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Master thesis

Sustainability-intentions of Dutch equine entrepreneurs and the theory of planned behaviour

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Abstract

The Dutch horse industry is a very active industry, with a 2 billion euro annual revenue, 10,000 businesses, 450,000 horses and 400,000 active equestrians (Jansen, 2019). To prevent this industry and the equestrian sport from disappearing in the future, action is needed to improve sustainability regarding animal welfare because of increasing criticism on equestrian sports. Dutch equine entrepreneurs do not seem very open to making their businesses more sustainable. The current study researched if the behavioural intention of Dutch equine entrepreneurs in the decision-making to become more sustainable in terms of animal welfare can be explained through an extended Theory of planned behaviour, focussing on attitudes, self-efficacy, social norms, and traditional values. In total, 50 participants were included. The participants in the sample showed great interest in becoming more sustainable in the next 5 years. In contrast to my expectations, the scores of the participants in the sample were all moderately average on the questionnaires of attitudes, self-efficacy, social norms, and traditional values. According to the results of this study, there was a direct effect of social norms, but not for attitude and self-efficacy. Traditional values did not have a moderating effect on social norms. In conclusion, the results suggest that the behavioural intentions of the equine entrepreneurs could be more centred around values and norms than previously thought. There are several limitations of the current study that have to be taken into consideration, such as self-selection bias and a small sample size. Further research is necessary because the results of further research could add in the knowledge needed to prevent the Dutch horse industry and equestrian sport from disappearing in the future.

Keywords: sustainability-intentions, Theory of planned behaviour, attitude, self-efficacy, social norms, traditional values, equine entrepreneurs

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Introduction

Globally, livestock systems are a major cause of global warming as they contribute 18% of global anthropogenic greenhouse-gas (GHG) emissions (Steinfeld et al., 2006). The main greenhouse gases from livestock systems are methane from animals (25%), carbon dioxide from land use and its changes (32%), and nitrous oxide from manure and slurry (31%). Agriculture-related businesses that work with livestock need to become more sustainable if they want to prevent global warming from worsening. An example of these agriculture-related businesses that work with livestock in the Netherlands is the horse industry. The Dutch horse industry is a very active industry, with a 2 billion euro annual revenue, 10,000 businesses, 450,000 horses and 400,000 active equestrians (Jansen, 2019). To create a more sustainable and future-proof horse industry in the Netherlands, there are multiple variables that need to be kept in mind. In this thesis, I will research if an extended Theory of planned behaviour (attitudes, self-efficacy, social norms, plus traditional values) influence the intention of Dutch equine entrepreneurs in the decision-making to become more sustainable in terms of animal welfare. The results could contribute to understanding cognition's role in adopting sustainable options within this unique industry and form a basis for possible future behavioural interventions.

Sustainability in the Dutch horse industry

Sustainability within this industry does not only include climate goals such as energy-neutral and well-maintained facilities that support horses' natural needs, but also requires harmonious interactions between humans and horses, both in and out of the saddle, where the welfare of the animals is always maintained. This last part is very important because of increasing criticism on equestrian sports. There has been an increase of people who view this sport as animal abuse. To prevent this industry and sport from disappearing in the future, action is needed to improve animal welfare. There is already a great deal of information available about options to improve sustainability in horse welfare and stable management. The Dutch government has appointed an advisory body to create guidelines for sustainability in the Dutch horse industry (Maatlat Duurzame Veehouderij, 2022). However, up to this point, this information was generally not firmly grounded in actual equestrian practise.

According to the Dutch equestrian newspaper Paardenkrant Extra (Wolframm, 2022), equine entrepreneurs do not seem very open to making their businesses more sustainable. This resistance against creating a more sustainable industry can be explained by Reactance theory.

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This theory states that when a person thinks that their autonomy is being challenged by advice, they are compelled to defend it (Brehm & Brehm, 2013). This usually leads to someone acting contrary to what is suggested and could explain why people rebel without having a specific reason: they want to maintain autonomy and protect their sense of freedom. To better understand why reactance occurs in equine entrepreneurs, the Theory of Planned Behaviour can be used to research the underlying psycho-social processes.

Theory of Planned Behaviour

One of the most successful approaches for creating behavioural interventions is the Theory of Planned Behaviour (TPB) (Ajzen & Schmidt, 2020). TPB has been used in studies to research possible relations amongst attitudes, beliefs, behavioural intentions, and behaviours in various human domains. These domains include, but are not limited to, advertising, sport management, healthcare, and sustainability (Pensini, Slugoski, & Caltabiano, 2012).

According to the TPB, human behaviour is the result of behavioural intentions and is guided by three factors: attitudes, subjective social norms, and perceptions of behavioural control. Attitudes can be defined as the either positive or negative evaluations of their behaviour and the behaviour of others, subjective social norms can be defined as beliefs about what important others think they should do, and perceived behavioural control is defined as beliefs about their ability to carry out the behaviour (Ajzen, 1991). From these considerations it is possible to predict intentions to conduct a variety of behaviours with high accuracy (Ajzen, 1991). Research on sustainable decision-making in combination with the theory of planned behaviour has so far not been applied to the horse industry, but a similar domain has been studied before. Willock and colleagues (1999) have found evidence that the decision-making of hill sheep-cattle farmers in Scotland in regard to sustainability are based on attitudes, behaviours, and objectives, goals and values. These variables were based on the variables of the TPB. Similar to the research by Willock and colleagues (1999), this research will focus on the variables of the TPB; attitudes, self-efficacy, and social norms.

