

Using the science of human behaviour change to investigate use of whips on working donkeys



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ABSTRACT

Working donkeys are critical to domestic and income generating activities for a significant proportion of people in Kenya. Their work puts them at risk of a multitude of physical and mental welfare challenges, one of which is the use of the whip by donkey handlers. Whipping behaviour of donkey handlers has previously been identified as resistant to change. This study adopted an approach informed by human behaviour change science, specifically the COM-B Model, Behaviour Change Wheel and the Theoretical Domains Framework (TDF), to gain a holistic understanding of the drivers of whipping behaviour that could be used to focus the development of future interventions to reduce the physical act of whipping. A survey of donkey handlers (n=45) was conducted, alongside four focus group discussions (n=38) and six semi-structured interviews, and the resulting data were thematically coded using a six-stage process. The findings are discussed as they relate to the COM-B Model and TDF domains exploring the capability, opportunity and motivation of donkey handlers as regards to whipping behaviour. However, many of the drivers of whipping behaviour identified by the study can be explored under the lens of multiple domains, demonstrating the interrelations and systemic nature of human behaviour change. The behaviour of whipping is stable, strong and relatively resistant to change. The elements of capability, opportunity and motivation that were found to contribute to the behaviour of whipping provide possible opportunities for future interventions. Overall, this study provides a lived example of how human behaviour change methods can be used to provide unique data on the behaviour of whipping working donkeys in Kenya and demonstrates the power of behaviour change models and frameworks to understand animal welfare concerns.

INTRODUCTION



To change behaviour requires a systems approach because the causes of behaviour are multi-factorial and influenced by social factors, environmental context, individual difference and genetics (Bandura, 1986; Perry *et al*, 1990). Human behaviour change (HBC) research therefore seeks to fully understand an issue before selecting some of the many evidenced based frameworks and models through which to analyse the results and structure an approach to designing interventions. Behaviour change research is very context specific, but it is the application of the models used to understand the behaviours and to explore potential interventions that is integral to truly understanding the behaviour, and these can be applied in a range of contexts.

The value of applying HBC science to address animal welfare issues has gained traction in recent years, reflecting the growing recognition that animal welfare improvements are typically dependent on a prior change in human behaviour. Behaviour change models have been applied in a range of animal welfare contexts, for example: Improving equine welfare through human habit formation (White and Sims, 2021); the management of unowned cat populations (McDonald *et al.*, 2018); promote canine welfare through collaboration (Reed and Upjohn 2018) and education (Batz *et al.*, 2020); better understanding of dairy farmers' approaches to the recognition and treatment of lameness (Leach *et al.*, 2013); improving animal welfare in research environments (Rogers, 2017) and; understanding the longitudinal impact of UK-based meat reduction and vegan campaigns on participant behaviour (Grassian, 2020).

In order to design more impactful interventions, Brooke (a Non-Government Organisation (NGO) working in Africa, Asia and Central America to improve the lives of working horses, donkeys and mules) identified a need to better understand how HBC science can be applied to working equid welfare issues, particularly when reflecting on where efforts to date have not resulted in the desired changes. The overarching purpose of this study was to trial taking an entirely behaviour change informed approach, whereby the methodology as well as the analysis and interpretation of the data are grounded in HBC theory.

Working donkeys in Kenya are at risk from a multitude of physical and mental welfare challenges including internal and external parasites, infectious diseases, lameness, skin lesions, unresolved pain and inappropriate handling during interactions with humans resulting in avoidance, aggression or apathy (Burn *et al.*, 2010; Onono and Kithuka 2020). Whips and rods are commonly used by donkey handlers to direct their donkeys as well as to discipline them (Waran *et al.*, 2002; McLean *et al.*, 2012; The Brooke, 2015; World Organisation for Animal Health (OIE) 2019). Brooke East Africa (BEA) and their partner organisations have attempted to address whipping, however, conventional community engagement approaches have not resulted in satisfactory or sustainable improvements. Although animal health interventions for working donkeys in Kenya have had success (Onono and Kithuka, 2020), the reliance on punishment based handling and training practices has been more difficult to resolve and BEA and partners continue to identify whipping as a behaviour that is resistant to change.

This study applied evidence-based human behaviour change frameworks, primarily the Behaviour Change Wheel (BCW) and COM-B Model (Michie *et al.*, 2014; Michie *et al.*, 2011) and Theoretical Domains Framework (TDF; Cane *et al.*, 2012) to better understand the behaviour of whipping by donkey handlers in Kenya. The BCW brings together multiple

behaviour change frameworks to create one comprehensive model that can be applied in any setting (Michie *et al.*, 2011; Michie *et al.*, 2014). It consists of three layers, the centre of which is the COM-B model. COM-B stands for Capability, Opportunity and Motivation – Behaviour, and is the part of the BCW that facilitates understanding of the nuances of the behaviour that is being targeted. Each of the three COM-B elements is further subdivided into two, resulting in six factors that need consideration: psychological and physical capability, social and physical opportunity, and reflective and automatic motivation (Michie *et al.*, 2011; Michie *et al.*, 2014). The middle layer of the BCW has nine intervention functions and the outer layer depicts seven types of categories that can be used to deliver the interventions. The intervention (and so the policy) used as the result of applying the BCW model is dependent on the outcome of the COM-B analysis at the centre (Michie *et al.*, 2011; Michie *et al.*, 2014). The domains that make up the TDF (physical skills; knowledge; cognitive and interpersonal skills; memory, attention and decision processes; behavioural regulation; social influences; environmental context and resources; social/professional role and identity; beliefs about capabilities; optimism; intentions; goals; beliefs about consequences; reinforcement and; emotion), map onto the elements of the COM-B model, expand and compliment them, hence why these frameworks can be used together (Crane *et al.*, 2012; Michie *et al.*, 2011; Michie *et al.*, 2014). While findings can be presented in line with the COM-B Model and TDF domains, often the identified causes, antecedents, maintenance factors and/or opportunities for change relate to several parts of the COM-B Model and TDF. This highlights the interrelations and a systems approach to human behaviour change.

The aims of this study were to: 1) Identify the causes of whipping behaviour, antecedents, maintenance factors and opportunities for change utilising the COM-B element of the BCW and TDF, to enable the development of effective interventions to change this behaviour and; 2) trial a HBC science approach and explore whether it can be replicated to understand other welfare issues relevant to Brooke's work.

MATERIALS AND METHODS



An integrated mixed-methods approach was developed to generate a holistic understanding of whipping behaviour by donkey handlers. The use of the term whipping throughout this study includes hitting which is a related behaviour. The Behaviour Change Wheel, COM-B model and the TDF informed the design of the data collection instruments, and the analysis of the resultant data, ensuring that findings generated could be used to inform future interventions. Data were collected between December 2019 and February 2020.

Ethical approval

The study design and protocol received feedback and approval from Brooke's Animal Welfare Ethical Review Body (AWERB). Brooke's AWERB basis its principles of ethical research on several regulatory frameworks. Principles for ethical research involving human participants are based on the World Medical Association Declaration of Helsinki and the British Psychological Society Code of Human Research Ethics.

Study design

An initial survey was conducted of seven participants representing BEA, and staff from Kenya Network for Dissemination of Agricultural Technologies (KENDAT) and Farm Systems Kenya (FSK) who are working in partnership with Brooke. All participants were Kenya-based adults (aged >18years). The findings were used to inform the study design, study locations and the data collection tools.

The target population for the main study were adults >18 years of age who work in the study locations with donkeys they own, donkeys they rent, or who are employed to work with donkeys, hereafter referred to as donkey handlers. Data collection consisted of a survey, focus group discussions (FGDs) and semi-structured interviews (SSIs). The surveys, FGDs and SSIs were conducted face to face in the local language by members of BEA (and BEA partner) teams who received training prior to data collection to ensure consistent delivery.

Behavioural observations of donkey handlers and their donkeys were also conducted at the study locations. This added environmental information and provided context to the study data. Factors such as working conditions, terrain, access to waterpoints, cart, harness and whip design were all noted. The findings of this element of the study are only reported here in so far as they provide evidence to support the emergent themes from the survey, FGDs and SSIs.

Study locations

The study was conducted in two locations. Location 1 was further divided into an urban area referred to as L1-U and a rural area referred to as L1-R. Location 2, referred to as L2, was largely urban. L1-U and L2 were identified as being areas of greatest concern regarding equine welfare and whipping behaviour, and L1-R was selected as a contrasting location to explore the behaviour of those who do not whip. In L1-U, the donkeys are mainly used for water distribution and also undertake transport of goods. In L1-R, donkeys are used for work on farms and for transporting farm produce to markets. In L2 donkeys are primarily used in connection with rice production and also for water distribution and the movement of goods and wood.

Donkey handler survey

The aim of the donkey handler survey was to collect information that would aid the behaviour change model analysis. It requested information about the individual donkey handler's demographics, what work they undertake and how, how they work and communicate with the donkey (with particular detail covered on whipping) and information about their influences, values, beliefs and goals. The 77-question survey included a mixture of open and closed questions. The open questions enabled description of the participants' views, beliefs, and perceptions about the situation. The survey was colour coded, according to question hierarchy, allowing the researcher administering the survey to prioritise questions in case the participant was not able/willing to stay the length of time it took to complete the full survey.

Survey participants

Opportunistic sampling was used, with potential participants in the visited locations being approached to invite them to take part in the survey. Informed consent was sought and those willing to proceed verbally gave consent to participate, as appropriate to the culture and level of literacy. Participants' responses were recorded on paper. A basic debrief with the participant was undertaken at the end of the survey reiterating its purpose and what the data would be used for, and allowing the participant to ask any questions or make any comments.

Focus group discussions (FGDs) structure

The donkey handler FGDs were intended to gain a deeper insight into donkey handlers' behaviours directly and indirectly related to whipping, as well as their beliefs and attitudes, and the related factors and antecedents that might influence and impact on these. In addition, this approach enabled further exploration of the data collected through the surveys, and the opportunity to address any gaps in data identified. Two FGDs were undertaken in L1-U and two at L2. In each location one FGD was comprised of donkey handlers who were already engaged with BEA or partner organisations, and one of unengaged donkey handlers who were not (see below).

