

Horses Are Not Machines: An Equestrian Sports Pedagogy Needs to Reflect the Relational and Coadaptive Nature of Skill Acquisition in Show Jumping Dyads

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This document is the Accepted Version [AM]

Citation:

DAVIES, Marianne J, STONE, Joseph, DAVIDS, Keith and WILLIAMS, Jane (2025). Horses Are Not Machines: An Equestrian Sports Pedagogy Needs to Reflect the Relational and Coadaptive Nature of Skill Acquisition in Show Jumping Dyads. *Journal of Motor Learning and Development*, 1-11. [Article]

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**Horses are not machines: An equestrian sports pedagogy needs to reflect the relational
and co-adaptive nature of skill acquisition in showjumping dyads.**

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Abstract

Much is changing in our understanding of animals in relation to acknowledging their non-humancentric intelligence and sentience. Alongside emerging attitudes toward animal welfare, these changes have led to criticism of traditional coaching pedagogies in equestrianism. Elucidating an ecological process of learning in horse-human dyads may be valuable for guiding the development of a contemporary equestrian pedagogy. This study used thematic analysis to identify influential constraints on eleven elite showjumpers in the United Kingdom. Thematic analysis revealed common themes of: (i) Becoming attuned to horses (organismic constraints), (ii) Becoming skilful through active problem solving (task constraints), (iii) Pervasive socio-cultural and historical narratives influencing affordance salience (environmental constraints), and (iv), Participants' perceptions of current trends in coaching. Results suggest that socio-cultural and historical narratives, rather than a lack of care or attentiveness, may shape affordance perception in learning and coaching, perpetuating many practices currently embedded in British equestrian sports. Participant insights suggest that the development of a pedagogical framework for equestrian activities should foreground the relational and problem-solving nature of the horse-rider dyadic system. These perceptions imply that skill development is a process of ongoing co-adaptation between horse and rider with riders both learning from, and teaching, horses.

Keywords: dynamical systems, skill acquisition, nonlinear pedagogy, socio-cultural constraints, equestrian coaching.

Introduction

Sports that involve horses, such as racing and polo, can be traced back thousands of years, and the three Olympic disciplines of showjumping, dressage, and eventing have been established for centuries (de Haan & Dumbell, 2016). The global influences of millennia-old military, class, and utilitarian traditions, concerning the keeping and training of horses render equestrian sports highly stable with a propensity to hold onto historical practices and teachings (McVey, 2021; Rigg, 2023; Waerner et al., 2024). Examples include the writings of military ‘old masters’ such as Xenophon (l. 430 to c. 354 BCE), a contemporary of Plato and student of Socrates, still being influential in the training of horses through translations of his ideas ‘On Horsemanship’ (e.g., Xenophon, 1979). More recently, the equestrian world is experiencing challenges to the traditional ways of being with horses (Pearson et al., 2023; Wolframm et al., 2023). These challenges focus on the perceived unethical use of horses in sport, as highlighted in “I Can’t Watch Anymore: The Case for Dropping Equestrian from the Olympic Games” (Taylor, 2022). Numerous factors have contributed to this situation, most notably a growing interest in how the public view animals and their uses (Shapiro & Demello, 2010), the ease of sharing content on social media (Taylor, 2022), and research suggesting that many domestic and sports horses experience a poor quality of life (Dyson et al., 2018; Luke et al., 2022). Consequently, equestrianism, encompassing both competitive events and recreational participation, has found itself navigating shifts in societal perceptions and expectations concerning the treatment and well-being of horses (Douglas et al., 2022), along with a perception that equestrian sports have not adapted to these social and cultural shifts in opinions (McVey, 2021; Williams, 2023).

A consequence of challenges to framing animal welfare has been increasing pressure on equestrian sports to retain their Social Licence to Operate (Douglas et al., 2022), resulting in the Federation Equestre Internationale (FEI) forming an Equine Ethics and Wellbeing Commission (equinewellbeing.fei.org) in 2022. Additionally, there has been a call for equestrian sports to develop their own pedagogical methodology that encompasses the unique interspecies and complex nature of equestrianism (Fredriksen, 2019; Staunæs & Raffnsøe, 2019). Here, we investigate the perceptions and insights of competitive equestrian athletes on their lived experiences of learning and the skill acquisition process in the context of United Kingdom (UK) showjumping, as part of a wider research

project designed to elucidate whether principles of a nonlinear pedagogy could be applied to the equestrian sport of showjumping. In this paper, 'pedagogy' is broadly defined to include learning and teaching activities for all organisms. Nonlinear pedagogy is a theoretical framework that views teaching and learning as a dynamic process of exploratory self-organisation, occurring over multiple nested timescales. Based on ecological dynamics, it emphasises the importance of context, creation of action with information (and vice versa), perception-action coupling, and self-directed exploration of affordances in the environment (Davids, 2012).

Despite the long history of equestrian sports, there is a paucity of research exploring learning in horse-human dyads, equestrian sport pedagogy, or equestrian coaching practice (Davies et al., 2022). It has been argued that current coaching in equestrianism is influenced by traditional socio-cultural norms, reflected in shared practices, narratives, and discourses rooted in an anthropocentric and Cartesian worldview (McVey, 2021; Waerner et al., 2024). This paradigm tends to view horses, and other non-human species, as mechanical, passive objects to be controlled and reduced to simplified parts of a system, rather than as sentient, autonomous beings. In the UK, many equestrian disciplines have developed coaching qualifications (e.g. 1st4sport Certificate in Equestrian Coaching, Showjumping, 2025) uncritically adopting coaching pedagogies and practices from other sports which Cushion et al. (2022) designated 'ineffective' following a two-year investigation of a high-performance coach education programme. These pedagogies may uphold the equestrian coaching tendency to emphasise coaches' control of rider behaviours and riders' control of horse behaviours (Waerner et al., 2024).