Attitude

Attitude is defined as a person's positive or negative assessment of behaviour (Yuriev et al., 2020). The attitudes in the equine industry towards the welfare of equine athletes are a subject of growing concern, potentially giving rise to ethical dilemmas and raising questions about the ethics of using horses in sport (Ikinger, Spiller, & Kayser, 2016). Prioritizing equine welfare is deemed crucial to fulfilling ethical responsibilities to these equine sporting partners,

necessitating ongoing assessments of horse welfare throughout their involvement in sports (Maatlat Duurzame Veehouderij, 2022). The sustainability of equestrian sport is contingent upon societal acceptance of horses as athletic participants in competitive scenarios. The multifaceted nature of human-horse relationships, which range from companionship to utilitarian roles, presents challenges in gauging these attitudes accurately (Endenburg, 2010). Equestrians exhibit a range of diverse perspectives and attitudes regarding horse welfare (Ikinger, Spiller, & Kayser, 2016). These viewpoints vary significantly, spanning from those who treat horses with an almost human-like level of care, often exceeding the animals' actual requirements, to individuals who predominantly perceive horses as instruments or commodities, focusing solely on their utilitarian value (Ikinger, Spiller, & Kayser, 2016). Consequently, the sensitivity of equestrians to horse welfare profoundly influences the actual well-being of the animals.

While general research on attitudes toward animals provides valuable insights, the context of horse welfare presents unique challenges due to the dual role of horses as both livestock and companion animals (Minero & Canali, 2009). Additionally, the human-horse relationship differs substantially from that of other companion animals like dogs or cats, as horses typically do not reside in the owner's home and are frequently involved in sports and competitions (van Dierendonck & Goodwin, 2005). However, a growing awareness of the impact of horse management on their health and well-being is driving changes, with a focus on optimal conditions, freedom of movement, and social interactions to enhance the horse's physical and mental well-being (Maatlat Duurzame Veehouderij, 2022).

Willock and colleagues (1999) suggest that each of the questionnaires they used in their study is formulated in terms of general farming issues, therefore they can be applied to the study of attitudes, objectives, and behaviours in other farming domains as well. Equine entrepreneurs are similar to farmers as they both work on a farm and are often self-employed, but they have different goals and working methods. Equine entrepreneurs mostly focus on providing a service, for example riding lessons or horse care, whereas farmers mostly focus on production, for example meat or dairy (Sigurdardottir & Steinthorsson, 2011). In the study on farm decision-making, attitudes toward risks are of major importance. According to Willock and colleagues (1999), adoption of environmental policies does not appear to be influenced by the same factors as production or financial decisions and the sort of innovations that are implemented may depend on a person's orientation towards profit maximisation, animal welfare or sustainability. As a result, positive attitudes towards new legislations to

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improve animal welfare an sustainability should be more prevalent in people who engage in more sustainable behaviour.

Self-efficacy

Self-efficacy is defined as the belief in one's capabilities to organise and carry out the courses of action required to produce a given attainment and is influenced by internal variables (Bandura (1977). A study by Schutte and Bhullar (2017) found that participants who had greater self-efficacy for sustainability-related behaviour had a greater likelihood of engaging in sustainability-related behaviour. Other studies also found that higher perceived self-efficacy as an independent variable is predictive of pro-environmental behaviours (Meinhold & Malkus, 2005; Clayton, Litchfield, & Geller, 2013). As a result, high self-efficacy should be more prevalent in people who engage in more sustainable behaviour.

Social norms

The term social norm is used, conventionally, to refer to a normative social belief, which is an individual's beliefs about the evaluations and behaviours of others in a social setting (Schultz, Tabanico, & Rendón, 2008). Two types of normative belief can be distinguished: injunctive and descriptive (Fishbein & Ajzen, 2010). The expectation or subjective probability that a particular reference individual or group—for example, friends, family, spouses, coworkers, one's doctor or supervisor—approves or disapproves of engaging in the behaviour in question is known as an injunctive normative view. On the other hand, descriptive normative beliefs are opinions on whether significant others actually engage in the behaviour. The perceived overall social pressure to follow the behaviour or subjective norm is influenced by both sorts of beliefs (Ajzen & Schmidt, 2020). Deviations from the norm can result in feelings of guilt and humiliation as well as punishment (Van Liere & Dunlap, 1980). As a result, norms can effectively influence behaviours. For example, it has been shown that recycling conduct and attitudes towards recycling are influenced by more environmentally friendly norms (Pensini, Slugoski, & Caltabiano, 2012). Therefore, social norms should be more prevalent in people who engage in more sustainable behaviour.

