and no change scores for the sample.

Overall scores for all eight outcomes on the star chart improved for 293 of the participants with 33 experiencing a worsening of their overall score two months after completing the course. On examination of each of these individuals there was no consistent area which worsened across this group. All of the 33 did have some dimensions where they had improved their score or remained at the same score pre and post the intervention.

Star chart skills development pre and post assessment by referrer n = 326	Number of participants with a positive score change	Number of participants with a negative score change	Number of participants with no score change	Total number of scores in analysis for each Skill
Realistic Planning	228	30	68	326
Assertiveness	238	23	65	326
Communication	212	43	71	326
Calmness	241	24	61	326
Engagement (as a learner)	220	28	78	326
Focus and Perseverance	222	24	80	326
Empathy	213	37	76	326

Table 2.
p.000. Numbers of positive negative and no change scores.

9. Discussion

This intervention does not use cognitive (talking or classroom based) approaches, a key element of this intervention would appear to be that the facilitator and the student are guided by the same principles used for teaching horses, which focus on reading body language and responding appropriately in the moment. The course teaches through practical simulation rather than verbal explanation and uses primarily non-verbal methods (through rehearsal) to potentially positively impact on the emotions and behaviour of the students. The students are coached to success throughout the intervention which enables them to rehearse and achieve successful embodied communication with the horses throughout the course.

Embodied pedagogy is defined as an educational program which brings together body and mind in a physical and mental act of knowledge, skill and behaviour creation [42]. Embodied communication transcends linguistic capabilities, proclivities and differences and seems to offer a universal language that humans share with other mammals. This mode of communication is available to us as human mammals for learning as a pre-language ability [43]. Through this intervention as participants rehearse the embodied skills through 'playing' with the horse they become proficient at communicating calmly. The 'learning' appears to be rehearsed and reinforced through repetition thus enabling them to feel calm and assertive.

Arguably this embodied or pre-speech capability to communicate with other species as with young children using 'inter-natural' embodied mechanisms may offer an opportunity to disrupt maladaptive behaviours previously established by participants to deal with communication and emotions [43]. This learning process may indeed therefore, offer safe opportunities to rehearse effective calm communication.

It is particularly important when evaluating an intervention to consider the qualities that render it effective. Participants on this intervention have to try to understand the point of view of another being, the horse a prey animal, in order to develop effectiveness when communicating through their bodies. As a result of this course participants learnt to 'listen' to another 'being' through their body language and rehearse this skill throughout the course [44].

The people who are generally referred to this intervention have a wide variety of different behavioural and mental health issues as outlined here many of which are associated with experiencing Adverse Childhood Experiences (ACE's) such as abuse, neglect or witnessing violence in the home. Through evaluation of this intervention it is interesting to note that many leave the course with similar benefits the most consistent and strong of which is calmness thus enabling participants to re-engage with services, education and relationships. With referrers to the intervention (primarily social workers and mental health services) reporting rapid and effective changes in behaviour. As one participant said following completion of the course 'I feel reborn'. Does using embodied inter-species interventions offer opportunities for those for whom 'talk' based interventions and traditional service models are not working to gain beneficial outcomes?

The intervention considered here would lend itself to a more robust study on effectiveness using a randomised controlled trial particularly in relation to ensuring statistical reliability. Access to school/work attendance and achievement records could also be explored pre and post intervention. Further study of this intervention would also benefit from detailed economic analysis of the potential future costs of not treating people for whom violent behaviour and lack of success in talk-based treatment are primary problems.

10. Conclusion

Starting to think about how to help people develop or learn the path to wellbeing through learning embodied skills is a new way of thinking about this area. The long-term success and expansion of this intervention which has grown from local need would suggest that using alternative embodied approaches for mental health and behavioural issues particularly for those not currently engaging with 'treatment as usual' could be a way forward. Indeed, do we need to consider that the increases in mental ill health and distress need us to re-configure services to the point that embodied nature-based approaches are part of, or at the forefront of what is offered routinely. It is important to recognise that in these interventions there is no need for long term costly consultations, diagnostics and pharmacological approaches along with the stigma and labelling which accompanies them. Nature based embodied approaches are very acceptable to both participants and practitioners with little associated stigma, low drop-out rates and high completion rates and may be the most appropriate initial approach for those with non-psychotic issues.

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