Two theoretical perspectives are currently influencing equestrian sports pedagogy and guiding research into how horses and humans learn and communicate: 1. Research led by the International Society of Equitation Science (ISES), a not-for-profit organisation set up with the aim to improve horse welfare, and 2., Research in Human-Animal Studies that focuses on the relationships between humans and horses. The theoretical underpinnings of the Equitation Science research stem from ethology, physics, and veterinary science (McGreevy, 2007; McGreevy & McLean, 2007), championing the adoption of behaviourist learning theory, founded on the assertion that interspecies communication and horse learning result primarily through training methods using principles of

classical and operant conditioning. In contrast, theoretical foundations of Human-Animal Studies stem from the humanities, anthropological, and social sciences (Argent, 2012; Dashper, 2014; Maurstad et al., 2013) that lean toward embodied perspectives of communication where horses and humans are understood to change and adapt to each other leading to co-adaptation and co-being. Both perspectives prioritise improving the horse-human relationship but reflect two broadly different underpinning theoretical frameworks about the nature of learning, communication, and skill acquisition in equestrian sports.

A behaviourist approach provides an effective way to communicate riders' 'intentions' to horses in the absence of shared verbal language. Behaviourism is an environmental theory emphasising the creation of conditions which favour training (through reinforcement) of desired behaviours as conditioned responses, tending to neglect agency, motivation, or non-verbal communication between horse and rider (Argent, 2012). Research prioritises quantitative studies of conditioned responses over short time scales, for example learning to respond to, or accept a novel stimulus as an 'aid' (movement from the rider that communicates an intention, for example for the horse to speed up) (Christensen et al., 2006). As such, competing opportunities for action (affordances) that may emerge and decay, for riders and horses, over longer timescales in more complex environments are not directly acknowledged. Human-Animal Studies approaches attend to understanding the quality of collaborative contextualised dyadic relationships over longer time scales, embracing the development of emotional connection and empathy between partners in sport. However, there is little guidance on how that key idea may be applied in practical coaching, learning, or training sessions within equestrian sports.

An ecological dynamics theoretical framework embraces complexity sciences, dynamical systems theory, ecological psychology, and theories of self-determined motivation (Chow et al., 2016). While ecological dynamics shares a non-representational theory of mind with behaviourism, it embraces agency in non-human animals with many scholars influenced by the work of Merleau Ponty, Wittgenstein and Ingold (also influential in Human-Animal Studies research). It conceptualises learning as a process of becoming attuned to meaningful information within an animal's physical and social environment (Woods & Davids, 2021). This ecological emphasis leads to the prioritisation of

learners gaining *knowledge of* (Gibson, 1979) a performance environment, rather than declarative *knowledge about* (Gibson, 1979) an environment. An example of knowledge about the environment is being able to describe how a horse moves. In contrast, knowledge of the environment focuses on the ability to move (locomote, jump and land) synchronously with a horse whilst riding. Knowledge of a performance environment necessitates attunement to perceptual information that specifies action. Ecological dynamics builds on the Human-Animal Studies perspective by connecting action to perception, linking the calibration of the motor system to perception and intentionality. Ecological dynamics situates the horse-rider dyad as a complex, synergetic system where riders synchronise their movements with their horses (Lagarde et al., 1996). This approach emphasises behavioural flexibility as a fundamental aspect of learning and skill acquisition (Adolph, 2020). It offers a promising framework for developing an understanding of skill acquisition in equestrian sports, capturing the inherent complexity of the horse-rider dyad and providing a non-anthropocentric perspective that supports long-term skill adaptation and development.

From an ecological dynamics' perspective, performance emerges through the continuous interactions of the organism (horse-human dyad), undertaking an activity (task) in an environment (ecological niche, both physical and socio-cultural) over multiple, nested timescales. Thus, an understanding of the factors (including organismic, task and environmental constraints) impacting how riders learn and become skilful, may be foundational for developing a contemporary pedagogy for equestrian sports. To identify factors that make an elite equestrian rider, research has investigated the biographies of riders and the influence that riders have on horse performance. For example, Lamperd et al. (2016) interviewed eight international riders from the three Olympic disciplines and used a grounded theory approach to understand the developmental factors contributing to them achieving elite status. Lamperd et al. (2016) findings highlighted riders' perceptions of having a natural aptitude for horse sports, having opportunities to ride and compete and being motivated to ride initially for enjoyment, and then more for the relationship with their horses. Williams and Tabor (2017) conducted a review and analysis of scientific literature that evaluated rider and horse impacts on success in showjumping highlighting the complexity and diverse influences on performance in the horse-rider dyad. The findings of Williams and Tabor (2017) drew attention to the influence of

complex social factors, the difficulty of dividing factors into separate categories, and the important role of opportunities for the dyadic system to learn together, emphasising the importance of the partnership between the horse and rider.