Traditional values

Next to social norms, psychological values also influence the behaviour intentions of equine entrepreneurs. Psychological values are culturally derived constructs that individuals of a specific social system collectively adopt (Gasson, 1973). Maintaining a functional social order

requires a fundamental consensus on these values, as they are acquired through social contacts during one's formative years, particularly through interactions with parents, instructors, and peers (Gasson, 1973). An example could be that an equestrian entrepreneur has a certain value about how much time a horse should spend in the meadow because his father was an equestrian entrepreneur as well and had the same value. While values tend to be stable, they are not completely impervious to change in later life. Values do not exist in isolation, but rather as part of larger systems or value orientations. These value orientations are crucial in creating the desired objectives of human behaviour and prescribing the socially accepted norms and means to achieve them, emphasising the relevance of understanding value systems when predicting human behaviour (Whitley et al., 2016). If a particular equestrian entrepreneur values traditional ways of training and caring for horses over becoming more sustainable and animal friendly, this could lead to reactance against new legislations to become more sustainable.

In recent years, entrepreneurs from the agricultural sector in The Netherlands have shown reactance to new laws and policies regarding a proposal in parliament to halve the country's livestock in an attempt to limit agricultural pollution (“De boeren protesteren,” 2021). Dutch farmers complain that the government and European Parliament interfere too much in farming. In June 2022, 45% of the Dutch population indicated that they supported the farmers' protests (Van der Schelde, 2022). According to social psychologists, a number of elements, including values, are important factors of pro-environmental behaviour. Certain norms, values, and beliefs can have a negative effect on environmental attitudes and behaviours, such as traditional values (Whitley et al., 2016). The reactance against becoming more sustainable which the Dutch farmers have shown during the recent protests could point to a value system that is focussed more on keeping traditions than becoming more sustainable. Therefore, the explorative variable of traditional values is added to account for current protests where higher traditional values are thought to have a negative effect on sustainable intentions.

This study

In this study, the theory of planned behaviour will be used to better understand the behavioural intentions of equine entrepreneurs to become more sustainable in terms of animal welfare. The theory of planned behaviour will include attitudes, perceived social norms and self-efficacy to predict the behavioural intentions. The theory was also extended by including traditional values as a moderator for the effect of perceived social norms on behavioural

intentions. This study focuses on the intention to become more sustainable in terms of animal welfare. This choice was made because improving animal welfare is a necessary component of becoming more sustainable without primarily focusing on profit. Equine entrepreneurs, like those in other industries, are likely motivated by the desire to maximise output and increase profits (Gasson et al., 1993).

Aligning with cognitive and environmental psychology, the study enhances theoretical frameworks and practical insights into decision complexities. The findings offer a basis for interventions and strategies targeting attitudes, perceived social norms, self-efficacy and traditional values fostering sustainability. Beyond the horse industry, the research serves as a template for promoting sustainable decisions across sectors, aiding a global shift toward environmentally conscious and economically viable practices.

The research question is ‘What underlying psychological constructs impact the decision-making in improving sustainable business management of Dutch equine entrepreneurs?’. The following hypotheses are formulated:

1. A positive attitude to current changes in legislation regarding sustainability in the sector is positively associated with the intention to become more sustainable in the next 5 years.
2. Self-efficacy is positively associated with the intention to become more sustainable in the next 5 years.
3. Perceived social norms are positively associated with the intention to become more sustainable in the next 5 years.
4. Traditional values serves as a moderator for the effect of social norms on the intention to become more sustainable in the next 5 years.

Methods

Design

To investigate whether attitudes, perceived social norms and self-efficacy predict the behavioural intentions of Dutch equine entrepreneurs, this study used a linear regression model with five independent variables: attitudes, social norms, self-efficacy, traditional values, social norms + traditional values. This research was approved by the Ethics

Committee of the Faculty of Social and Behavioural Sciences of Utrecht University filed under number 23-0899.

Participants

The population researched in the current study is Dutch equestrian entrepreneurs with their own stables. The program ‘G*power 3.1.9.7.’ was used to calculate the sample size needed for 80% power. I used the ‘F-tests, linear multiple regression: Fixed model, R^2 deviation from zero’ test with an f^2 of 0.11, and alpha of .05, a power of .80 and 6 predictors to calculate the sample size needed. A sample size of at least $N = 131$ was deemed necessary for detecting a moderation. This is the minimal level of participants needed. To test the smallest effect of self-efficacy on intention, a total of $N = 202$ participants is needed. After participant recruitment concluded, a sample size of $N = 50$ participated in the study. I used the program ‘G*power 3.1.9.7.’ again to test the effect sizes needed for 80% power. I used the test ‘Sensitivity: Compute required effect size – given α , power, and sample size’ with an alpha of .05, a power of .80 and 6 predictors to calculate the effect size needed for 80% power. The effect size $f^2 = 0.31$ was converted to $R^2 = 0.24$. This indicates that I would achieve 80% power for effect sizes that are $R^2 = 0.24$ or larger.