One member of FSK facilitated both FGDs in L1-U and one member of KENDAT facilitated both FGDs in L2. The FGDs started with a briefing about the purpose of the discussion, the informed consent and privacy information, whereupon everyone was given the opportunity to ask questions, and then gave their verbal consent, and the nominated and agreed participant representative signed the consent form. The participants were made aware that the FGD was being recorded during the briefing, and the session was recorded from this point.

The FGD guide was designed with consideration of the behaviour change frameworks and comprised of 13 open questions and 1 closed question. All participants were encouraged to participate, the FGDs lasted between one and two hours depending on the level of engagement, and the need for translation of some points from local languages in to either English or Swahili. At the end of each FGD a summary was given, and each person present in the room was given the opportunity to ask questions or make a comment, before a debrief of the session was provided and the participants thanked for attending.

FGD participants

The inclusion criteria for the engaged group was they were part of a donkey welfare group and/or had attended BEA and partner training – the majority of these participants owned the donkeys that they worked with. The unengaged consisted of donkey handlers who were not in a donkey group, had not attended training and may not have any prior relationship with BEA or partners, these tended to be people who rented donkeys or were employed to work with the donkeys.

The sample gained was opportunistic; the participants for the engaged group were recruited by BEA and partners by approaching them directly face-to-face or by telephone to invite them to take part. The unengaged group were recruited by BEA and partners during the survey phase of the study, or through asking donkey handler contacts to invite eligible people they knew to attend.

Semi-structured interviews (SSIs)

The SSIs provided the opportunity to address any gaps in the data available on the issues, context, related factors and the behaviour of whipping itself, together with any final questions that had emerged from the data collected in the surveys and FGDs. The SSI questions were designed with a behaviour model analysis in mind. Two SSIs were undertaken in L1-U and four in L2.

The SSI started with a brief about the purpose of the discussion, the informed consent and privacy information being verbally communicated, whereupon the participant was given the opportunity to ask questions and gave their verbal consent. Participants were made aware that the SSI was being recorded during the briefing, and the session was recorded from this point.

The interview schedule comprised of open questions to guide the discussion and obtain the additional insights needed. These were adapted during the interview depending on the answers given, to explore the participants' answers in more detail. The SSIs lasted between one and one and half hours depending on the participant. At the end of each SSI, the facilitator provided a summary, and participants were given the opportunity to ask questions or make any comment, before a debrief of the session took place and the participants were thanked for attending.

SSI participants

The participants were approached at the end of the FGD to invite them to take part in an SSI. The inclusion criteria comprised of participants who were either in the engaged or unengaged group and actively contributed to the FGD.

Data analysis

The paper versions of the donkey handler surveys were transcribed into electronic format and then entered into an Excel file for ease of reading and analysis.

The FGD and SSI recordings were transcribed and translated verbatim by a recommended Kenyan company. A tailored thematic analysis (Braun and Clarke, 2006) was used in conjunction with the BCW, COM-B Model and TDF (Michie *et al.*, 2014) to analyse the FDG

and SSI data alongside the survey responses. The theory-led six-stage process consisted of (i) the familiarisation phase where the interviews were read, and notes made; (ii) the coding phase, which was performed on the six interviews to aid the generation of key themes by examining the meaning of phrases, concepts or patterns (Coolican, 2014) in relation to the questions asked using an inductive approach. The units of analysis were phrases, sentences and paragraphs that related to the identified codes; (iii) a deductive analysis was applied to all the FGDs by examining the identified codes and marking up the themes and language that interviewees used that had resonance to whipping behaviour, the COM-B and TDF Models; (iv) the themes from the FGD were then linked to those identified through the SSI, a semantic approach was used to classify and review the FGD and SSI themes according to the explicit meaning of the data with a latent approach applied in relation to the links between themes; (v) the main themes were then defined and named; (vi) and lastly discussed in detail. Throughout the analysis COM-B and the TDF framework was used to code key points related to themes identified in the familiarisation process.

RESULTS AND DISCUSSION



Donkey handler survey

Forty-five donkey handlers were surveyed: 11 from L1-U, 11 from L1-R and 23 from L2. The sample (n = 45) consisted of 2 females and 43 males, there were 7 people in the age range 18-24 years old, 20 in the range 25-34, 13 in the range 35-44, and 3 in the range 45-54, and 2 in the range 55 to 64 years of age. The gender imbalance in the sample reflected the predominance of men working with donkeys in the urban areas which formed the primary focus of this study.

The donkey handlers reported using different means of control when working with their donkey. Most used their voice, followed by a whip, guide pipe, their hand and their driving style, with many participants using more than one of these tools.

Participant responses to the open questions provided some context for the answers presented in Table 1, and these subjects were explored further in the FGDs and SSIs.

Donkeys in all three locations were primarily punished for “stubbornness” (when the donkey would not move or work) and disobedience, and rewarded for working well, being obedient and earning money. The majority of participants believed that donkeys felt emotions, but the underlying reasons for this belief differed across locations with participants in L1-R and L1-U basing this view on the ability of donkeys to feel pain, while participants in L2 showed an appreciation of “sentience” and comments about the animals “listening”.

When participants were asked what made them happy, the most common answer across all locations was “money”. Other answers included having an obedient donkey, relationships with people and health. “Customers” were associated with feelings of sadness, frustration and anger, followed by disobedient donkeys. Other answers included sickness of donkeys, rain, bad roads and donkey theft.

Most donkey handlers turned to other donkey workers for a general chat, followed by friends, family, church, and employers. Advice was primarily sought from friends, followed by other donkey handlers, then the church, family, vets, and donkey sanctuary. Note that for many participants, other donkey handlers will also be friends.

Table 1: Summary of survey responses from the three study locations

	% of participants		
	L1-U (n=11)	L1-R (n=11)	L2 (n=23)
The way you communicate with your donkey is:			
Natural*	100	91	70
Need to think about it*	0	0	30
Both	0	9	0
Do you use a whip/stick?			
Yes	100	100	100
No	0	0	0
Are there alternatives to using a whip?			
Yes	82	82	43
No	18	18	57
Have you attended training with BEA or partners?			
Yes	45	73	52
No	55	27	48
Do you ever need to punish your donkey?			
Yes	81	80	55
No	19	20	45
Do you ever reward your donkey?			
Yes	100	100	96
No	0	0	4
Do donkeys feel emotions?			
Yes	90	100	100
No	10	0	0

* These behaviours were not explicitly defined to the participants

Emergent themes from the FGDs and SSIs as they relate to the COM-B framework

A sample of 38 participants was obtained across all four of the FGDs: L1-U engaged n=7, unengaged n=12; L2 engaged n=6, unengaged n=13. All participants were male with estimated ages ranging from 18 to 54 years, with the majority being assessed as aged 18 to 34 years. From the opportunistic sample of FGD participants, two participants from L1-U (one engaged, one unengaged) and four from L2 (two engaged, two unengaged) were interviewed. The sample (n = 6) overall, consisted of 100% males, whose ages were assessed to range from 25 to 54 years.

The themes generated through the donkey handler FGDs and SSIs provided insight into whipping and non-whipping behaviour of the participants. The COM-B framework was used to explore the different elements of the behaviour of whipping. The three key parts C (capability), O (opportunity) and M (motivation) that make up behaviour are broken down into sub-sections relating to the TDF and the findings are presented as they relate to these domains. Where relevant, the findings are explored under the lens of multiple domains, demonstrating the interrelations.

1. Physical Capability

1.1 Physical skills - "*An ability or proficiency acquired through practice*" (Michie *et al.*, 2014, p.88)

The majority of donkey handlers in L1-U and L2 did not demonstrate the skills enabling them to use alternative, positive, forms of communication with donkeys instead of whipping. In contrast, other donkey handlers (particularly those in L1-R) demonstrated communication skills that do not compromise animal welfare.

Donkeys were mostly trained using punishment and negative reinforcement (Bell, 2018). There were a small number of donkey handlers that described situations where negative reinforcement appeared to be used skilfully: "*You will be at the center. If you want it to either go right or left, you will show it using the whip*" ... "Yes. *The whip will be on the right so that it turns left. If you want it to turn right the whip will be on left*" ... "*It is for showing the direction.*" – Question from researcher- will the whip touch or just show? – "*No. You will just swirl the whip near it. When it sees the whip it understands that it should turn.*" (52-68, L1-U-FGD2). However, most donkey handlers did not describe having relevant physical skills or knowledge to use the whip in a way that is likely to result in the desired behaviour of the donkey, or to use the whip in a more effective and less forceful way in relation to learning theory. Where rewards were used they were not contingent on the desired behaviour, so the donkey is unlikely to associate the reward with the element of their behaviour that the handler desired: "*I reward my donkey when I have worked with it and managed to make more money than I had targeted. I buy it some maize germ, and there is a certain place where I buy it some cakes (KDFs)*" ... "*The donkey in turn feels appreciated*" (759-763, L1-U-FGD1).

The behaviour of whipping donkeys was well established in L1-U and L2 and could be considered a well-formed physical skill. The skill may then become a habit through consistent repetition in conjunction with established contextual cues, strengthening the behaviour until it becomes automatic (Lally, Jaarsveld, Potts and Wardle, 2010). Physical capability could relate

to donkey handlers getting fatigued and possibly 'relapsing' into a habitual behaviour of whipping rather than alternatives, which if not fully established as a skill might take more energy to use: *"It reaches a point where I also whip it. This is no secret"* (17, L1-U-FGD1).

