

# South African Generation Y students' intention towards ecopreneurship



## Authors:

Carmen Strydom<sup>1</sup>   
 Natanya Meyer<sup>1</sup>   
 Costa Synodinos<sup>1</sup> 

## Affiliations:

<sup>1</sup>Department of Management Sciences, Faculty of Economics and Management Sciences, North-West University, Vanderbijlpark, South Africa

## Corresponding author:

Costa Synodinos,  
 costa.synodinos@nwu.ac.za

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**Orientation:** It has been argued that the solution to the deteriorating state of the natural environment should not simply be one of regulation but rather of innovation. As such, entrepreneurship or, more specifically, ecopreneurship has been identified as a possible solution.

**Research purpose:** This study's primary objective was to determine Generation Y students' intention towards becoming ecopreneurs within the context of South Africa.

**Motivation of study:** Research regarding ecopreneurship is still scarce within academic literature both globally and in South Africa. This study aims to address this research gap.

**Research design, approach and method:** A quantitative research approach was followed using a descriptive, cross-sectional research design. A structured questionnaire was used to collect data from 522 students across three Higher Education Institutions in South Africa. The statistical analysis used to analyse the collected data included exploratory factor analysis, descriptive analysis, and correlation analysis.

**Main findings:** This study's findings indicate that university students belonging to the Generation Y cohort in South Africa display positive intentions towards becoming ecopreneurs. The students' intentions were, however, lower than their reported knowledge and concern for the environment. All constructs used yielded positive results, albeit to varying degrees and a positive correlation between them were noted.

**Practical/managerial implications:** Generation Y university students in South Africa display positive intentions towards becoming ecopreneurs. Thus, support to assist them in starting such ventures should be prioritised by incubation programmes and governments funding opportunities.

**Contribution/value-add:** This study contributes to the existing literature on entrepreneurship, ecopreneurship, environmentalism and Generation Y students in the South African context.

**Keywords:** ecopreneurship; ecopreneur; green entrepreneurship; entrepreneurship; intention; environment; Generation Y; South Africa.

## Introduction

Environmental issues and risks have become an increasing threat to businesses, economies and the global society over the past decade (World Economic Forum 2018). Despite increased governmental regulations, environmental activism efforts and corporate greening strategies implemented over recent years, there is still a great deal that needs to be done to reverse the existing environmental damage across the globe (Barbier & Hochard 2018). York and Venkataraman (2010) suggest that motivation and innovation are paramount to solve environmental crises and to implement regulations.

Anthropological causes are often attributed as the leading cause for environmental degradation, specifically the heavily industrialised business sectors of the world (Cohen & Winn 2007). Therefore, the business sector has been subject to increased pressure to become more environmentally responsible and sustainable. Moreover, there has been an increase in the scientific evidence that directly links environmental issues to human activity (Wolfgramm 2016; World Economic Forum 2019). As such, ecopreneurs, also referred to as environmental or green entrepreneurs, could play a pivotal role in driving the business sector towards more environmentally sustainable processes and practices (Affolderbach & Krueger 2016; Walton & Kirkwood 2013).

Prior studies have found that members from the Generation Y cohort display positive intentions towards becoming entrepreneurs and believe that the onus is upon them to bring about a more

sustainable environmental future (Marire 2015; Synodinos & Bevan-Dye 2015). However, research regarding South Africa's entrepreneurial intent may be plentiful (Hughes & Schachtebeck 2017), research of ecopreneurs is undoubtedly lacking. This study thus aims to address this gap in the literature by determining the ecopreneurial intentions of Generation Y students in South Africa.

## Literature review

### History of environmentalism in South Africa

South Africa has a rich history of environmentalism, dating back as far as the mid-1800s when the *Forest and Herbage Preservation Act* (No 18 of 1856) was passed (McCormick 1989). This act was later modified and renamed the *Forestry Act* (No. 22 of 1888), which aimed at preserving the indigenous forests of specific areas within South Africa (Burgess 2001). It, however, wasn't until the 1980s when environmental concern accelerated amongst South Africans. Steyn and Wessels (2000) speculate that the reasons for this may be attributed to the establishment of Earthlife Africa in 1988, the changing political atmosphere of the time, a lack of governmental action concerning environmental degradation and the shift towards broader, more inclusive environmental agendas amongst existing Environmental Non-government Organisations (ENGOs). After the fall of the apartheid regime in South Africa, environmental law gained a more significant position within the legislation in that environmental health itself became a fundamental human right. According to Section 24 of the Constitution (Republic of South Africa [RSA] 1996), the law states that everyone has the right:

- '(a) to an environment that is not harmful to their health or well-being; and
- (b) to have the environment protected for the benefit of present and future generations,
  - (i) through reasonable legislative and other measures that prevent pollution and ecological degradation;
  - (ii) promote conservation; and
  - (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development....'