The sample consisted of 50 participants who offered one service (46%) or multiple services (54%) at their stables such as a horse-riding school, a sport- or training stable, a breeding stable, a rearing stable or a boarding stable. Of the 50 participants who completed the survey 25 (50%) were male, 21 (42%) were female and 4 (8%) did not want to answer this question. The mean age of the participants was 46 years old ($SD = 13.66$) with a minimum of 23 years old and a maximum of 70 years old. Participants owned their stables for an average of 15.18 years ($SD = 11.33$) with a minimum of less than 1 year and a maximum of 40 years. 20 participants (40%) inherited their business from a family member and 30 participants (60%) did not. Participants in the current study were located all over the Netherlands. For an overview see Figure 1.

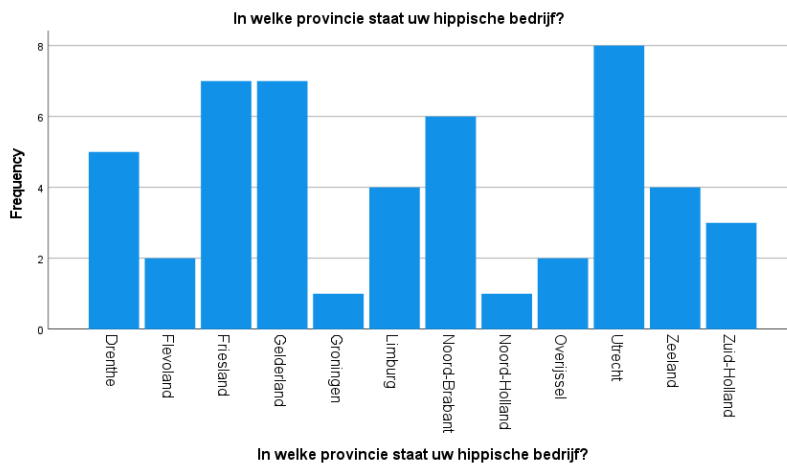


Figure. 1. Frequency chart of the distribution of Equine businesses who participated in the study across provinces of the Netherlands.

Participants were recruited using different recruitment methods. The questionnaires were emailed to all registered Dutch equine entrepreneurs from the FNRS (De Federatie van Nederlandse Ruitersportcentra) database for professional equestrian entrepreneurs via an anonymized link. This anonymized link has also been shared via the FNRS social media accounts on Facebook and Instagram with a call for participation. After 3 months of limited responses to the study, I personally drove to several stables around the Netherlands to administer the questionnaires on paper to increase the chance of participation. Afterwards, I added these responses in Qualtrics.

Procedure

Initially, participants were invited to participate in the survey online using Qualtrics (www.qualtrics.com). The survey consisted of multiple-choice questions regarding demographic characteristics, 5-point Likert scales regarding self-efficacy, attitude and traditional values, and a visual analogue scale from 0-100 regarding social norm and intention. Participants were shown an informed consent form which they had to accept to start the survey. Firstly, the participants answered the demographic questions, after these questions the questionnaires were asked in the same order for all participants; namely Self-efficacy, Attitudes, Social Norm, Traditional Values, and then Intention. After successfully finishing the survey, participants were thanked for their participation. For full instructions and details of tasks, see supplementary materials.

After the online recruitment stalled, I personally drove to equine businesses to administer the questionnaires in person due to time constraints to finish the study. This included reading and signing of the informed consent and me walking around the stables with the owner to ask him or her the questions of the survey while they kept working in the stables, mainly walking horses to and from the field or mucking out. The questionnaires were asked in the same order as the online survey with the visual analogue scales of the social norms and intention questionnaires answered in percentages. Afterwards, the participant was thanked for their time and participation.

Materials

For this study, I used subsets of two instruments introduced by the study of Willock et al. (1999) to measure self-efficacy, attitudes and traditional values: the Edinburgh Farming Attitudes Scale (EFAS) and the Edinburgh Farming Objectives Scale (EFOS). These are two questionnaires consisting of 114 items from which 11 items for attitudes, 6 items for self-efficacy, and 9 items for traditional values were selected and translated to Dutch in the current study, based on expert information and Willock's results. These questions can be answered on a 5-point Likert scale from 'strongly disagree' to 'strongly agree'. Attitude was measured by items such as “Het is belangrijk om bij te blijven met het nieuwe landbouwbeleid” and “De overheid bemoeit zich te veel met het beheer van hippische bedrijven”. Self-efficacy was measured by items such as “Als de hippische bedrijven uit mijn omgeving duurzamer kunnen worden, kan ik dat ook” and “Beleidswijzigingen op het gebied van hippisch ondernemerschap zijn gemakkelijk te begrijpen”. Traditional values were measured by items such as “Het is belangrijk om zo min mogelijk schulden te hebben” and “Het is belangrijk om zoveel mogelijk winst te boeken.”.