2. Psychological Capability

2.1 Knowledge - *"An awareness of the existence of something"* (Michie et al., 2014, p.88)

Knowledge among donkey handlers of how whipping can be used to communicate with donkeys is well established. Many of the participants in the FGDs and SSIs talked about learning to communicate with donkeys through observation and/or working with other donkey handlers, friends or family members; this is indicative of social learning theory (Bandura, 1977) and is discussed in more detail under Social Opportunity. The use of the whip as means of communication is potentially linked to the fact that corporal punishment appears to remain widespread in education settings and at home in Kenya: *"This is because the moment you saw a teacher you knew that there was something that you had not done right and they will whip you for that. When a teacher came to class with a whip, you even had to understand everything that you had not understood. So, seeing a whip, you knew that it was meant to communicate something which you had to figure out what it was fast before the whip landed on you. You knew you had to understand whatever it was before the teacher got to you"* (SSI with 'J'). Several participants in the FGDs and SSIs made reference to teaching donkeys being like teaching children, and the need to use the whip: *"A donkey is just like a student in school, if they go astray, they are brought back in line through whipping"* (30, 31, L1-U-FGD1). Evidence of the link between social learning and the cycle of violence have been documented in human and animal abuse (Flynn, 2012) therefore consideration needs to be given to its role in the development of knowledge among donkey handlers, whether this be through observing other donkey handlers, or through childhood experiences.

When asked about whether there were alternatives to whipping limited suggestions were given (*"A stick can be used as an alternative."* 103, L2-FGD1) and it was apparent that in some locations there was a lack of knowledge regarding alternative options: *"We don't have an alternative, it is all we know when using the donkeys, since being taught and to date, that is how we have been shown"* (SSI with 'D'). The positive point is that those who appear resistant to change, or do not see a need to change, appeared to be in the minority. Many more donkey handlers were open to receiving knowledge about alternatives: *"What I can add is that, let the trainings come so that we can be communicating with these donkeys without using a whip just like the way horses are communicated to. Horses are communicated to using word of mouth. Let that training be brought and the whip be abolished."* (920-923, L1-U-FGD2).

Despite stating a lack of knowledge about alternatives to whipping, when asked about different communication methods the donkey handlers listed approaches that could be viewed as alternatives: *"You can even talk to it to give specifics orders"* (70-72, L1-U-FGD1). This suggests that they did not recognise these as alternatives, possibly because they did not know how to use them or believed that they would not work effectively - one participant referred to using the voice as an alternative only after it had been demonstrated by KENDAT: *"...KENDAT*

came to train in [L2] - introduced the aspect of talking to the donkeys which adopted, as initially I thought it is only through whipping that a donkey can work.” (52-55, L2-FGD1). Suitable alternative communication methods were observed to be in use by a few individuals in L1-U and L2, and the majority of people in L1-R. The use of reward was discussed in the FGD and SSIs, and while some participants demonstrated knowledge that rewards were a positive element of working with a donkey, there appeared to be a lack of knowledge regarding how to effectively use rewards, as discussed in relation to skill (e.g. “I reward my donkey when I have worked with it”... “The donkey in turn feels appreciated”).

2.2. Cognitive and interpersonal skills - attention, memory and thinking (author’s clarification as definition is missing in the BCW framework)

Whipping did not appear to be an automatic response for all donkey handlers, where other behaviours such as using the voice or touching the donkey with their hand may be automatically used instead: “I do not need to whip it all the time. So, I think I mostly use that mode; voice.” (478-482, L1-U-FGD1). Further study into the reasons for this is needed, one hypothesis would be that these donkey handlers did not commonly see other donkey handlers whipping their animals but instead saw other forms of communication being used. Another reason might lie in differences in their backgrounds in relation to their cognitive development of thinking, learning, reasoning and problem solving - so they use other techniques when presented with a challenge.

The relationship between donkey handler and donkey is relevant here. References were made to developing an understanding between the donkey and person who works with them, and this being unique to them: “Everyone understands the language that his donkey understands which is unique to every donkey owner and his / her donkey.” (37-38, L1-U-FGD2). Most rural donkey handlers own their own donkey who works with them and their family all the time. In contrast, donkey handlers who either rent a donkey or work with donkeys for someone else, typical in urban areas, may not always work with the same individual donkey. This may present challenges in communication and predictability of the donkey’s behaviour during their interactions: “You need to think about - there are donkeys who work with different people, particularly the ones that are given out for hire. They may get confused because these different people have their different ways of communicating to them. So, you need to think to find out why it is probably taking time to understand your language” (464-468, L1-U-FGD1); “... I stopped lending people my donkey when one day I lent it to a boy to work with it for a day. That donkey was not used to getting whipped since I communicated to it through speaking to it. On coming back, I found that my donkey had developed a wound from the severe whippings it had received from the boy that day. I felt so bad, I almost beat him up. Because I do not whip my donkey. From then on, I told him to keep off my donkey.” (570-576, L1-U-FGD1).

Humans seek congruence between their attitudes, belief and behaviours and when these are not aligned experience discomfort from the cognitive dissonance (Festinger, 1957). Cognitive dissonance between behaviour and beliefs, attitudes and values were evident in relation to some of the participants’ comments, with some expressing feelings of guilt about whipping the donkey and this not being good, but also talking about the need to whip: “I feel bad but that is the only way. Remember the donkey owner needs money.” (537, L1-U-FGD2). Some talked about feeling guilty as this related to their religious beliefs: “If there was another way, apart

from the whip, I could use it.” ... “I sometimes pray to God to forgive me since I have whipped the donkey so much and there is no other way.” (576-580, L1-U-FGD2).

Interpersonal skills are defined as the ability to have effective relationships with other people and are linked to an individual's ability to communicate thoughts and feelings, undertake responsibility and be flexible in their approach (Spitzberg and Cupach, 2011). These skills can be under-developed, compromised or challenged. Participants communicated how customers and other donkey handlers could make them feel under pressure: *“Customers pressure to deliver the goods fast so you have to move fast.” (155, L2-FGD2).* As well as impacting on the donkey handlers' relationships with other people, their interpersonal skills may influence their communication with donkeys. During the FGD, people indicated that donkeys who didn't do what they were asked, that were "stubborn", frustrated them and the whip was needed: *“Forced’ to use a whip by the donkey especially when it is being stubborn. Judge what the donkey is feeling - if it is in a good mood just talk; but if it is in a hostile mood, you “have” to use the whip.” (78-80, L2-FGD2).*

2.3. Memory, Attention and Decision Processes - *"The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives"* (Michie *et al.*, 2014, p.88)

For the majority of donkey handlers in urban parts of L2 and L1-U whipping is something that they usually do therefore it could be considered a method of communication that is retained within memory and selected with ease. In contrast, for the majority of donkey handlers in L1-R whipping was not something they usually do, instead alternatives were retained and selected.

In the donkey handler survey, participants reported working six hour, seven hour and 10 hour days. Given the physical nature of the work, decision-making, including the decision to use an alternative to whipping, may be impaired by tiredness. It could also have been affected by other life pressures that result in a need to work faster and whip: *“we feel bad to use a whip but the pressure to meet our daily expenses and targets force us to use the whips” (158-9, L2-FGD2).*

Substance abuse affects memory and attention and might also impact on the person's emotional state, and therefore their ability to make decisions (Ndege, 2008). Khat is said to be a commonly taken drug in Kenya and is reported as affecting cognitive flexibility and the updating of the working memory. A 2011 report concluded that this inability to monitor information and to adjust behaviour rapidly and flexibly might have repercussions for daily life activities (Colzato *et al.*, 2011). Although the use of khat by donkey handlers was not explicitly referred to, substances abuse was and may be relevant: *“You know with these boys, some of them are drug addicts. [...] They now engage themselves with drug abuse because those who are older than them in these slums are also smoking opium and those other drugs” (SSI with 'J').*

Working memory and attentional control are often used interchangeably, typically focus is on one thing at once and just having one item in the space outside the focus causes a significant loss of efficiency in processing the focused item. This is likely relevant for donkey handlers as

they work on busy roads with constantly changing risks to evaluate regarding other traffic and obstacles. For example, there were references to Mirra vehicles (vehicles that carry Khat) causing hazardous conditions: “Yes, sometimes, when you have to suddenly stop for example, you have to be quick to talk angrily to the donkey, whip it so that it can react fast to the situation. E.G. “Miraa” vehicles they move so fast and are scared of them.” (33-35, L2-FGD1). The acute stress of these situations may lead donkey handlers to fall back on the habitual behaviour of whipping rather than remember to use alternatives to whipping, particularly if they are in the early stages of adopting a new alternative. It would also affect the attention on 'meaningful use of the whip'. Indeed, the need to whip when faced with dangerous road conditions was referenced: “Need that whip to show it that there is danger ahead - to make it stop or change direction. Without whip you may even collide with an oncoming vehicle. So, that is why we have this whip to make work easier.” (528-534, L1-U-FGD1).

2.4. Behavioural Regulation - “Anything aimed at managing or changing objectively observed or measured actions” (Michie et al., 2014, p.88); “Behavioural Self-regulation - “Behaviorally, self-regulation is the ability to act in your long-term best interest, consistent with your deepest values.” (Stosny, 2011)

Some participants reported that they have stopped relying on whipping to communicate with their donkey and changed to other forms of communications, demonstrating that they have successfully changed their own behaviour: “We have been changing our mentality since you can realize from the canal to the delivery point that a donkey has not been whipped throughout the entire trip. Just talking to the donkey will make it move.” (78-80, L2-FGD1). The study also provided evidence where individuals have demonstrated action planning and mental strength to enact change in other areas of their lives, for example building a house: “When I moved to [L2], I had just a temporally house, my goal was to build a more permanent house, I used my donkeys to transport the materials from the quarry and hardware to use for building the house.” (131-133, L2-FGD1).

In contrast, some participants appeared resistant to change, citing varied barriers including having reservations regarding whether there was an alternative communication to whipping: “A donkey without a whip is like a car without a steering.” ... “The same way you cannot drive a car using words without a steering is the same way that you cannot tell a donkey to turn. It will not turn. The whip must be the steering.” (874-881, L1-U-FGD2). In these instances, the behaviour might persist because the handler perceives no viable alternatives, as discussed previously.

The donkey handlers’ response to negative emotions may also impact on behavioural regulation. For example, feeling angry that the donkey won't do what they want: “There are also times when you will talk to it but it will not do what you want it to do. That is the one you will find with wounds since you are forced to use the uphill gear on it.” ... “That is where you resort to whipping it.” (21-25, L1-U-FGD1), and feeling stressed due to the pressure to earn and look after their family: “... I need to make enough money to take care of my wife. And when that happens, there will be peace at home” L1-U-FGD1). In addition, there were several other pressures mentioned, including having to compete for work, pressure from clients and donkey owners, and pressure from other road users: “There is competition from motorists “tuktuk” hence you have to move fast.” (154, L2-FGD2).