The current study uses the theoretical framework of ecological dynamics and a nonlinear pedagogy as a guide to elucidate the organismic, task and environmental constraints influencing the process of learning to ride by framing the learner's knowledge of the sport performance environment, gained through attentive dwelling in a performance context (Woods & Davids, 2021). The study was designed to explore the early lived experiences of riders in the equestrian context, highlighting activities and practices that likely influenced skill acquisition in the showjumping horse-rider dyad in the UK. A focus on the discipline of showjumping was chosen as it is the only Olympic discipline with no subjective element and as such it is easier to define skill, representative practice, and successful outcomes. Showjumping requires a horse and rider to learn to work collaboratively to clear a series of obstacles in a set order and within a set time without incurring any penalties. There are many variations in equestrian courses with different heights, number of obstacles, number of rounds, and time allowed for course completion, with the final winner producing the fastest final round with the least number of penalties with a few exceptions such as five bar and puissance (British Showjumping Member Handbook, 2025).

Specifically, the study used thematic analysis as a method to gain an understanding of constraints on the development of skill by identifying the early learning experiences of elite showjumping riders (competing over obstacles over 130cm in affiliated national or international competitions). The questions aimed to explore participants' perceptions of their learning experiences. The questions investigated childhood memories, perceptions and insights of learning to ride, recollections of the ponies involved, and early experiences of being coached. Given the limited research on equestrian athletes' perceptions, these accounts are valuable for gaining insight into personal, contextually-situated influences on skill acquisition in showjumping.

Method

Research Design and Philosophical Underpinning

Here, the research questions were underpinned by an interpretivist and post-human epistemological framework which sought to understand the subjective experiences and perspectives of the participants in the context of equestrian sports. The interpretivist perspective acknowledges that individuals construct their own meanings and interpretations of the world, emphasising the importance of understanding the social and cultural context in which these meanings are situated (Van Der Walt, 2020). The post-human epistemology recognises the agency of non-human entities, such as horses, in shaping human experiences and relationships despite humans being the narrators of such experiences (Adams, 2024; Coulter, 2018). The researchers are aware that what is remembered, and how memory is interpreted, is not the same as what may have been attended to and the intentions of that moment. However, there is value in elucidating the narrated experiences as they play a role in shaping future intentions and actions as well as shaping the context and constraints of coaching practice. The questions were formulated between the authors to explore the participants' early interactions and relationships with ponies, their social environments including receiving instruction and coaching, and the activities that they participated in.

Participants

Ethical approval was granted [removed for blind peer-review] by the [removed for blind peer-review] University ethics committee before commencing the research. Eleven participants (female = 9 and male = 2, aged 19 – 52 years), recruited via social media, agreed to take part in this study. The sample size was judged to be sufficient, based on previous research highlighting that between 9-17 interviews typically achieve thematic saturation (Hennink & Kaiser, 2022). The participants self-selected in response to a request on social media for participation in the study (British Showjumping official page and several riding club pages) based on their affiliation with British Showjumping, specifically those competing nationally in events $\geq 130\text{cm}$ and over the age of 18 years (defined as elite by Williams & Tabor, 2017). Additionally, all participants identified themselves as professional equestrians, with their primary source of income derived from competing horses, schooling horses, and/or coaching riders. The social media post was titled 'Identifying the experiential knowledge of elite showjumpers – your answers will help us to better understand the process of becoming skilful at showjumping.'

Table 1. Participant demographics

Pseudonym	Sex	Age (years)	Age started riding (years)
Adam	M	23	9
Ben	M	26	11
Daisy	F	26	2
Eve	F	19	under 2
Fiona	F	50	6
Gail	F	22	under 2
Hattie	F	29	8
Izzy	F	19	2
Jane	F	20	11
Kate	F	52	2
Lucy	F	30	10

Procedure

The study employed a semi-structured interview conducted remotely using Zoom. Each semi-structured interview lasted, on average, 43.10 minutes (range 31.12 – 85.89 minutes). Prior to the interviews, participants were provided with detailed information about the study including its objectives, purpose, ethics details, and they provided informed consent to participate. At the end of the interviews participants were asked if there was anything that they would like to add. The interview questions were designed to explore the participants' early learning experiences and relationships with horses.

The starting questions for the semi-structured interviews were: 1. Tell me in your own words what you remember about learning to ride; 2. What else do you remember about those early experiences and the ponies/ horses you learnt to ride on?; 3. Did you have lessons or any formal coaching?; 4. Is there anything else that you would like to share?

After asking the initial questions the interviewer then followed lines of enquiry, asked for clarity, for examples, and definitions of terms used. For example, in the questioning around early experience and the ponies, participants talked about having to be 'brave' because of "naughty ponies", but through further exploration into this line of enquiry from the interviewer, participants expressed they themselves did not think ponies were "naughty", rather horses had specific reasons for not being

obedient. After the first two semi-structured interviews the recordings were reviewed to ensure that the questions were eliciting responses related to the study aims.