The Cronbach's Alpha was calculated for all questionnaires to determine the reliability. The self-efficacy questionnaire had a Cronbach's alpha of $\alpha = 0.86$ before item removal. The item SE_1_r (“Wetgeving bij hippisch ondernemerschap brengt te veel papierwerk met zich mee.”) was removed to increase the Cronbach's Alpha of the questionnaire to $\alpha = 0.88$. The attitude questionnaire had a Cronbach's alpha of $\alpha = 0.74$ before item removal. Items A3 (“Succesvolle hippische ondernemers nemen zelf beslissingen.”), A7 (“Goedkope staatsleningen aan hippische ondernemers zijn beter dan subsidies.”) and A11 (“Hippische ondernemer zijn is een baan met veel ruimte om dingen op je eigen manier te doen.”) were removed to increase the Cronbach's alpha of the questionnaire

to $\alpha = 0.85$. The traditional values questionnaire had a Cronbach's alpha of $\alpha = 0.67$ before item removal. Item TV9 ("Het is belangrijk om gerespecteerd te worden door anderen uit de hippische sector.") was removed to increase the Cronbach's alpha of the questionnaire to $\alpha = 0.68$.

The social norms questionnaire and the intention questionnaire were both based on the Maatlat Duurzame Veehouderij (2022). The guidelines for sustainability in this report were rewritten to use as items in a questionnaire. The social norms questionnaire had a Cronbach's alpha of $\alpha = 0.49$ before item removal. Items SN2_2 ("In welke mate denkt u dat andere hippische bedrijven in uw omgeving het belangrijk vinden dat de paarden en pony's gehele dagen op stal staan?") and SN5_2 ("In welke mate denkt u dat andere hippische bedrijven in uw omgeving het belangrijk vinden dat de paarden en pony's maximaal 2 manegelessen per dag meelopen?") were removed to increase the Cronbach's alpha of the questionnaire to $\alpha = 0.71$. The intention questionnaire had a Cronbach's alpha of $\alpha = 0.82$.

Analyses

To analyse the data, I used IBM SPSS Statistics. Before the analyses were performed, the dataset was prepared by creating mean variables for all questionnaires and an interaction variable was created for traditional values and social norm. The assumptions of homogeneity and linearity were checked. There were no outliers in the dataset, so these were not removed. For the current study, a multiple linear regression was used to assess the primary hypothesis of age, self-efficacy, attitude and social norm as predictors of intention of equine entrepreneurs in the decision-making to become more sustainable in the next 5 years. To test the secondary hypothesis of a moderating effect of traditional values on social norm as predictors of intention of equine entrepreneurs in the decision-making to become more sustainable in the next 5 years, a multiple linear regression analysis was used with an interaction variable.

Results

Descriptive analysis

On average, the participants in this sample were quite willing to become more sustainable in the next 5 years, with a mean of 69.77 ($SD = 19.20$), including 3 participants reporting that they already meet all of the requirements of the "Maatlat Duurzame Veehouderij" to be seen as sustainable (score of 100) and no participants reported that they absolutely did not want to become more sustainable in the next 5 years (score of 0). On average, the participants in this

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sample did not score remarkably high or low on the 5-point Likert scales of attitude ($M = 2.81, SD = .70$), self-efficacy ($M = 2.84, SD = .82$), and traditional values ($M = 2.84, SD = .40$). The participants also scored close to the midpoint of the visual analogue scale from 0-100 of social norms ($M = 52.76, SD = 17.90$).

Hypothesis testing

Linear regressions were performed to research the direct effects of each individual independent variable on the dependent variable. Before the analyses were performed, the assumptions of homoscedasticity, linearity, and normality were checked. Average scores were calculated for the questionnaires on self-efficacy, social norms, attitudes, traditional values and intention. The individual participant averages were then used to perform the analyses to test the four hypotheses.

Hypothesis 1 stated that attitude is positively associated with the intention to become more sustainable in the next 5 years. The results of the linear regression are not significant ($F(1,48) = 3.53, p = .067, R^2 = .07$). Therefore, hypothesis 1 could not be confirmed.

Hypothesis 2 stated that self-efficacy is positively associated with the intention to become more sustainable in the next 5 years. The results of the linear regression are not significant ($F(1,48) = 1.60, p = .213, R^2 = .03$). Therefore, hypothesis 2 could not be confirmed.

Hypotheses 3 stated that social norms are positively associated with the intention to become more sustainable in the next 5 years. The results of the linear regression are significant ($F(1,48) = 4.71, p = .035, R^2 = .09$). Therefore, hypothesis 3 could be confirmed.

Hypothesis 4 stated that traditional values serves as a moderator for the effect of social norms on the intention to become more sustainable in the next 5 years. The results show that traditional values did not significantly moderate the relationship between social norms and intention ($B_{\text{traditionalvalues} \times \text{socialnorms}} = .20, SE = .05, p = .164$).

Exploratory analyses

To assess whether the full model with self-efficacy, social norms, attitudes, and traditional values has an effect on the intention of equine entrepreneurs in the decision-making to become more sustainable in the next 5 years, I performed a multiple linear regression on the average scores of attitude, self-efficacy, social norms, and traditional values, with the average scores of intention as the dependant variable. Results of the multiple linear regression are

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shown in Table 1 and indicated that there was no collective significant effect of self-efficacy, social norms, attitudes, traditional values on intention in the model ($F(5,44) = 2.12, p = .081, R^2 = .19$).