Mismatch of the donkey handlers' values and their behaviour should also be considered here. This is described in cognitive dissonance theory, discussed earlier (e.g. *"I feel bad but that is the only way"*). Conversely, some participants felt that punishing for disobedience is the correct and expected way to behave: *"Yes, there are times when a donkey just decides not to follow orders. For instance, you can find one that does not want to keep still when you are working. Particularly the untrained ones. But if you punish it, it will remain still until you finish."* (828-831, L1-U-FGD1).

Although whipping is usual behaviour among the L1-U and L2 donkey handlers, among the majority there does not appear to be any form of monitoring or planning when to do the behaviour. Whipping behaviour appears to be largely automatic and habitual in nature: *"It is automatic. It is something you are used to."* (403, L1-U-FGD1). This also appears the same for L1-R donkey handlers in relation to the alternative methods used. However, several of the FGD participants suggested there were specific contexts and occasions where whipping was undertaken consciously with thought, demonstrating the ability to regulate and select behaviour: *"When there is traffic, I talk to the donkey to slow down. When overtaking you use both the whip and talking angrily to the donkey for it to overtake faster."* (71-72, L2-FGD2). There were a small minority that discussed how they had reflected on whipping, and identified times when they might use it in a more considered way: *"We first think before we whip the donkey. This occurs maybe when we want it to turn"... "You first think what you want the donkey to do. For example, when you think that it should turn, you whip it to turn."* (1720-24, L1-U-FGD2).

3. Physical Opportunity

3.1. Environmental Context and Resources - *"Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour"* (Michie et al., 2014, p.90)

The issue of limited resources is key both in relation to equipment and how many donkeys are used. Many harnesses are not fit for purpose – they are poorly designed and fitted and are made of materials that cause the donkeys injuries through the harness itself or through the transfer of weight from the cart. This was apparent in the observations and referred to in an FDG: *"It depends on how you have made the cart for your donkey. Almost all the weight lies on its neck. You can use spongy harnesses around the neck to prevent them from pressing the donkeys' skins and hurting them. The wounds may have resulted from that friction against the neck."* (775-778, L1-U-FGD2). The carts are simple in design and easy to use, but appear to be easily unbalanced in relation to weight distribution and do not have a proper braking system for work up and down hill, or when carrying heavy loads – all of which are likely to result in a negative outcome for the donkeys' welfare. During the observations carts were frequently overloaded (particularly those used for rice transportation in L2). Donkeys work singularly, in pairs and in threes, but the harnesses and the cart were often not designed for multiple donkeys and the weight was not distributed equally. There might be a causal link between poor harnesses and cart design, overloading of carts and having insufficient donkeys to pull them, compounded by poor donkey welfare (e.g. fatigue, exhaustion, injuries and lameness), and the donkey moving slower than the donkey handler would like them to, possibly resulting in an increase in whipping behaviour. In addition, having more than one

donkey harnessed to a cart was directly referenced as a trigger for whipping: “*Donkeys have different speed, when you have tied three donkeys in one cart one is moving faster than the others have, you have to whip the donkeys slowing down the others for them to move at the same speed.*” (140-2, L2-FGD2).

Some donkey handlers perceived that there are limited opportunities for them to earn money in other ways: ... “*If we had something else to do and earn money, we could do it and at least leave [donkey] to relax. Unfortunately there is none...*” (1196-1201, L1-U-FGD2). This lack of resources may affect the donkey handlers’ physical opportunity to be encouraged to adopt alternatives to whipping. This may be compounded by the development of infrastructure for water provision in the area that will render the donkey handlers who transport water for a living without employment: “*Then, work started reducing after the county council provided piped water to our clients. The money we make now is only enough to take care of our basic needs. It is hard to save any money under the situation...* (SSI with ‘J’). The lack of resources and this threat may add to the emotional pressure donkey handlers are under and to the pressure to earn, ultimately resulting in encouraging and motivating the donkey handlers to make more trips by moving faster, which in turn acts as a cue to whipping: “*Want to make more trips you are forced to work fast and move fast so that you can make more money. In this case you think whipping will make the donkey move faster.*” (138-9, L2-FGD2).

The environments in which the work is being done vary significantly as evidenced by the behavioural observations undertaken of donkey handlers and their donkeys. For example, there are back roads and areas where people live that have very uneven dirt roads, with potholes, deep tyre treads, and rubbish, alongside hazards such as pedestrians and chickens. There are flat areas and hills and many of the roads are made from mud, which become very slippery when it rains and the donkeys struggle to pull the carts in these conditions. A participant in one of the FGDs talked about the issues of working in the rain and the need to whip the donkey as a result: “*At times you can be working far away from home and signs of rain start to show. In that situation you are forced to use the whip for it to run fast so you do not get caught by the rains since it can get stuck in the mud. It cannot move when it has muddy. It slides.*” (526-30, L1-U -FGD2).

Seasonal issues are also relevant in this consideration of physical opportunity. In the rainy season, those donkey handlers involved in water transportation lose this source of their income, which places a pressure on them to earn while they can, in turn increasing the pressure to complete as much work as they can when it isn't rainy, thus increasing the workload on the donkey and the speed with which they want to work - which might act as a cue for whipping behaviour. There are also seasonal factors with the work in L2 connected to the rice mills, with the type and amount of work changing according to the growth stage of the rice itself through to processing (harvesting, drying and milling).

In many cases, the layout of the waterpoints is only conducive to one donkey and cart filling up at a time, which increases the time pressures and related stress on the donkey handlers. In addition, several require the donkey to reverse the cart back up to the waterpoint, for a number of donkey handlers observed this appeared to cue them to whip the donkey often

doing so in order to trigger the donkey to reverse (this seems counterintuitive as the donkeys are usually whipped to increase forward movement).

Another element of physical opportunity is time. In L2, those transporting rice said that they were under pressure from the rice producers and sellers to get the job done quickly, as well as directly competing against each other for seasonal work - resulting in them rushing. There was evidence that donkey handlers are under time pressure throughout the research. For example, there was competition between the donkey handlers for clients, which adds a time pressure. In L1-U, this was evident during the observations with donkey handlers delivering water arriving early at the waterpoints, appearing to be in a rush to try to get in before other donkey handlers. The rush appeared to ease as the morning went on, with most water deliveries being completed by the lunchtime and handlers appearing more relaxed and taking their time with work. The situation differed in L2, where work with the donkeys appears to be ongoing throughout the day. However, there is still a sense of pressure related to doing as many trips as possible in the time available. This was supported in both the L1-U and L2 FGDs where participants talked about the pressures of time in relation to getting on with the job, connected to making as many trips as possible to earn as much as possible. It was also one of the reasons given for why they whip their animals, namely motivated by the fact that moving faster enables more money to be earned: *"A donkey can work without whipping but it will not work with the pace you want. You will not make any money at the end of the day therefore here in [L2] we have to use whips."* (148-50, L2-FGD2). One FDG participant referred to the need to rush to make time to feed their donkey: *"I feel the same way but we are forced to do it since you need to rush it so that you also give it ample time for feeding. You need to carry cans very fast when time is not on your side so that the donkey can eat." ... "I feel bad but there is no alternative."* (521-525, L1-U-FGD2).

It was clear that where work is available, donkeys are pushed to work faster and for longer hours to maximise their earning potential. These pressures on the donkey lead to fatigue, and tired donkeys are more likely to be whipped more frequently by their handlers to keep them going.

4. Social Opportunity

4.1. Social Influences - *"Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours"* (Michie et al., 2014, p.90)

The surveys, FGDs and SSIs all showed that most donkey handlers learnt how to work their donkeys, either as a child or an adult, from family, friends or other donkey handlers, by watching or being shown: *"Growing up in homes that had donkeys, we use to observe how our fathers were communicating and handling the donkeys"* (108-9, L2-FGD2).

Although participants listed various sources of information and influence (including family, friends, other donkey handlers, the church, football teams), for many donkey handlers other donkey handlers are included in all other sources. Therefore, the influence of other donkey handlers might be stronger than that of other sources. The church and religion itself also appear to be strong influencers: *"I do not feel good about whipping my donkey because I put myself in that donkey's shoes. What if I was in its position? I have a cart full of drums of water on my back, and I am also getting whipped... it would not be good. Also, in my mind, I*

remember that Jesus rode on a donkey. And the animal was calm and obedient. so, whenever you whip it and get to think about it deeply, you find that it is not appropriate. The right thing therefore is to just take him slow. To me, whipping a donkey is not right.” (558-563, L1-U-FGD1).

The concept of a social license is relevant here. Social licence to operate is being increasingly discussed in relation to human actions that compromise animal welfare, including the use of the whip in Thoroughbred racing (Duncan *et al.*, 2018; Hampton *et al.*, 2018). Donkey handlers appeared to have a social license to whip their animals. In general, there appeared to be an ongoing acceptance of whipping as a practice by some of the clients, public, other donkey handlers, church and family, if not all stakeholders apart from animal welfare organisations: *“We also have the mentality that a whip must be used when working with the donkey.” (96-97, L2-FGD1).* An exception was discussed where they spoke about customers not wanting to buy water from donkeys with wounds: *“When the customer sees that your donkey has a lot of wounds, they will not take your water. You have to reduce whipping and reduce the wounds. A clean donkey means clean water” (452-454, L1-U-FGD2).* In the places where whipping is most commonly used over alternatives, our discussion with participants suggested that whipping is a social norm (*“It’s the way we do things”*). In contrast, in the places where whipping was observed to be less commonly used, in the rural markets around L1, there appeared to be social norms around guiding donkeys using the voice and a stick to point in the desired direction.