For South Africa, preserving the natural environment is thus, not merely a suggestion or a 'nice-to-have', but is seen as a necessity for survival. Shapshay and Tenen (2018) even went as far as stating that the degradation of earth's natural environment robs humanity of instrumental goods and a moral right. If the global crisis is to be avoided, then 'business-as-usual' practices will have to change.

### Environmentalism and business practices in South Africa

Since 1992, several Acts regarding environmental management and regulation have been passed that have implications for organisations operating within South Africa. The *National Environmental Act* (NEMA), for example, permits legal action to be taken against any organisation that does not

comply with the existing legal requirements (Department of Environmental Affairs 2019). More recently, the *Carbon Tax Act* (No. 15 of 2019) and the Good Green Deeds programme were passed, respectively, to lower greenhouse gas emissions. This was done by imposing a tax on polluters and encourage South Africa's social and economic sectors to be more environmentally responsible (RSA 2019).

Further implications for South African business regarding environmental sustainability can be seen as stated by the King IV report for corporate governance that organisations are expected to act in a way that is responsible, ethical and sustainable towards society and the natural environment, thus ensuring that present needs are not met at the expense of future generation's needs (IoDSA 2016). In addition to this, the *Companies Act* (No. 71 of 2008) Section 7 urges organisations to comply with the *Bill of Rights* as set out by the Constitution, which includes the preservation of individuals' right to an 'environment that isn't harmful to their health or well-being' and encourages efficient and responsible management of organisations (RSA 2009).

Apart from an organisations legal expectations to be sustainable, organisations have been pressured by stakeholders, consumers, competitors and regulators to reduce their carbon footprint by having more environmentally friendly production processes (Yenipazarli 2019). Doran and Ryan (2016) suggest that integrating environmental innovation into business strategies could be leveraged as a means of gaining a competitive advantage whilst simultaneously addressing environmental problems. Sustainability and greening the business sector can thus be viewed as a possible business opportunity.

### Defining ecopreneurship

Before discussing the definition of ecopreneurship, it would be beneficial first to review the definition of entrepreneurship. To date, there is no consensus within academic writings on what constitutes an entrepreneur (Sommese 2019). This is partly as a result of different researchers defining entrepreneurship based on their specific field of study or interest (Marire 2015). According to the classical school of thought, entrepreneurs, as per Schumpeter's definition, are individuals who bring about change through the development and introduction of new products, services, production methods, technologies and sources of material, the creation of new organisations or the identification of new markets (Davison 2017; Meyer 2018; Sambo 2018; Schumpeter 2012). In other words, entrepreneurs are innovators who replace old products, services and practices with newer, more relevant ones.

The term 'ecopreneurship' is an amalgamation of the words 'ecological' and 'entrepreneurship'. It is used synonymously with the terms green entrepreneurship, environmental entrepreneurship or sustainability entrepreneurship. As with entrepreneurship, there is no single one-size-fits-all definition for ecopreneurship within academic literature (Santini 2017).

Authors such as McEwan (2013) and Schnick, Marxen and Freiman (2002) suggest that ecopreneurship is best defined by placing different ecopreneurs along a continuum of ecological orientation. At the one end of the spectrum would be pure ecopreneurs who constantly aim to implement environmentally friendly practices, whilst purely profit-orientated entrepreneurs who do not implement any environmentally beneficial practices would be positioned at the other end.

Despite ecopreneurship being related to sustainable-, social- and environmental- entrepreneurship, it is best not to confuse these notions as there are differences between them. In a study done by Lenczuk (2017), the following 'type hierarchy' was developed (as depicted in Figure 1), which displays the position of ecopreneurship in relation to sustainable-, environmental- and social- entrepreneurship.

The 'type of hierarchy' depicts that ecopreneurship and social entrepreneurship are both subfields of sustainable entrepreneurship; nevertheless, they are considered separate fields as their primary focus differs (Lenczuk 2017:7). Ecopreneurship is then distinguishable from sustainable and social entrepreneurship although elements from one of the fields can transfer over to other depending on the perspective. For the purpose of this study, the definition of ecopreneurship will focus on the environmental component and not on the social aspect as this aspect is not required to determine the empirical objectives. As such, this study will make use of McEwan's (2013) broad definition of ecopreneurship, which states that ecopreneurship is any 'entrepreneurial action that contributes to preserving the natural environment'.