Table 1

Results of the multiple linear regression of the whole model

Model Summary ^b									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	,440 ^a	,194	,102	18,19578	,194	2,115	5	44	,081

a. Predictors: (Constant), Social norms x Traditional values, Self-efficacy, Traditional values, Attitude, Social norms

b. Dependent Variable: Intention

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3500,681	5	700,136	2,115	,081 ^b
	Residual	14567,801	44	331,086		
	Total	18068,482	49			

a. Dependent Variable: Intention

b. Predictors: (Constant), Social norms x Traditional values, Self-efficacy, Traditional values, Attitude, Social norms

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	83,518	67,059		1,245	,220	-51,630	218,666
	Attitude	9,953	6,802	,363	1,463	,150	-3,755	23,662
	Self-efficacy	-6,102	5,704	-,261	-1,070	,291	-17,598	5,394
	Social norms	-,079	1,057	-,073	-,074	,941	-2,209	2,051
	Traditional values	-16,194	22,120	-,336	-,732	,468	-60,774	28,387
	Traditional values X Social norms	,172	,393	,472	,437	,664	-,620	,963

a. Dependent Variable: Intention

Descriptively, the size of the coefficients suggest that traditional values (Beta_{traditionalvalues} = -.34), attitude (Beta_{attitude} = .36) and the moderation of traditional values on

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social norms ($\text{Beta}_{\text{traditional values} \times \text{social norms}} = .47$) may have a larger influence, although none of them turned out to be significant.

As the current research is based on the Theory of planned behaviour (TPB), a second multiple linear regression was performed to assess whether the variables proposed by the TPB, namely self-efficacy, social norms and attitudes, had an effect on intention to become more sustainable. See Table 2 for the results of this multiple linear regression. The results indicated that there was a collective significant effect between self-efficacy, social norms, attitudes and intention ($F(3,46) = 3.34, p = .027, R^2 = .18$). The individual predictors were examined further and indicated that social norms ($\beta = .34, t = 2.46, p = .018$) was a significant predictor in the model, whereas self-efficacy ($\beta = -.22, t = -.96, p = .343$) and attitudes ($\beta = .45, t = 1.97, p = .055$) were not significant.

Table 2

Results of the multiple linear regression of attitude, social norms and self-efficacy on intention

Model Summary ^b									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.423 ^a	.179	.125	17,95900	.179	3,341	3	46	.027

a. Predictors: (Constant), Social norms, Attitude, Self-efficacy

b. Dependent Variable: Intention

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3232,308	3	1077,436	3,341	.027 ^b
	Residual	14836,174	46	322,526		
	Total	18068,482	49			

a. Dependent Variable: Intention

b. Predictors: (Constant), Social norms, Attitude, Self-efficacy

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	30,801	13,209		2,332	.024	4,213	57,390

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Attitude	12,241	6,227	,447	1,966	,055	-,294	24,776
Self-efficacy	-5,126	5,346	-,220	-,959	,343	-15,886	5,635
Social norms	,364	,148	,339	2,461	,018	,066	,662

a. Dependent Variable: Intention

Discussion

The aim of this research was to investigate what underlying psychological constructs impact the decision-making in improving sustainable business management of Dutch equine entrepreneurs based on the theory of planned behaviour. The participants in the sample scored on average high on intentions and therefore showed great interest in becoming more sustainable in the next 5 years. In contrast to my expectations, the scores of the participants in the sample were all moderately average on the questionnaires of attitudes, self-efficacy, social norms, and traditional values.

Based on the Theory of planned behaviour (TPB) it was hypothesized that a positive attitude, self-efficacy and perceived social norms were all positively associated with the intention to become more sustainable in the next 5 years. Previous research has found effects in this hypothesized direction (Willock et al., 1999), and the current study also found significant effects of social norms on the intention to become more sustainable as the dependent variable, with a significant overall model for the combined effect of attitudes, self-efficacy, and social norms. This result suggests that the variables for the TPB, namely attitude, self-efficacy, and social norms were significant predictors of intention to become more sustainable. However, there were no significant direct effects of attitude and self-efficacy on intention. There was a significant direct effect of perceived social norms on the intention to become more sustainable. The significant effect of the TPB variables disappeared when the variable traditional values and the interception of traditional values and social norms were added to the model.

In addition, it was hypothesized that traditional values served as a moderator for the effect of social norms on the intention to become more sustainable in the next 5 years. Previous research suggested that higher traditional values have a negative impact on environmental behaviour (Whitley et al., 2016). The current study however found no significant differences for the moderating effect of traditional values on social norms. Contradicting previous research (Whitley et al., 2016), there was also no significant direct effect of traditional values on intentions to become more sustainable in the next 5 years.

Limitations

There are several limitations of the current study that have to be taken into consideration. Firstly, a possible explanation for the findings in this study is the sample size. Willock and colleagues (1999) used a sample of $N = 252$ farmers, whereas this study used a sample of $N = 50$ equine entrepreneurs. A sample size of at least $N = 131$ was deemed necessary for detecting a moderation in this study for 80% power and a significance level of .05. According to the sensitivity analysis performed earlier, the effect sizes should be $R^2 = 0.24$ or larger to achieve 80% power. Given the results of this study, this requirement was not met which resulted in low statistical power. Low statistical power reduces the chance of detecting a true effect and reduces the likelihood that a significant result reflects a true effect (Button et al., 2013). This can result in low reproducibility of the results and overestimates of the effect sizes (Button et al., 2013). Therefore, the significant effects found in this study could be a false reflection of the true effect and further research with a bigger sample size would be required to confirm these findings.