Many urban donkey handlers travel to this location on their own to seek work, and therefore may lack the social and community support networks that are available for rural donkey handlers who permanently reside in these areas. It could be hypothesised that the widespread use of whipping in urban areas compared to rural is due to limited previous experience of working with donkeys, social pressure and a need to compete for work, leading to a heightened awareness of what others are doing, a lack of support or influence outside of other donkey handlers and limited alternative channels to learn how to work with donkeys. In contrast, donkey handlers in rural areas might be using the donkey to transport their produce to market or undertake jobs for their family directly as opposed to having clients. Their social support network might be more established if they have family and friends in an area they have grown up in; as opposed to moving to an area for work, as in the case of many working in urban areas.

Social influence and norms might also impact on the person’s choice of whip or stick. In L1-U and L2, whips with rubber or rope were commonplace, as opposed to sticks being commonplace in the rural markets visited around L1-R.

Social learning, norms and cultural influence around corporal punishment at home and in schools should also be considered. Several of the study participants referred to needing to treat donkeys like children, which included using the whip when necessary, as discussed previously: *“A new donkey has to be whipped. It is like a little child who has just joined school.” (338-339, L1-U-FGD2).* During the FGDs and SSIs it became evident that corporal punishment is still widespread, in spite of being banned in schools, also supported by Kindiki (2015). There is an increasing amount of evidence that links being abused and abusing non-human animals and other human animals (Hackett and Uprichard, 2007). Consideration should also be given

to the role of social influence and social norms in how animals are perceived and treated regarding their welfare (including whipping) in Kenya by different social groups (Wambui, Lamuka, Karuri and Matofari, 2018).

There appeared to be social pressure from donkey handlers towards the people who rent their donkeys or their direct employees. Those who rent donkeys or are employed often expressed a desire to own their own donkeys, and this could be not only because it is financially more attractive to own the donkey you work with, but also due to interpersonal challenges between renter or employee and owner. Some participants discussed how the interpersonal dynamics between those who own donkeys and those who rent or are employed to work with them can impact whipping behaviour: *"We did not care about donkeys because we were employed initially. We had a group of around 50 people, most were riders who did not care about the welfare of the donkeys. After buying our own donkeys we stopped whipping them too much... We used to whip them to get more money so that we could give the owner their cut and still be left with some good commission for that day."* ... *"when you are working with the donkey as the owner, there is no pressure to make extra money than the targeted amount."* (65-68, L2FGD1). Due to the different external pressures and attitudes within these roles, donkey owners, renters and employees working with donkeys may need to be communicated with and targeted differently in any future intervention regarding whipping behaviour.

5. Reflective Motivation

5.1 Social/Professional Role and Identity - *"A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting"* (Michie et al., 2014, p.89)

How donkey handlers view their work varies between individuals. Some report positive responses about how they and others in their community view their work with donkeys: *"I have bought some pieces of land, paid school fees and catered for many expenses. People used to see us as low class people but nowadays donkey owners have gained a lot of respect from the community."* (134-136, L2-FGD1). While others reported a less favourable view: *"It is a hustle just like any other."* (1253, L1-U-FGD2) "; ... *When it has rained we do not have work to do. You have to go round looking for other jobs and get no customers."* (1259-68, L1-U-FGD2). The majority of survey participants said that they are working in order to save money to be able to start a farming business or buy a motorised vehicle to work in a different way. How this relates to impacting on whipping behaviour requires further investigation.

The donkey handlers run their businesses in different ways. Some develop regular client bases while others work reactively. It is possible that having a client base provides a degree of secure work, meaning there are less time pressures placed on the donkey handlers as they can get to their clients as and when needed rather than competing for work with other donkey handlers. In contrast, those who work reactively may be forced to compete for work, rendering them under the pressures of time and who can get to the prospective customer first. Some of the participants talked about liking working with donkeys due to the flexibility, which might partly explain their motivation to work in this way: *"I like the work since one gets a job daily."* ... *"Also, it does not have specific hours of closing. You can even close your job early to do your other things."* ... *"It is not a must that you work from dawn to dusk."* (1322-29, L1-U-

FGD2). Also, the demands of customers might cause added tension and lead to whipping, if they are pressurising the donkey handler to do things in a hurry, as previously discussed.

Donkey handlers differ socially and professionally depending on whether they own or rent donkeys, or whether they are employed to work with donkeys or work for themselves. By the nature of their different circumstances this is likely to impact on their professional role and identity. Those who own the donkey have the ultimate say in relation to money made and the use of the donkey, in comparison those who rent have to pay the donkey owner for the donkeys' time, and those who are employed work for the owner/employer for a rate that has been set by the owner. During the FGDs participants spoke about having to give the donkey owners their "cut" if they rented the donkey or were employed, as discussed in the previous section.

Some donkey handlers appear to perceive their personal identity to be in alignment with their professional work identity. However, others displayed a conflict between their identity as Christian and whipping behaviour undertaken in the course of their work, revealing misalignment between values and behaviour and an element of cognitive dissonance, discussed previously.

Regarding how the donkey owners are viewed by others, donkey handlers reported a belief that other road users perceived them to be of a lower socio-economic status: *"Motorists and 'tuktuk' look down upon us a lot, but they end up having more expenses from fueling. Moreover, 'tuktuk' cannot access some terrain that is accessible by donkeys."* (189-91, L2-FGD2). This may have contributed to some of the frustrations donkey handlers reported in regard to road use; this would need further investigation.

It is important to consider whether whipping behaviour is compatible with the donkey handlers' professional standards and identity. It appears that further consideration is needed of this area with regards to existing and emerging donkey welfare group standards, to encourage positive reward-based communication when working with donkeys, as opposed to punishment. In addition, whether the current social norms around whipping donkeys in urban areas (discussed prior) have made it an expectation or something that is acceptable in relation to donkey handlers' identity.

5.2 Beliefs about Capabilities -"Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use" (Michie et al., 2014, p.89)

Some donkey handlers appear to have high levels of self-confidence and perceived competence that they know how to 'ride' / drive / work donkeys, and that this involves whipping to get the donkey to do what they want: *"Training a donkey is simple. When you buy a pack donkey and bring them to a cart, it learns fast because you train them using a whip."* (145-6, L2-FGD2). This might also relate to, but did not come out strongly in, those that do not whip - there were several examples in the FGDs and SSIs of both types of individual. The level of confidence and perceived competence may impact on a person's willingness and motivations to change or consider change. Some may not believe there is a need to change as they feel they are competent, or, they may feel comfortable to consider other options without this impacting on their confidence as an individual and as a donkey handler. In contrast, those

lacking in self-confidence and perceived competence, either in their ability to work effectively with donkeys, or as individuals may be more or less open to change, as they may be happy to receive help and support, or feel it undermines them. There were examples of donkey handlers that showed willing to learn from advice given: *“I bought a donkey that had never worked before, so I really struggled with the donkey and used to whip it a lot. Someone advised me to use the donkey alongside one that had worked with the cart for a long time so that it can learn from it. I did that, eventually I stopped translating my frustrations through whipping, and we worked efficiently with the donkey.”* (54-58, L2-FGD2).

An individual's beliefs regarding self-efficacy (an individual's confidence in their ability to complete a task or achieve a goal) have been positively linked to motivation and engagement. This in turn leads to increased task engagement, with meaningful goals being likely to lead to higher levels of involvement (Bandura, 1977). Conversations in the FGDs included assertion that it was easy to learn to work with donkeys, suggesting that the majority of the donkey workers appeared to have high self-efficacy around working with the donkeys. There were, however, some individuals that described having lower self-efficacy, either when they started with donkeys or in certain situations: *“... I did not know how to work. I did not know how to handle a donkey. I actually had feared that animal throughout my life. I couldn't touch it. But remember there were these two little boys who had dropped out of school. They used to ride donkeys and had that knowledge. So, I learnt from one of those boys at a fee about how to handle a donkey, how to put it in a cart and how to drive it.”* (SSI with 'J'). Some individuals appeared to blame the donkey for not doing what was needed: *“Sometimes you must use a whip because of the stubbornness of the donkey.”* (29, L2-FGD1). The tendency to blame the situation on others can be an indicator of low self-efficacy (Heslin and Klehe, 2006).

Perceived behavioural control is relevant in this part of the COM-B framework. In the context of performing whipping behaviour and whether it is perceived to be in the donkey handlers' control is interesting to explore. The FGD suggests that many of the handlers perceived they had control of this behaviour and used it when it was needed: *“When a donkey is used to diverting in a specific place, but this time you are not diverting you have to use a whip to remind the donkey that you are not diverting.”* (73-74, L2-FGD). However, a few reported that they do reflect on the behaviour of whipping in a negative way, often in the context of religion: *“... I sometimes pray to God to forgive me since I have whipped the donkey so much and there is no other way.”* (576-580, L1-U-FGD2). When asked whether the behaviour of whipping was something they did consciously or naturally, some said consciously: *“You first think what you want the donkey to do. For example, when you think that it should turn, you whip it to turn.”* (1720-24, L1-U-FGD2), whereas others said naturally: *“It is as automatic as writing down the alphabetical letters.”* (404, L1-U-FGD1).

Beliefs can be related to capabilities (Heslin and Klehe, 2006) therefore consideration should be given to whether the donkey owners believe that they are capable of change (Pam, 2013). Beliefs about whipping varied in the participant groups from those who appear to see whipping as necessary and essential: *“Whipping is a must-do thing when driving a donkey. Once you pick up that whip, the animal also knows that it needs to increase the pace at which it is moving.”* (521-522, L1-U-FGD1), to those that regard it unfavourably: *“It depends with how you initially started from the beginning and trained the donkey. Whipping the donkey is not a*

good thing In my opinion, just train the donkeys to listen to words.” (85-87, L2-FGD1). Some of the latter beliefs appeared to be rooted in religious beliefs or other beliefs regarding morality.