Data Analysis

Thematic analysis aims to identify and analyse patterns or themes within explorative conversations to uncover meaningful insights (Braun & Clarke, 2006). Braun and Clarke's (2006) recommended six-part process of thematic analysis was followed. First, the audio recordings of the interviews were listened to multiple times by the lead researcher to gain a holistic familiarisation with the meanings before they were transcribed verbatim (stage 2) making notes of potential codes for the data sets, removing any data that could identify the participants and providing each participant with a pseudonym. The redacted transcriptions were then shared with a non-equestrian independent researcher (critical friend), familiar with the use of phenomenology and thematic analysis in researching gender studies, to code the data sets and triangulate with the codes of the lead researcher. Accepting that theory-free knowledge cannot be achieved (Guba & Lincoln, 2005), during the thematic analysis the research team did not adopt a dichotomous approach with regards to adopting an inductive or deductive method (i.e. deductive approach: use of structure, theory or a pre-determined framework, or inductive approach: with little predetermined structure, theory or framework). Rather, a more pragmatic line was followed using *both* a deductive and inductive approach. Deductive coding involved applying pre-existing theoretical or conceptual frameworks (identifying organismic, task and environmental constraints) to guide the coding process. This approach allows for a more structured analysis based on predetermined themes or concepts that are framed by the questions asked. Inductive coding involved generating codes directly from the data without any preconceived notions or predefined categories. This approach allowed for the construction of codes directly from the participants' responses. The responses were interrogated for unexpected and conflicting codes by the primary researcher and critical friend. The third stage involved the lead researcher sorting the codes into potential themes using NVivo (Version 12, Lumivero) and a Figma whiteboard to create a map of how the codes clustered around the themes. These themes were then shared with a cohort of 15 coaches who had volunteered to explore a nonlinear pedagogy in their own practice as part of a follow up study in the wider research project. This additional group was included to gather external

reflections to the emerging themes, thereby enriching the validity and depth of findings of the study. Unlike with the critical friend, the full transcripts were not shared with the cohort of coaches. Instead, a selection of quotes from the main emerging themes were shared by email. There were two main reasons for this decision; first, the coaches were giving up their time to support the research project and it seemed unrealistic to ask them to read and interpret nearly 8 hours of transcribed semi-structured interviews. Second, the coaches were equestrian experts, not academics with experience in qualitative research. The coaches were asked if: (i) the quotes represented familiar narratives within showjumping, (ii) they seem biased, (iii) they believed there were experiences that were missing, and (iv), there was anything else that they wished to add.

In the fourth stage of the thematic analysis, the lead researcher focused on refining key emerging themes that directly related to the research question. This process involved synthesising the complex, intertwined, and often messy narratives shared by participants into coherent themes that demonstrated internal homogeneity. The aim was to distil the rich, nuanced stories into meaningful patterns while respecting the voices of the participants and the depth and variability of the individual experiences. Stage five consisted of naming and defining the themes including giving each a quote style sentence that summed up the theme, for example 'For the love of horses'. This communication is the result of stage six, representing our attempt to share the data and our interpretation of the themes observed in relation to the research aims.

Research Quality and Rigor

It is important to acknowledge that the personal biography of the authors was a motivation for undertaking the current study. The interviews were conducted by the lead researcher, who possesses extensive personal experience and involvement in non-elite equestrian sports and activities spanning nearly five decades. This insider position allowed the researcher to establish a level of rapport and trust with the participants that may not have been easily achievable by a non-equestrian researcher (Lamperd et al., 2016). The authors have worked within academic and applied scientific contexts in the specific theoretical underpinning and topic area of the research. Hence, it is acknowledged this prior knowledge would have influenced the constructed themes. In particular, the extensive prior work of the research team in the use of ecological dynamics and nonlinear pedagogy to inform sports

coaching, human movement science, and motor learning research should be acknowledged. This transparency promotes the idea that the authors need not be assumed to enter the research process with ‘an empty head’, but rather with knowledge of the area that increases, rather than compromises, the theoretical sensitivity for interpreting findings (Weed 2009).

The critical friend was familiar with ecological dynamics and sport but had no experience with equestrian sports or activities. The coding similarities and differences of this individual and the lead researcher were discussed at length with a high level of agreement about codes and emerging themes, although the focus of the nonexpert was drawn toward the codes that alluded to potential harm to children due to historical norms and the evolving commercialisation of children’s sport. Of the 15 coaches who reviewed the themed codes, most just responded that the quotes and themes reflected their experiences and did not add further comment. Four of the coaches shared more detailed reflections agreeing that the quotes and themes were familiar and representative of their experiences. In their reflections, the coaches tended to emphasise the negative experiences shared by the participants, along with their observations on how equestrian sports are changing in the UK and beyond, highlighting both the positive developments and the challenges. They also discussed the potential implications of these changes for the future of equestrian sports and their social license to operate. The themes of the recorded discussions with the four coaches are not included in this paper as they are part of a separate study. Finally, by providing thick descriptions of the data directly recorded from the participants, the aim is to offer enough detail to enable readers to come to their own conclusions (Smith 2017), demonstrating both the complexity and the specificity of the authors’ interpretations of the participants’ experiences (Sparkes & Smith, 2014).

Results and Discussion

The analysis led to four main themes associated with early skill acquisition in equestrian sports. These were: (i) Becoming attuned to horses (organismic constraints), (ii) Becoming skilful through active problem solving (task constraints), (iii) Pervasive socio-cultural narratives influencing affordance salience (environmental constraints), and (iv), Perceptions of current trends in coaching.