Another limitation could be the current political climate and protests against new legislations around agriculture and livestock could have influenced the willingness to participate in this study. Both farmers and equine entrepreneurs are currently protesting in an attempt to keep their farms and businesses the way they are now and not become more sustainable by following the government's imposed conditions. During recruitment of the participants for this study, the willingness to participate appeared to be very low. Despite repeated efforts of the researcher herself and of the FNRS, there were less than 15 participants after a data-collection of 3 months. This could also point to self-selection bias. Self-selection bias occurs when the decision to participate in a study is left entirely up to the individuals themselves (Heckman, 1990). This could cause research bias because the participants who volunteer to take part in the study are usually different from those who don't. In this case, it could be possible that the participants that voluntarily participated were not protesting against the new legislations and were intrinsically more interested in becoming more sustainable. After the first 3 months of data-collection, the researcher went to different stables across the Netherlands to personally administer written questionnaires in order to gather enough participants to perform a statistical analysis. This could also have created other biases, such as interviewer bias. When the interviewer's expectations or opinions affect the interviewee's judgement, it is referred to as interviewer bias (Salazar, 1990). This can have a good or negative impact on the outcome, and these preconceptions can alter judgement both

consciously and unconsciously. It's crucial to keep in mind that some interviewees will answer questions in a way that appeals to the interviewer, further obscuring that bias. Body language, facial expressions, and other factors can all contribute to interviewer bias. While many interviewers would think they have little bias, that is infrequently the case. These preconceived beliefs have developed throughout years of the interviewer's development. Because we are all human, we will all eventually develop these views and be influenced by them. Therefore it could be a possibility that the results are influenced.

Lastly, the choice to use of the Theory of planned behaviour as a basis for this study could be a limitation when reviewing the results. The most popular frameworks among environmental social scientists are the Theory of Planned Behaviour (TPB) and the Value-Belief-Norm (VBN) (Whitley et al., 2016). The TPB is a "rational choice" model with a focus on attitudes, perceived behavioural restrictions, and subjective norms. The TPB assumes that behaviour is motivated by cognitive processes underlying self-interested utility maximisation. Values may be present, but the TPB may not have been ideal because it does not conceptually centre on them. One alternative model that would account for values would be the VBN framework, which is based on value frameworks and has won widespread acclaim (Whitley et al., 2016).

Conclusion

According to the results of this study, there was a direct effect of social norms, but not for attitude and self-efficacy. This could mean that the behavioural intentions of the equine entrepreneurs could be more centred around values and norms than previously thought. Although the results show a significant effect of the variables of the Theory of planned behaviour, the Value-Belief-Norm framework could be able to better captures the processes that drive the intentions of Dutch equine entrepreneurs to become more sustainable in this specific case study.

Recommendations

This study states that attitudes, self-efficacy, social norms, and traditional values influence the intention of Dutch equine entrepreneurs in the decision-making to become more sustainable in terms of animal welfare. As previous research (Willock et al., 1999) states, the current study did also find that social norms influence the intention to become more sustainable in this specific case study. Maybe the Value-Belief-Norm framework better captures the processes that drive the intentions of Dutch equine entrepreneurs to become more sustainable. Further

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research is necessary because of the ongoing increasing criticism on equestrian sports and the animal welfare in the horse industry. The seeming lack of willingness to become more sustainable also still keeps a grip on the horse sector and results of further research could add in the knowledge needed to prevent the Dutch horse industry and equestrian sport from disappearing in the future.

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Appendix A: Questionnaire

Section 1: Socio-demographic characteristics

1. Bent u een...
 - Man
 - Vrouw
 - Zeg ik liever niet

2. Wat is uw leeftijd in jaren op het moment van het invullen van deze vragenlijst?

3. Wat voor type hippisch bedrijf heeft u in uw bezit (meerdere opties mogelijk)?
 - Manege
 - Pensionstal
 - Fokkerij
 - Opfokstal
 - Sport- of trainingsstal

4. Hoe lang bent u al de eigenaar van uw hippische bedrijf?
(On a VAS scale between 1-100, with the option “minder dan 1 jaar”)

5. Heeft u uw bedrijf overgenomen van een familielid?
 - Ja
 - Nee

6. In welke provincie staat uw hippische bedrijf?
 - Drenthe
 - Flevoland
 - Friesland
 - Gelderland
 - Groningen
 - Limburg

- Noord-Brabant
- Noord-Holland
- Overijssel
- Utrecht
- Zeeland
- Zuid-Holland

Section 2: Self-efficacy (geheel mee oneens – geheel mee eens)

1. Wetgeving bij hippisch ondernemerschap brengt te veel papierwerk met zich mee.
2. Als de hippische bedrijven uit mijn omgeving duurzamer kunnen worden, kan ik dat ook.
3. Beleidswijzigingen op het gebied van hippisch ondernemerschap zijn gemakkelijk te begrijpen.
4. Het is gemakkelijk om subsidies aan te vragen voor het verduurzamen van mijn hippische onderneming.
5. Overheidsinformatie over verduurzaming van hippische bedrijven is duidelijk.
6. Hippische ondernemers hebben niet de administratieve inrichting om het papierwerk van de wetgeving af te handelen.