The level of self-esteem appears to vary among donkey handlers, with some appearing to have high self-esteem and pride in what they do and what they have achieved, while others appear to have low self-esteem. Their past and present situation and relationships are likely to shape their current self-esteem. The donkey handlers' personal experiences will impact on how empowered and able to take action they feel. There is evidence that some of the participants are empowered, e.g., those that have taken positive action to stop whipping and have found a different way of communicating with their donkeys: “*..I did that, eventually I stopped translating my frustrations through whipping, and we worked efficiently with the donkey.*” (57-58, L1-U-FGD2), those who have made a plan to save money to buy land and those who have built their own house, as previously described. However, there are also those who show low levels of empowerment and are not empowered – as communicated in their comments that they don't like whipping and recognise it is bad but don't see an alternative, and those who don't think they have options for alternative income generation (e.g. “*I feel bad but that is the only way....*”).

5.3 Optimism - “*The confidence that things will happen for the best or that the desired goals will be attained*” (Michie *et al.*, 2014, p.89)

The attitudes of donkey handlers in terms of optimism may be relevant to thoughts about whipping and might impact on whether or not they perceive it is possible to change from whipping to another method of communication, and whether or not this would be successful. Survey respondents showed a very strong motivation to improve their situation for example by buying land to start farming or to buy more donkeys to expand their work. The phrases used by many participants suggested that they considered these goals to be reachable - and thus showed a degree of optimism. Some donkey handlers may hold false optimism, for example being overly optimistic about plans to save to buy land given that for many their income does not meet immediate needs: “*The situation of donkey business currently does not even cater for personal expenses leave alone savings. Eating to satisfaction is sometimes a challenge.*” (1532-1533, L1-U-FGD2). However, for many donkey handlers optimism and subsequent plans to improve their situation were realistic and achievable as described when discussing goals to build a house.

The fact that donkey handlers have a group identity as well as individual identities might affect co-created levels of optimism. Some donkey workers mentioned challenges regarding having a low socio-economic status (e.g. *Motorists and “tuktuk” look down upon us a lot...*), which is largely shared with colleagues and friends, further contributing to a sense of identity as a donkey handler. The relationship between optimism or confidence and socioeconomic status was not overtly discussed by participants during data collection, perhaps as participants were all of similar socioeconomic status, and this area certainly deserves in-depth research attention in future.

Given that there was limited awareness of alternatives to whipping and during this study participants were not exposed to alternatives, it was not possible to gauge whether the participants felt optimistic about changing to a new method of communication. Although, some

did express optimism about the possibility of alternatives: *"Yeah, like today I have tried, I have been trying to change a little bit ... First of all, I changed the kind of whip I was using ... I am trying to use the rope, then am trying to move without hitting to see how will it work ... That is what I have been doing from morning, and it is working."* (SSI with 'F').

5.4 Beliefs About Consequences - *"Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation"* (Michie et al., 2014, p.89)

The FGDs highlighted mixed views as to how participants felt about whipping. The majority expressed that they felt bad and a number reflected that donkeys suffered as a result of whipping: *"I do not feel good about whipping my donkey because I put myself in that donkey's shoes. What if I was in its position? I have a cart full of drums of water on my back, and I am also getting whipped... it would not be good."* (558-560, L1-U-FGD1). However, a few stated that they believed that they did not suffer when whipped: *"Yes. Sometimes you can whip that donkey and when you get it off the cart and it will not move. It will just remain there just gazing at you."* (caused laughter) ... *"It appears as if you have made it suffer the whole day yet it is not the case."* (570-574, L1-U-FGD2). The donkey handlers who believe that whipping is negative for the donkey might be more open to considering and adopting change than those that do not believe that there is a negative impact on the donkey.

For some handlers there might be a negative consequence of whipping their donkey. If every time they whip the donkey, the donkey handlers feel remorse, the consequence of whipping the donkey becomes aversive to the handler in itself: *"It is wrong to whip a donkey. However, you are forced to whip it a little. The moment you whip it, there is a way it looks at you seeking sympathy and you feel it is not right."* (477-479, L1-U-FGD2). However, many donkey handlers see whipping as necessary and therefore this belief might be reinforced each time the whip is used and the donkey responds in the desired way.

Another point relevant to consequences relates to the opinions held regarding change from whipping to not whipping. For those donkey handlers who are willing to consider alternatives to whipping, they may be envisaging a possible positive consequence of the change. Whereas those donkey handlers who indicate they doubt that change is possible in some cases expressed that they envisage a negative consequence of the change: *"The problem comes in when the donkey works around an area where it can see its home. If you do not have a whip, you cannot pass near home. It will want to go home and there is no other way you can control it." ... "When you are near home. It will want to go home. You cannot control it using the mouth." ... "It becomes very hostile and can even bite you if you stand in front of it. In such a case you have to whip it and show it that it is still working hours and it make it forget about going home. I would like to see what will happen if we do not use a whip in such a situation."* (940-950, L1-U-FGD2).

This can be further explored in terms of expected outcomes of change. Reported outcomes of using the whip included the donkey moving faster and doing as the donkey handler instructs. These outcomes in turn may motivate donkey handlers to continue doing the behaviour as they are getting the response, or consequence, they want from their behaviour. The desired outcome is likely to be on a variable reinforcement schedule - sometimes whipping the donkey produces the desired effect and sometimes it doesn't. As a result of the variable reinforcement

schedule for the human, the whipping behaviour is more likely to happen again (Morgan, 2010). The fact that the handler might not be able to predict when the whipping will work and when it will not means that the behaviour is likely to be very resistant to change (Morgan, 2010; Sheeran and Webb, 2016).

5.5 Intentions - *"A conscious decision to perform a behaviour or a resolve to act in a certain way"* (Michie *et al.*, 2014, p.89)

The more stable an intention is, the more likely the behaviour will be enacted (White and Sim, 2021; Conner and Godin, 2007; Sheeran, 2002). Where whipping behaviour is automatic and habitual, and does not require conscious thought, it could be considered very stable, no longer requiring intention to enact it. However, some situations did involve whipping in an intentional way. The donkey handlers referred to examples such as encountering a situation where the donkey is not responding to the usual communication (e.g. the donkey encounters something that they find scary), so the person enters a problem solving state requiring cognitive energy and intention for the behaviour to be enacted, which makes them conscious of whether to whip or not: *"Even if it is trained there are times when you will notice that it experiences difficulty, Or, the cart accidentally gets stuck somewhere – in such a situation need to use your brain to get out of that situation. It is upon you to figure out a way."* (453-457 – L1-U-FGD1). That said, in true emergency situations decision making is likely to be driven by emotions, and in these contexts the behaviour of whipping may be automatic in nature: *"Yes. You may find that before you use gestures it has already started crossing and it is at the center of the road. You cannot use a gesture for it to stop in the middle of the road. In such a situation you have to whip it and make it move faster and cross. At such a point your life and that of the donkey are in danger."* (492-495, L1-U-FGD2).

For those that whip, it appears to be both a habitual behaviour and one where intentions are very stable; this could also be said for those who use alternative behaviours to whipping, as in the case of L1-R. However, new behaviours are not habitual to start with and require strong intention, motivation and will-power (and therefore cognitive energy), to be enacted rather than the pre-existing largely habitual whipping behaviours in place (White and Sim, 2021). Where donkey handlers endeavour to change their behaviour, due to the habitual nature of much of the whipping behaviour, the chances of relapsing back to whipping behaviour may be high as it is a very established behaviour.

5.6 Goals - *"Mental representations of outcome or end states that an individual wants to achieve"* (Michie *et al.*, 2014, p.89)

This study indicated little evidence of donkey handlers setting goals associated with whipping or alternative behaviours to whipping. Although there were a few exceptions including one individual who had been surveyed, observed, attended the FGD and SSI, who said that following the FGD he was trying to change his behaviour to not use his whip - suggesting he had set himself a goal to change: *"... I am trying to use the rope, then am trying to move without hitting to see how willit work....."* (SSI with 'F').

Although not overtly stated, based on the FGD responses many of the donkey handlers wanted a compliant donkey that performs the activities required, when required: *"You whip to*

let it know what you want” (157, L1-U-FGD1). The donkey handlers talked about the goal of buying land and building a house and how the donkey was important in making that happen. There was also evidence of goals that positively impact on the donkey such as providing shelter: “There are some things that a person may want but they cannot achieve them. The first thing is we live in a town. We therefore do not have enough space to construct a decent structure for our donkey to live in, to shelter it from rain, or from where you will be feeding it. So, this is a big challenge to us and there are consequences since there are those donkeys that sleep outside. You just look for a place where you can tie it up at night and keep checking on it from time to time during the night. I would wish to build it a nice structure where it will not be rained on, where it will be safe.” (591-598, L1-U- FGD1).

There is some evidence regarding understanding how much the participants want to achieve their goals with several expressing that they are highly motivated to achieve goals surrounding providing for their family, being a good Christian, being able to make a living and being able to pay for their children’s education: *“It makes me self-reliant. I can pay my house rent, see my children through school... to me my donkey is my everything.” (963-964, L1-U-FGD1).*

6. Automatic Motivation

6.1 Reinforcement - *“Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus” (Michie et al., 2014, p.89)*

As in other parts of this framework, understanding the habit loop is key. The cue, trigger or stimuli that results in the behaviour of whipping, or indeed an alternative positive behaviour can be considered along with what is reinforcing the behaviour. The data collected from the participants suggests that the cues for the behaviour of whipping vary depending on the individual and the context. For example, from the observations of donkey handlers in L1-U they appeared to be in a rush in the morning and therefore whipped the donkeys to go faster. This was supported by comments in the FGD about competition for work and pressure from clients to deliver: *“It also depends on your customers. For instance, when you have received calls from five clients who need water, what can you do? You have to move with speed” (187-189, L1-U-FGD1).* The cue in this situation might be the emotional feeling of stress related to the pressure and sense of urgency to do the job quickly. There may be several rewards for whipping in this context, such as alleviating or releasing pent up stress onto the donkey, the donkey doing what they want and moving faster, and earning money by doing the job in time. Both the cue and reward can vary.

Other examples of cues observed or mentioned in the FGDs and previously discussed within the findings were: reversing the donkey up to the waterpoint, a donkey not doing what they want, a busy road, emergency situations and/or rushing. Other examples of rewards and reinforcement discussed throughout the findings include: making money, the donkey being compliant, being able to provide for the family (which may link it to personal goals). It appears that income generation is valued as a reward by the donkey handlers, but there may be other rewards that are either valued or not.