Table 2. Summary of themes

RUNNING HEAD: HORSES ARE NOT MACHINES

High order theme	Second order theme
<i>Organismic constraints – Becoming attuned to horses</i>	Perceptual attunement - perceptual awareness of ponies, connection, communication and noticing the details of movement, and their emotional and physical states
	Care, consideration, and attentiveness - a desire to nurture ponies
	Love and emotional bond - the feelings of love as motivation to be with ponies
	Motivation - descriptions of why they enjoyed riding, ambitions, and what they thought motivated the ponies
<i>Task constraints - Becoming skilful through active problem solving</i>	Variable experiences – multiple ponies, disciplines, and sports - early start but not early specialisation
	Unsupervised practice - opportunity for self-determined exploration
	Teaching and learning from ponies - necessity to be co-adaptive, developing and training ponies
	Competing as children
<i>Environmental constraints - Pervasive socio-cultural narratives influencing affordance salience</i>	Problem / naughty ponies - need for problem solving for challenged/ challenging ponies
	Form of life - shared fundamental ways of living, acting, and interacting within a community that underpin language and meaning
	Opportunity and support/ luck – enriched equestrian environments
	The influence of socially constructed narratives of ‘toughness’ and ‘disobedience’ on intentions and what is attended to
<i>Perceptions of current trends in coaching.</i>	External pressures - 'owners', sponsors, and social media
	Changes in expectations – coach dependence, micromanaging, instant gratification
	Children's loss of freedom
	Changes in accessibility/ ownership
	Dysfunctional horse-rider relationships - horses treated as equipment, feared, discarded, and replaced

311

312

313 ***Becoming attuned to horses (For the love of horses)***

314 The emotional bond and feelings of love for horses came through strongly from all the

315 participants when describing their early memories of learning to ride, as Lucy illustrates:

316 But that was a really big thing for me as a kid, to have that bond with an animal that you put your

317 own emotions on because he's there and he loves me.

All participants spoke passionately about the horses in their lives, with many describing them as their best friends and part of their family, reflecting previous research findings (e.g., Maurício et al., 2024). This love of horses remained for life, mitigated negative relationships and experiences (particularly with instructors, coaches and of injury) and was expressed by all participants throughout the interviews.

Participants recalled their childhood awareness of the bond they shared with horses. Many gave examples of horses who had not thrived in environments that did not provide individual care and attention (for example, big yards) or with people who may not have connected or loved them as Daisy expresses:

He came to me a very sad horse. He [the horse] just wanted someone to love him and someone to give their all to him. And now he will do anything for me. But I think a lot of it is trust and partnership.

Daisy's interpretation highlights this dyadic relationship between the horse and rider, aligning with research on horse behaviour (ethology) demonstrating the need for horses to form long-term close relationships, who can be human or other species, as well as conspecifics (Argent, 2012). Other fields, such as cognitive ethology increasingly acknowledge animal emotion, empathy and even morality (Bekoff, 2006). These themes are also supported by previous research suggesting that riders consider the quality of the human–horse relationship to be central to developing a successful partnership in equestrian sport (Tufton et al., 2023).

In addition to recognising horses' needs for close relationships, even as children, participants became aware that the relationships were unique and that ponies behaved differently with varying people.

It is, yeah, a special relationship. It's really unique. Like, you know, [x] would say, oh, the pony doesn't like this, or it likes this, but then I'm like, well it does with me, or it doesn't. Like, you have a different relationship with any horse than anyone else does. (Adam).

Linked to the emotional connection, participants spoke of being acutely aware of, and perceptually attuned to their horses, highlighting the embodied nature of being with horses as expressed by Fiona

“I just enjoyed the whole physical experience. What I remember is the time spent with the horses, the smell and the texture, and the feel of riding.” The importance of being able to read horses (referred to as ‘feel’ in equestrianism) was described as encompassing all perceptual modalities.

Obviously when you know the horse you have, you just have a feeling you don’t really need to think about it because you just, you feel it, don’t you? New ones! You get on a new horse, another horse, you have to obviously, you pay attention. You try and take in as much as you can, like, I look at their ears to see if they’re happy-with-it-ears. (Izzy).

The relationship between a horse and rider was articulated as not only a sporting one, but built around care, consideration, and attentiveness. The relationships with individual ponies were integral to learning how to get to know and understand other horses, how to ride them, develop trust and confidence. Ben stressed the importance of trust, “If the horse doesn’t trust the rider, you have nothing in the end and if the rider doesn’t trust the horse, you have nothing in the end.” While Daisy shared how fragile that relationship can be and how important it is to be aware of the nature of horses, “I always say to people, you know, it takes a lifetime to build a horses’ confidence, it takes a second to shatter it. Horses are flight animals.”

Like humans, horses are social and gregarious animals with a need to develop and sustain individual relationships (Torres Borda et al., 2023). Unlike humans, horses are prey animals and that has a profound influence on their nature and the horse-human relationship. Participants demonstrated a caring attentiveness that underpinned their ability to communicate, ride and compete successfully. This childhood attentiveness may have promoted the perceptual attunement to information about horses that would be vital for success. Researchers in motor development have demonstrated that children, including at pre-verbal ages, explore their environments in ways that are effective at developing affordance perception and problem-solving skills (Kretch & Adolph, 2013). Hence, building and maintaining relationships with horses could be considered a fundamental skill of equestrianism. In ecological dynamics, this process has been termed *synergy formation* in collective systems (Ribeiro et al., 2019). This skill could only be gained from having extensive experience of longer-term relationships with multiple horses.

Becoming skilful through active problem solving (I knew I was talented because I could ride the “naughty” ponies)

A theme for all the participants was of starting on one, or a few, quiet ponies before moving on to multiple and more complex ponies. The early quiet ponies were described as not doing anything unexpected, not learning with them, and not changing or adapting, as expressed here by Adam:

I’d been in the riding school sort of quite a while and it was sort of getting to the stage where I was like, sort of outgrowing it, and I was getting a bit bored. Like I wasn’t really getting enough out of it. And, it was, well the horses didn’t develop either.