Section 3: Attitude (geheel mee oneens – geheel mee eens)

1. Het is belangrijk om bij te blijven met het nieuwe landbouwbeleid.
2. De overheid bemoeit zich te veel met het beheer van hippische bedrijven.
3. Succesvolle hippische ondernemers nemen zelf beslissingen.
4. Soms is het nodig om professionele adviseurs te raadplegen voordat er beslissingen genomen worden.
5. Traditionele technieken zijn beter dan de nieuwe ideeën rond het houden van paarden.
6. Succesvolle hippische ondernemers nemen financiële risico's.
7. Goedkope staatsleningen aan hippische ondernemers zijn beter dan subsidies.
8. Zelfs professionele adviseurs kunnen niet vertellen wat de huidige wetgeving is voor hippische ondernemers.

9. Hippische ondernemers worden soms te laat geïnformeerd over wetgeving om deze in de praktijk te brengen.
10. Er is onvoldoende informatie vanuit de overheid over beleidswijzigingen voor hippische ondernemers.
11. Hippische ondernemer zijn is een baan met veel ruimte om dingen op je eigen manier te doen.

Section 4: Social norms (VAS from 0-100 (0 = helemaal niet belangrijk, 100 = heel erg belangrijk))

1. In welke mate denkt u dat andere hippische bedrijven in uw omgeving het belangrijk vinden om te verduurzamen?
2. In welke mate denkt u dat andere hippische bedrijven in uw omgeving het belangrijk vinden dat de paarden en pony's gehele dagen op stal staan?
3. In welke mate denkt u dat andere hippische bedrijven in uw omgeving het belangrijk vinden dat de paarden en pony's 24/7 buiten staan?
4. In welke mate denkt u dat andere hippische bedrijven in uw omgeving het belangrijk vinden dat de paarden en pony's onderling contact kunnen hebben in de stallen?
5. In welke mate denkt u dat andere hippische bedrijven in uw omgeving het belangrijk vinden dat de paarden en pony's maximaal 2 manegelessen per dag meelopen?
6. In welke mate denkt u dat andere hippische bedrijven in uw omgeving het belangrijk vinden dat de ponystallen per pony minimaal 3 x 3 meter groot zijn?
7. In welke mate denkt u dat andere hippische bedrijven in uw omgeving het belangrijk vinden dat de paardenstallen per paard minimaal 3,5 x 3,5 meter groot zijn?

Section 5: Traditional values (geheel mee oneens – geheel mee eens)

1. Het is belangrijk om zoveel mogelijk winst te boeken.
2. Het goed onderhouden van het terrein en de faciliteiten is belangrijk.
3. Het is belangrijk om zo min mogelijk schulden te hebben.
4. Het is belangrijk om risico's te vermijden.
5. Het verbeteren van de kwaliteit van het hippische bedrijf is belangrijk.

6. Het is belangrijk om het land zo goed mogelijk te verzorgen zodat het niet lijdt onder het bedrijf.
7. Het is belangrijk om vervuiling van het land te voorkomen.
8. Het is belangrijk om alles te krijgen waar u recht op hebt uit de huidige wetgeving.
9. Het is belangrijk om gerespecteerd te worden door anderen uit de hippische sector.

Section 6: Intention (VAS from 0-100 (0 = 0% kans, 100 = 100% kans))

1. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Alle ponystallen hebben een minimale afmeting van 3 x 3 meter per pony.
2. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Alle paardenstallen hebben een minimale afmeting van 3,5 x 3,5 meter per paard.
3. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Minimaal 10% van de stallen op uw erf zijn groter dan 3,5 x 3,5 meter per paard.
4. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Alle paarden en pony's kunnen vanuit de stal fysiek contact maken met andere paarden en/of pony's.
5. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Minimaal 2 van de 4 muren van het stallencomplex hebben vrij uitzicht.
6. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Alle paarden en pony's op het bedrijf hebben vanuit hun stal binnen 30 meter zicht op andere paarden en/of pony's.
7. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Het plafond in de stallen is minimaal 2,75 meter hoog.
8. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Alle paddocks en/of weides hebben een minimale lengte van 40 meter.
9. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Water en ruwvoerplekken in paddocks en/of weides zijn minimaal 15 meter van elkaar verwijderd.
10. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: Het aantal uitloopvoorzieningen is tenminste gelijk aan 20% van het aantal dierplaatsen op het bedrijf. (bijvoorbeeld 100 paarden, dus 20 paddocks/weides).
11. Hoe groot is de kans dat u in 2028 voldoet aan de volgende stelling: De paarden en pony's op het bedrijf gaan het hele jaar lang (zomer en winter) enkele uren per dag in de paddock/weide.