Whipping appears to be a perceived way of solving a problem/obstacle. However, it could be considered an incentivised behaviour – the incentive being the opportunity to earn more or additional money.

This section of the framework also considers punishers and consequences. There may be a punishment in terms of the feeling of incongruency some handlers might have between perceived desirable behaviour (not whipping) and what they did (whipping): *“I do not feel good about whipping my donkey. And I don’t like it...”* (547-556, L1-U-FGD1). Guilt could therefore be considered a punisher due to the negative nature of the emotion; in learning theory terms, if the whipping behaviour has been reduced as a result of guilt, the behaviour has been subjected to punishment. In some cases, if the donkey is worked too hard the donkey will go even slower and might become lame so that could be a punisher or at least a negative consequence. As a consequence of whipping, the donkey's behaviour will sometimes change as desired. This will not always happen especially if the whipping is not delivered with the correct timing such that the donkey understands that changing their behaviour will stop it being whipped. In circumstances where the donkey only sometimes responds a variable rate of reinforcement is created, which makes the behaviour (whipping) even more likely to happen in future, as discussed.

6.2 Emotion - *“A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event”* (Michie *et al.*, 2014, p.90)

The emotions of most significance for this work are most likely fear and anxiety, e.g. regarding the need to make enough money to meet their needs and provide for their family (e.g. *“we feel bad to use a whip but the pressure to meet our daily expenses...”*). Participants expressed frequent anxiety and stress regarding pressure from clients to get the job done quickly, and in dealing with difficult clients and disputes. Participants also described pressure in terms of increasingly competing with other donkey handlers, reduction in demand of their services due to increased motorised vehicles and the town installing water infrastructure, all discussed prior.

Some donkey handlers described feeling anger and frustration when the donkey doesn't do what they want him/her to do: *“Sometimes donkeys are very stubborn, they will ignore you after calling them that is when you are prompted to pick a whip and use it.”* (54-58, L2-FGD2). As participants cited an ‘obedient donkey’ as making them happy: *“Because it has made me happy. And because it has been obedient.”* (754, L1-U-FGD1), it seems appropriate to consider that when the donkey is 'disobedient' the handler is affected emotionally.

The behaviour of whipping evoked a negative emotion among several of the donkey handlers who reflected in discussions that they feel bad about whipping and indicated signs of guilt for whipping: *“I am not. I also feel that I am wrong whenever I happen to whip it. Remember, this is the same animal that makes me money.”* (577-579, L1-U-FGD1). Whipping may evoke a positive response in the form of a release when under pressure. However, overall this is negative for both the handler and the donkey as it is based on a negative behaviour. In relation to alternative behaviours to whipping evoking an emotional response, those observed in the urban areas and in L1-R who did not whip, appeared much calmer in their overall demeanour (personal observation). In addition, there was evidence that some felt a sense of pride or

accomplishment about communicating with the donkey in a positive way that does not involve whipping: *“To me, I think I feel good because, first of all I have developed a positive attitude towards the donkey. So when I do that and the see the donkey can work actually without whipping, I feel good ... Because I love the donkey ... I feel good, because if I can work with donkey without whipping, that’s good ... Actually I have noted that the donkey, I see the donkey is a little bit friendly ... You see when you move where the donkey is with a whip, you see the donkey trying to move away ... Because the donkey knows that one is coming to do something. But when you move where a donkey is without a whip, the donkey will stand and wait to see what you are doing.”* (SSI with ‘F’).

SUMMARY AND CONCLUSION



Summary

In this study the Behaviour Change Wheel (BCW) including the COM-B Model and Theoretical Domains Framework (TDF) were used to understand the behaviour of whipping by donkey handlers in Kenya. Thoroughly understanding a behaviour being the necessary first step in subsequently changing it. Factors relating to donkey handlers' capability, opportunity and motivation to change whipping behaviour were identified and provide insights into potential causes of whipping behaviour, the antecedents, maintenance factors and opportunities for change. In turn, these inform avenues that can be beneficial for future behaviour change efforts, as well as barriers that need to be recognised and overcome where possible.

Capability encompassed physical and psychological elements, including knowledge, skills, cognition and interpersonal skills. Donkey handlers were found to have an inconsistent approach to training their donkey, and descriptions of punishment and reward suggest that some donkey handlers did not have an established understanding or physical skill of applying learning theory. The behaviour of whipping was well established and perhaps even habitual in L1-U and L2, but was used to a much lesser extent in L1-R, suggesting that there are feasible alternatives to this behaviour, even if donkey handlers in urban areas are largely unaware of them or do not believe that alternatives will work. There was a degree of dissonance between how the donkey handlers behaved and their reported feelings and beliefs around the use of the whip. Capability may be affected by education and cognitive factors, as well as factors such as fatigue and substance abuse impacting memory, attention and decision-making.

Opportunity included physical aspects, such as access to appropriate harnessing and carts, features of the environment such as the condition of roads and the layout of waterpoints, plus the availability of time compounded by pressure from customers, employers and the opportunity to earn money. Also included in opportunity were social aspects such as the social acceptance of whipping behaviour by customers and other donkey handlers, although positively some customers were 'put off' by whipping behaviour and injured donkeys. It is important to recognise here the influence of social context and social learning. Corporal punishment is still widely practiced in Kenya (Kindiki, 2015), normalising this type of behaviour and possibly the use of physical punishment in interactions with other people and animals.

The last element of the COM-B Model encompasses reflective and automatic motivation. This included a broad range of areas for consideration from how donkey handlers perceive their social and professional roles and identities (e.g. differing depending on whether they own, rent or are employed to work with the donkey), self-esteem and self-confidence, feelings of control, as well as how the behaviour is reinforced. Although some donkey handlers appeared to have high levels of confidence and suggested that they were in control of the behaviour, reports of cognitive dissonance and the habitual nature of whipping suggest that not all were in control all of the time. Whipping behaviour appeared to be largely automatic and habitual, it did not require conscious thought and could be considered very stable, no longer requiring intention to enact it. Therefore, understanding the habit loop - the cue or stimuli that results in the behaviour of whipping, along with what is reinforcing whipping behaviour – is key. Some donkey handlers were open to advice and had indeed subsequently changed their behaviour. The pressures on donkey handlers to provide for themselves and their families are immense

and need to be recognised. There are also pressures regarding the external challenges of competition from other donkey handlers and pressure from clients and employers to deliver. In addition, increasing mechanisation of transport or the development of infrastructure that may decrease demand and ultimately render them redundant represents further emotional pressure. It is possible that whipping was reinforced when donkeys did move faster enabling donkey handlers to rise to these pressures, yet this reinforcement was likely to be on a variable schedule, further compounding whipping behaviour.

Variations were found in the behaviour of whipping and recognition of the capacity of donkeys to feel emotions, perhaps reflecting differences in social and cultural norms as well as the role of the donkey within the study sites. Such geographic variation has been identified in similar research on working equids (e.g. Geiger *et al.*, 2020). This demonstrates the importance of understanding the specific drivers for behaviour and attitudes in each location so that any intervention can be tailored appropriately rather than adopting a one-size-fits-all approach, which is unlikely to be effective. Removing the social licence for whipping behaviour by involving the local communities in any future interventions will be an important step in sustaining positive behaviour change long-term.

Whipping was found to be a complex behaviour with a wealth of factors contributing to its durability in Kenyan donkey handlers. This study identified a range of potential causes of the behaviour, antecedents and maintenance factors and demonstrates the complexity of whipping behaviour, which may indicate why BEA and partners have found it challenging to address. The causes, antecedents, maintenance factors and opportunities for change identified here have provided BEA with the information needed to begin to plan and develop more informed interventions which themselves can be grounded in HBC science.

There were some challenges during the study that impacted on the data collected namely the opportunistic sampling strategy that may have been biased towards participants with an interest in the project (although there was an attempt to overcome this by the recruitment of unengaged participant groups), and language barriers within the study team that may have affected interpretation of the questions and responses. There was also a discrepancy between participant self-report in the survey and field observations of their behaviour. Despite fewer donkey handlers reporting to punish their donkey in L2, data from field observations in the three survey locations suggested that the use of punishment was more prevalent and the punishment itself more severe than in other locations. This highlights the value of taking a holistic approach to data collection, as in this study, whereby field observations provided both context for, and validation of, participant self-report. As this study focused on understanding the drivers for whipping behaviour, donkey handlers were our target population. In urban areas it was men who worked with donkeys and this was very similar in the rural location studied. This led to a male bias within our sample which must be acknowledged. However, the sample recruited for this study was representative of the gender disparity observed in the study locations, and as such will not have impacted the applicability of our findings.

This study was also intended to inform whether a HBC approach can be replicated to understand other animal welfare concerns. Here the COM-B and TDF were utilised to access and analyse information from both the people involved in perpetuating this behaviour, as well as those who had found alternative ways to work with their donkeys. This approach enabled

a holistic understanding of whipping and demonstrated a way to synthesise lots of information about a complex behaviour. What is more, the models and frameworks used transcend context enabling the approach to be used in any setting. This demonstrates the power of utilising behaviour change models and frameworks to understand animal welfare issues, which are typically dependent on human behaviour. A limitation of the approach is its own thoroughness which is resource intensive and can be challenging for an NGO to implement. However, it is envisioned that the benefits of a thorough understanding of a behaviour is more likely to result in appropriate interventions and greater positive impact on animal welfare.

Conclusion

The behaviour of whipping is stable, strong and relatively resistant to change. However, the use of a human behaviour change science approach to understanding the behaviour has resulted in identifying many possible approaches that could lead to effective and sustainable interventions. Using the COM-B framework, it can be seen that there are elements of C, O and M that are contributing to the behaviour of whipping. No single element of the COM-B model was more important than the others, this suggests that all three are equally relevant and require consideration in future interventions. Furthermore, many of the drivers of whipping behaviour identified by the study can be explored under the lens of multiple domains, demonstrating the interrelations and the need for a systems approach to human behaviour change. It was positive to find that the donkey handlers involved in the study appeared open to change. Indeed, given the fact that in one of the three study sites there was significantly less whipping than others, and a number of donkey handlers in the other locations were using alternatives to whipping, there is a precedent and example of donkey handlers in this region of Kenya using methods of communication that do not involve whipping.