Experiences on quiet ponies got them started and gave them confidence, however, all riders shared that their skills did not develop until they began competing multiple ponies or riding less well-schooled ponies, particularly if there was a need to be autonomous and problem-solve. Adam continues:

And then there was a teacher at my school, and she had a pony that needed riding. And that was when I first started riding properly like out of (the riding) school and hacking and jumping and doing cross country and learning how to actually sit on the horse and make it do things for myself.

All participants expressed the importance of the experience of riding multiple ponies, schooling (teaching) ponies and experiencing multiple disciplines, as Lucy shares here:

That's why I did very well at university because the whole point of it is you get on a horse, you get 15 minutes to get a tune out of it, you go into a test, and then you do the same for the showjumping section. So, for me, I was like, that's fine, I've done that my whole life. Where a lot of the girls I was with, they were much more experienced in the way of they competed probably, like intermediate level eventing, or 130cm showjumping and even advanced dressage. Whereas I at the time, probably only jumped up to about 120cm and probably only done about elementary dressage, but I'd ridden so many different types of horses.

A common theme was that the ability to ride and control “naughty” ponies and described as a transition to being considered a talented rider.

Well, I used to ride a selection of riding school ponies, and I was quite a brave little girl. So, any
anyone that was struggling with their horse who was a bit too fresh, I'd just get on it and quickly
canter it round. (Gail).

There are two potential interpretations for this ability to quickly 'get a tune out of horses' or 'make
them do things themselves'. One is that skilful riders are likely to be able to communicate and build
trust, be more balanced, consistent, and empathetic than less skilful, and, therefore, would not confuse
or frighten the ponies; the other is that they could have been able to force the ponies to do things.
Attunement to another individual can be used equally for conflict and control, as well as
collaboration, as seen in prey-predator interactions and dyadic combat activities such as mixed martial
arts (Yearby et al., 2024). More research is needed as we found no studies to date researching the
perceptions and implications of children being considered talented if they could ride ponies labelled
as naughty. This insight from Adam articulates the perceived link between riding skill and being able
to ride naughty horses as something that is normalised and aspired to:

I saw this beautiful, big, bay head and I was like, that looks like the sort of horse I want to be on.
And I was like, you know, write that off, he's so naughty I'll never, you know, be good enough
to sort of sit on him

There is evidence that bravery is considered a virtue in British equestrian culture, necessitating the
normalisation of horse behaviour that requires rider bravery (McVey, 2021). However, on further
questioning, most of the participants stated that they did not believe horses could be naughty, rather
that the horses were not being obedient for a reason. Jane shares her interpretation of the cause of
unwanted behaviour of one of her horses, "And he's obviously been told off for stopping. Because
when he stops, he rears up." Jane's interpretation was that her horse was afraid of being punished.

All participants competed as children, one nationally from four years of age and
internationally by the age of eight. There was a theme that competing and training multiple ponies
was a key feature of their journey toward becoming skilful.

And so, the lady who ran it, it was her and her mum, and they just trained me, coached me, let
me ride the horses on my own and would occasionally come out and tell me little things to do.

And then I'd have actual lessons every week riding the different horses. A little bit of naivety for

me as a kid because a lot of times I was getting on horses that if I think about it, now I'm like, I was 14 getting on a just broken 16.2, but at the time, she was the knowledgeable one and she felt that it was appropriate. So, I think pushing me out of the boundaries a little bit was a good thing. (Lucy).

In this quote "16.2" refers to the size of the horse and is an average size for an adult sport horse.

Lucy's recollection of being left on her own to ride untrained athletic horses reflects the other participants' stories of spending time unsupervised and training ponies or horses. Lucy's role of training ponies is tightly linked to the nature of equestrian sports where the rider is schooling (training) the horse whether intentionally or not, as they perform as a co-adaptive dyad (Zetterqvist Blokhuis & Lundgren, 2017). Equestrian sports thus necessitate that riders are always both learning and teaching (the horses) from the start which is unique in sports. It is worth noting that most novice riders pay trainers to continually re-school their horses for them.

The increases in complexity for the riders encompassed not only increased competition standards and more athletic ponies, but also increased numbers of ponies, multiple disciplines, and more challenging ponies due to more variable and unwanted (naughty) behaviour. Riding multiple ponies, competing, and training could have supported skill adaptability and be *representative practice* for successfully competing and producing horses as adults. Having optimal levels of movement variability and high representativeness in practice contexts are proposed to enhance skill adaptation in competitive sports (Otte et al., 2019; Renshaw et al., 2022). In summary, although the participants talked about their ability to ride 'naughty ponies' as a key part of their journey to considering themselves as talented, on deeper exploration it was their ability to 'problem solve' and work out how to adapt to individual ponies that was essential.

Pervasive socio-cultural narratives influencing affordance salience (you need to be tough to make it in this industry)

Despite a few of the participants not coming from what they termed 'horsey backgrounds,' they all described being around horses as something that was part of the fabric of their family and social life. Most of the participants rode with their parents and siblings and were supported by them,

“I guess I started riding before, well, as soon as I could walk, I guess. My mum just plonked me on the ponies. I was very brave, I think. I just liked galloping around everywhere.” (Eve). This finding aligns with previous research findings (e.g., Lamperd et al., 2016), in favour of participants having opportunities to ride, contact with talented ponies and the support of family or other people. There was, however, an unexpected theme of producing (training to sell) ponies for adults in return for riding and competing opportunities that were considered very positively by the participants both at the time and in retrospect. Hattie shares her memories of riding for a horse dealer and how positively she perceived the experience.