Overall, this study provides a lived example of how human behaviour change methods can be used to understand a problem, and demonstrates the value of a human behaviour change science approach to addressing an animal welfare issue. The findings generate a holistic understanding of the complex, multifaceted issue of whip use by Kenyan donkey handlers, and identify suitable avenues that can be targeted in future interventions aimed to reduce and ultimately prevent this behaviour.

REFERENCES

- Baatz A, Anderson KL, Casey R, Kyle M, McMillan KM, Upjohn M, *et al.* (2020) Education as a tool for improving canine welfare: Evaluating the effect of an education workshop on attitudes to responsible dog ownership and canine welfare in a sample of Key Stage 2 children in the United Kingdom. *PLoS ONE* 15(4): e0230832. <https://doi.org/10.1371/journal.pone.0230832>
- Bandura, A. (1977) *Social Learning Theory*. Englewood Cliffs, N.J.: Prentice Hall
- Bandura, A. (1977) Self-efficacy: Toward a Unifying Theory of Behavioural Change. *Psychological Review*, 84, 191-215
- Bandura, A. (1986) *Social Foundations of Thought and Action*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Bell, C. (2018) *Training*. Chapter in *Equine Behaviour in Mind; applying behavioural science to the way we keep, work and care for horses*. Rogers, S. (Ed). Published by 5M Publishing, London, UK.
- Braun, V., and Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Brooke (nd) Kenya – Brooke East Africa. Available online at <https://www.thebrooke.org/our-work/kenya> (accessed 14 November 2020)
- Brooke. (2015) *Invisible Workers*. Available online at <https://www.thebrooke.org/sites/default/files/Advocacy-and-policy/Invisible-workersreport.pdf>. (Accessed 30 November 2020)
- Burn C.C., Dennison, T.D., and Whay, H.R. (2010) Relationships between behaviour and health in working horses, donkeys, and mules in developing countries. *Applied Animal Behaviour Science* 126, 109-118 doi:10.1016/j.applanim.2010.06.007
- Cane, J., O'Connor, D., and Michie, S. (2012) Validation of the theoretical domains framework for us in behaviour change and implementation research. *Implementation Science*. 7:37. <https://doi.org/10.1186/1748-5908-7-37>
- Colzato, L. S., Ruiz, M. J., van den Wildenberg, W. P., and Hommel, B. (2011) Khat use is associated with impaired working memory and cognitive flexibility. *PloS one*, 6(6), e20602. <https://doi.org/10.1371/journal.pone.0020602>
- Conner, M., and Godin, G. (2007) Temporal stability of behavioural intention as a moderator of intention-health behaviour relationships. *Psychology and Health*, 22, 875- 897.
- Duncan E., Graham R. and McManus P. (2018) 'No one has even seen... smelt... or sensed a social licence': Animal geographies and social licence to operate. *Geoforum* 96, 318-327.
- Festinger, L. (1957) *A Theory of Cognitive Dissonance*. Evanston, Ill: Row, Peterson. Print.

Flynn C.F. (2012). Understanding animal abuse: a sociological analysis. Lantern Books 2012, pp.15.

Geiger M, Hockenhull J, Buller H, Tefera Engida G, Getachew M, Burden FA and Whay HR (2020) Understanding the Attitudes of Communities to the Social, Economic, and Cultural Importance of Working Donkeys in Rural, Peri-urban, and Urban Areas of Ethiopia. *Front. Vet. Sci.* 7:60. doi: 10.3389/fvets.2020.00060

Grassian, D.T. (2020) The Dietary Behaviors of Participants in UK-Based Meat Reduction and Vegan Campaigns – A Longitudinal, Mixed-Methods Study. *Appetite* 154 104788. <https://doi.org/10.1016/j.appet.2020.104788>

Guyo, S., Legesse, S. and Tonamo, A. (2015) A review on welfare and management practices of working equines *Global Journal of Animal Science and Animal Breeding* 3, 6, pp. 203-209.

Hackett, S. and Uprichard, E., (2007). Animal abuse and child maltreatment: A review of the literature and findings from a UK study. NSPCC inform, The online child protection resource

Hampton, J.O.; Jones, B.; McGreevy, P.D. Social License and Animal Welfare: Developments from the Past Decade in Australia. *Animals* 2020, 10, 2237. <https://doi.org/10.3390/ani10122237>

Heslin, P.A., and Klehe, U.C. (2006) Self-efficacy. In S. G. Rogelberg (Ed.), *Encyclopedia of Industrial/Organizational Psychology* (Vol. 2, pp. 705-708). Thousand Oaks: Sage

Kindiki J.N. (2015) Investigating policy implications for the abolition of corporal punishment in secondary schools in Kenya. *International Journal of Educational Administration and Policy Studies* 7, 3, 72-82 DOI:10.5897/IJEAPS2009.080

Lally, P., van Jaarsveld, C.H.M., Potts, H.W.W., and Wardle, J. (2010) How are habits formed: Modelling habit formation in the real world. *European Journal of Social Psychology*, 40(6), 998–1009. <https://doi.org/10.1002/ejsp.674> Maichomo *et al.*, 2019

Leach, K. A., Paul, E.S., Whay, H.R., Barker, Z.E., Maggs, C.M., Sedgwick, A.K. and Main, D.J.C. (2013) Reducing lameness in dairy herds—Overcoming some barriers. *Res. Vet. Sci.* 94:820–825. <https://doi.org/10.1016/j.rvsc.2012.10.005>.

McDonald, J.L., Farnworth, M.J. and Clements, J. (2018) Integrating Trap-Neuter-Return Campaigns Into a Social Framework: Developing Long-Term Positive Behavior Change Toward Unowned Cats in Urban Areas. *Front. Vet. Sci.* 5:258. doi: 10.3389/fvets.2018.00258

McLean, A.K. *et al.* (2012) Improving working donkey (*Equus asinus*) welfare and management in Mali, West Africa. *Journal of Veterinary Behavior* 7, pp. 123-134.

Mekuria, S., Mulachew, M. and Abebe, R. (2013) Management practices and welfare problems encountered on working equids in Hawassa town, Southern Ethiopia *Journal for Veterinary Medicine and Animal Health* 5(9), pp. 243-250.

Michie, S., van Stralen M.M. and West, R. (2011) The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science*, 6, 42.

Michie, S., Atkins, L., and West, R. (2014) *The Behaviour Change Wheel: A Guide to Designing interventions*. London: Silverback Publishing.

Molla, B., Dembela, S., Megersa, B. and Mekuria, W. (2017) The Welfare, Watering, Housing, Feeding and Working Management of Working Donkeys in and Around Hawassa City, Southern Ethiopia *Journal of Veterinary and Animal Husbandry* 2, 106.

Morgan, D. L. (2010) [Schedules of Reinforcement at 50: A Retrospective Appreciation](#). *The Psychological Record*; Heidelberg, 60(1), 151–172.

Ndege, P. (2008) Drug and Substance Abuse in Kenya: A Rapid Situation Assessment. National Institute on Drug Abuse. <https://www.drugabuse.gov/international/abstracts/drug-substance-abuse-in-kenya-rapid-situation-assessment>

Onono, J.O. and Kithuka, J. (2020) Assessment of Provision of Extension Services and Advocacy on Donkey Health and Welfare in Kenya. *Asian Journal of Agricultural Extension, Economics and Sociology*38(5): 15-28DOI: 10.9734/AJAEES/2020/v38i530344

Perry, C. L., Barnowski, T., and Parcel, G. S. (1990) How individuals, environments, and health behavior interact: Social learning theory. In K. Glanz, F. M. Lewis and B. K. Rimer (Eds.), *Health Behavior and Health Education: Theory Research and Practice*. San Francisco, CA: Jossey-Bass

Reed, K. and Upjohn, M.M. (2018) Better Lives for Dogs: Incorporating Human Behaviour Change Into a Theory of Change to Improve Canine Welfare Worldwide. *Front. Vet. Sci.* 5:93. doi: 10.3389/fvets.2018.00093

Rogers, S. (2017) How can we use the science of human behaviour change to improve animal welfare of research animals? *Animal Technology and Welfare*. 16. 119-121.

Sheeran, P. and Webb, T.L. orcid.org/0000-0001-9320-0068 (2016) The Intention–Behavior Gap. *Social and Personality Psychology Compass*, 10 (9). pp. 503-518

Spitzberg, B. H., and Cupach, W. R. (2011) Interpersonal skills. In M. L. Knapp and J. A. Daly (Eds.), *Handbook of interpersonal communication 4th edition* (Ch15 pp. 481–523). Thousand Oaks, CA: Sage.

Stosny, S. (2011) Self-Regulation. Available online at <https://www.psychologytoday.com/gb/blog/anger-in-the-age-entitlement/201110/self-regulation> (Accessed 8 December 2020)

The Brooke, Action for Working Horses and Donkeys, Valette, D. (2015) *Invisible Workers: The economic contributions of working donkeys, horses and mules to livelihoods*.

The Brooke, Action for Working Horses and Donkeys. (2019) *Invisible Lifestock: Benefits, Threats and Solutions*.

Wambui, J., Lamuka, P., Karuri, E. and Matofari, J. (2018) Animal welfare knowledge, attitudes, and practices of stockpersons in Kenya. *Anthrozoos*, 397–410.

Waran, N., McGreevy, P. and Casey, R.A. (2002) Training methods and horse welfare. Chapter 7 pp: 151-180 In Waran, N. *The Welfare of Horses*, Kluwer Academic Publishers.

White, J.; Sims, R. Improving Equine Welfare through Human Habit Formation. *Animals* **2021**, *11*, 2156. <https://doi.org/10.3390/ani11082156>

World Organisation for Animal Health (OIE) (2019) World Organisation for Animal Health (OIE) Terrestrial Animal Health Code (28th edition) (2018) Available online at <http://www.oie.int/en/standard-setting/terrestrial-code/access-online/> (Accessed 30 November)