She always said, ‘you know I’m doing this for you now’, and you believed it. She said, ‘you know I know you can go far in this sport. You know, you’re riding my ponies. Yeah, you wouldn’t be riding my ponies unless I thought you were something’. And she used to put up with everything, used to get up at five o’clock in the morning and take me to shows. It was just me and her and yeah, she was like almost like a mum to me.

The experiences of riding for a horse dealer/owner at a young age were viewed as being valuable in preparing them for making a career in equestrian sports.

The person who I used to ride for was very strict very hard, which I think really helps in the long run. Sure showed us how tough the industry was from a very early age. (Gail).

It was clear that adults and owners had power over the children as they had control over the children’s access to the ponies and horses. We found no research examining how producing ponies to sell might influence future perceptions of horses as objects, or the implications of children’s labour and the power relationship between children and adults who control access to the ponies children ride. More research is needed in these areas.

Whilst many of the coaches experienced by children were described positively, strong words like, ‘hard’, ‘scary’, ‘horrible’, and ‘evil’ were also used. All the participants interpreted their coach’s behaviours as being necessary for them to become talented, leading them to retrospectively justify the treatment and make sense of it in a positive light; despite admitting how damaging it was to them as a child. Childhood experiences shaped interpretations of how the horse industry operated, especially the need to be tough. Participants also perceived that the adults around them believed in them, in their

abilities and talent. Further research is needed to unpick the impact of attitudes and beliefs toward risk and the need to be tough and brave picked up in childhood that is likely to shape affordance perception as well as future attitudes, beliefs, and behaviour. The messages about being tough were not only directed toward the children, but also at how they were encouraged to treat their ponies. Jane shares a particularly upsetting memory about a childhood pony.

Because they said to me, they said, you've got to be mean to her [the horse], or they said she won't jump. (Jane).

There is growing research suggesting that children can learn to be hard on horses, for example, by being bought whips as gifts, learning negative reinforcement training techniques from adults, and to label behaviour negatively, i.e. as naughty, or lazy (Dyson & Pollard, 2022). However, there is growing evidence that unwanted behaviour in horses may also be associated with poor welfare, housing, diet, and pain due to outdated traditional horse-keeping practices and stress, or pain due to poor training and riding practices (Luke et al., 2022). Luke et al., (2023), and Rogers and Bell (2022) found that many equestrians misinterpreted conflict related behaviours as a characteristic of the horse's personality (thus naughty), rather than of having any roots in pain or stress. Research into horse behaviour has suggested that many horses exhibit signs of learned helplessness and the bomb proof, perfect, well-behaved horses used for teaching beginners may just have different welfare issues (Hall et al., 2008, 2018; Luke, et al., 2022).

These findings suggest that many outdated social-cultural narratives shape the affordance salience and perception of riders. For example, if described as 'naughty and lazy', a horse that is reluctant to move forward when given a cue (aid) to speed up, would illicit the affordance (opportunity for action) of either punishing the behaviour or reinforcing the cue, rather than of seeking understanding, connection or curiosity about the reason for the horses behaviour. Affordance perception is not only influenced by physical characteristics of an environment, but through a complex interplay of cultural, social, and individual factors. Believing that horses need to be obedient and that success is predicated on the ability to be tough, and ride difficult horses influences how people understand and interact with the world around them.

Current trends in coaching (the problem with riders today)

There was a shared concern about changes in expectations, with riders wanting to learn without putting in time to become skilled and knowledgeable or build relationships with horses. Kate sums up the trends and complexity most succinctly.

Within sessions there is an expectation that you just turn up, get on and compete. Hand over to your groom and maybe some implications in how that would influence coaching. That, you know, for someone like that they would need much more micro-managing. I think a lot of those riders if you said your coach has got a migraine, they can't be here today, probably wouldn't be able to jump themselves that day. I actually think that being a coach like that, you know, its big business, you're paid a lot of money to look after those riders. There's almost a move towards horses being even more of a product, I guess.

Most of the participants shared thoughts about the emerging changes in horse ownership which could both limit the opportunity for growth in the horse-rider relationship and be a product of the lack of a relationship, for example of people buying horses with little knowledge or experience and then selling them on if the relationship does not flourish.

Quite often those horses are only with a rider for a short length of time before, you know, the partnership stays okay for a short period of time, and then it doesn't stay okay. And that horse will find itself with another rider. I think that happens a lot. (Kate).

These findings contrast with those reported by Rosén et al. (2022) who found that there is increasing awareness and consideration of horses in ownership, riding and coaching. Our study found that there was a perception of horses being increasingly considered as 'equipment' and coaches being expected to help riders shortcut learning by micromanaging them (one mentioned the term 'joystick coaching'). There was a consistent narrative around the increasing pressure put on children and ponies to perform, leading to a compromise of welfare for both children and ponies.

Because all the participants coached, they would often switch between talking about their own learning experiences and how they coached. Most of the participants shared that they mainly coached novice riders who lacked confidence, and co-coached or self-coached as experienced riders. The tendency for experienced riders to self or co-coach is supported by previous studies (Williams &

Tabor, 2017) and may reflect more autonomous and problem-solving early learning experiences. The perceived changes were not all contained to novice riders. Fiona coached young pathway athletes and described them as also being different from a few decades ago, particularly in their need for structure, not wanting to experiment, make their own decisions, or take responsibility. She described the pathway athletes as being uncomfortable with freedom and autonomy and wanting to be told exactly what to do. This would suggest that some of the trends are due to wider societal changes in the freedoms and autonomy that children and young people have as Fiona suggests here:

When I was growing up, you know, I think I could go off for the afternoon and my mum would be like, you know, go away and don't come back for like, three hours. You know, and I'd be off paddling down the creek and looking for little animals or looking at plants or going to sleep for two hours in the middle of the field. You know, so we, you know, and I don't think they get to have that so much anymore.

These reflections about the trends in horse ownership and coaching would suggest a move away from the more autonomous, less structured time spent with horses that the participants described in their childhood experiences. Instead of building relationships with horses and engaging in problem solving, the perception was of a negative trend toward buying horses with a 'specification' and being dependent on coaches.

Implications for applied practice

Applying a nonlinear pedagogy to equestrian sports requires an awareness of the organismic, task and environmental constraints that impact skill acquisition to support the design of effective practice activities, instruction, and feedback (Chow et al., 2016). In equestrian sports the horse-rider dyad can be conceptualised as the integrated organism (a complex adaptive system). The results of this study support the importance of developing a close relationship with, and attunement to, horses to develop a collaborative partnership. Strong relationships and attunement to the horses movement and emotional state, may be what underpins the ability of highly skilled riders and their horses to behave as a single informationally coupled organism (Lagarde et al., 1996; Viry et al., 2013). This observation suggests the importance of developing deeper knowledge and understanding of horses,

not only from an ethical perspective, but also to support the process of skill acquisition in equestrian sports. It is worth considering that these abilities could be used to control horses as well as co-adapt. Practice activities should be designed to support building relationships, focussing on embodied and embedded experiences, fostering care, and developing an attunement to information from horses.

The participants' experiences of coaching would indicate a move away from higher levels of autonomy and problem solving toward a focus on micromanaging both horses and riders. While there are undoubtedly problems with some traditional practices and narratives, especially those with potential to harm both horses and children, these themes imply a shift away from more ecologically aligned practice. Whilst there is a growing body of evidence of the negative welfare experiences of many horses (e.g., Dyson & Pollard, 2022; Luke et al., 2023; O'Connell et al., 2025), we could find no research into the experiences of children in equestrian sports. The results of this study would suggest that there may be many children experiencing less than optimal physical and emotional climates within equestrian sport environments. There is a need for further research to elucidate the welfare experiences of children.

Socio-cultural constraints in the form of practices, beliefs, and values instilled in riders during their formative years appear to play a substantial role in shaping their affordance perception, future intentions, observations, decisions, and behaviours. It seems evident that much could be achieved through a systematic overhaul of the language used within all areas of equestrianism, for example, by coaches, in manuals, TV, radio, social media, rule books, qualifications, and other educational materials.

Study limitations and future direction

This study sought to explore the constraints on the development of skills that influence how showjumping athletes learn, highlighting common themes in their early learning experience and perceptions of changing trends in coaching. The study was conducted with a small group ($n = 11$); however, this sample size is aligned with samples in other published studies (Strafford et al., 2020). The sample size was mitigated in part by having a group of 15 coaches, recruited as part of a follow-up study provide external reflections on the themes, as used in previous studies to provide additional

rigor (Wadey & Day, 2018). The group of coaches recognised and identified with the themes and added to the richness and depth of the analysis rather than any additional themes, supporting the findings of Hennink and Kaiser's (2022) review on sample sizes and thematic saturation.

A further limitation was that although some of the participants still competed across disciplines, only one discipline was investigated at a level below performance or podium, and it may be that many of the themes are not representative of other disciplines, higher levels of performance, those who may have dropped out of the sport, or experiences in other countries. In addition, because both the participants and coaches self-selected for the study, they may not be representative of the wider equestrian community. The ratio of men and women in this study is likely to be representative of the level of participant skill investigated, although at the performance and podium levels there is a higher ratio of men.

Finally, a limitation and important consideration for future research was the single interview methodology used. This was considered appropriate for this initial research to provide much needed information about the scope of the early learning experiences of showjumping athletes. Future research, that is more longitudinal and embedded within the learning environments, will likely provide richer and more rigorous insight.

Conclusion

Traditional linear pedagogy is typically defined by a systematic, step-by-step method of coaching, emphasising specific objectives and the sequential presentation of material. It is fundamentally behaviourist, focusing on direct instruction and the concept that learners acquire knowledge in a gradual, predictable way. In contrast, nonlinear pedagogy recognises that learning is shaped by interactions within a dynamic environment, highlighting the uniqueness and context-dependence of each learner's experience. This approach promotes exploration and self-directed learning. It emphasises that 'knowledge of' the performance environment is constructed through active engagement rather than following a fixed path. A nonlinear pedagogy is not top-down but recognises the complexity and context of the coaching ecological system including the co-adaptive and embodied nature of learning and performance (Ziv, 2023). A potential polarisation of pedagogy in

the future may arise due to the perceived changes in horse ownership, expectations of the role of a coach, and pressure due to threats of the loss of the social licence to operate in equestrian sports. This study suggests that those who are skilled have learned through attentive inhabitant dwelling in equestrian forms of life and a deep connection to horses and that an equestrian pedagogy needs to embrace the relational and co-adaptive nature of riding and the unique aspect of being both a learner and teacher of the horse. The results also suggest that pervasive socio-cultural narratives impact the affordance perception of riders, particularly in respect to how riders interpret horse behaviour and the treatment that they received as children from the adults around them.

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