### Importance of ecopreneurship

Albert Einstein once said: 'environmental problems cannot be solved by applying the same types of methods and thinking that created them in the first place' (Albert Einstein Quotes n/d). Therefore, innovation is vital to better manage the earth's natural resources and support sustainable growth (Lee & Trimi 2018; Rodríguez-García, Guijarro-García & Carrilero-Castillo 2019). Brancalion and Van Melis (2017) and Cohen and Winn (2007) suggest that the innovation needed to reverse the environmental damage caused to the earth's ecosystem is likely to stem from entrepreneurs who can turn environmental challenges into profitable opportunities. Likewise, Panackal, Singh and Sharma (2016) and Dixon and Clifford (2006) note that a strong link exists between entrepreneurship and environmentalism. It is the unique

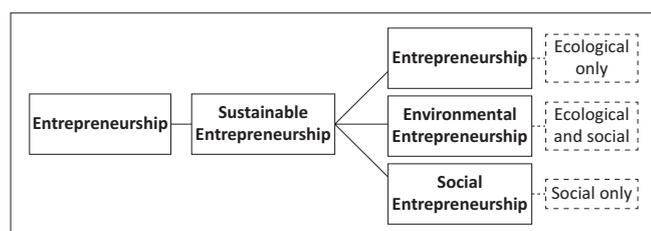
capabilities of an entrepreneur that enables them to grapple with economic, social and environmental issues. Kirkwood, Dwyer and Walton (2017) further emphasise that ecopreneurs' unique capabilities of creativity and innovativeness qualify them to deal with environmental issues.

There is a growing awareness of the importance of ecopreneurship as there is substantial evidence of environmental degradation of the natural environment. This is relatively evident with market developments such as green buildings, natural products and renewable energy becoming more widespread (Dean & McMullen 2007; Kibert 2016; Li et al. 2020). Ecopreneurs are thus seen as the change agents that can play a role in addressing negative environmental issues such as climate change, loss of biodiversity, deforestation and land degradation (Gibbs 2009; McEwan 2013; Santini 2017). It is essential to give ecopreneurship serious consideration as the world's natural resources are rapidly decreasing – any nation's true wealth (Singh & Panackal 2014). Ecopreneurs play a notable role in preserving natural resources for both current and future generations by developing new technology that benefits the environment (Hestad, Tàbara & Thornton 2020; Volery 2002). According to Singh and Panackal (2014), eco-innovations will be the competitive advantage of both the companies and the countries in the near future.

### Factors contributing to ecopreneurial intention

Environmental concern can be described as the degree to which a person cares about the state or wellbeing of the natural environment (Strydom 2020). In previous studies related to eco-friendly purchasing behaviour, Bhuian and Sharma (2017) and De Jager (2009) found that environmental concern positively correlates with consumers' intention to behave in an eco-friendly manner as a predictor of pro-environmental behaviour. As such, this study included the factor of environmental concern when determining ecopreneurial intention, which according to Schuyler (1998) is considered to be one of the key influencers of ecopreneurs.

It has been said that people can only act effectively to bring about preferred outcomes once they have sufficient knowledge (Ajzen et al. 2011). This also proves true regarding environmentalism or pro-environmental behaviour. In his study, Mostafa (2007) found that perceived environmental knowledge was a good predictor of positive attitude and behaviour towards the natural environment. A lack of knowledge proved to be a barrier towards pro-environmental behaviour. Li et al. (2020) also concur with this notion. Moreover, Thondhlana and Hlatshwayo (2018) found that individuals with a higher level of education and environmental knowledge are more likely to display pro-environmental behaviour. From these studies, it can thus be surmised that an increased environmental education and awareness could produce higher levels of environmental knowledge and concern amongst students that could ultimately lead to greater intentions to behave in a pro-environmental manner.



Source: Lenczuk, H., 2017, *From corporate greenwashing to ecopreneurship: Sustainability as a business model*, viewed 25 May 2019, from <https://pdfs.semanticscholar.org/2788/bbc02639216d26327604938c916cbc132470.pdf>

FIGURE 1: Type hierarchy of entrepreneurship.

Pro-environmental behaviour refers to any act or behaviour that actively seeks to reduce negative impacts or negative ecological footprints towards the natural environment (Latif et al. 2013). Such behaviour could, for example, include reducing consumption of energy and other resources, recycling, waste reduction, halting sources of pollution and planting trees. According to Wu, Font and Liu (2021) and Lee (2008), variables such as the perceived effectiveness of environmental behaviour and green purchasing behaviour have been shown to influence consumers' pro-environmental behaviour intentions.

The theory of planned behaviour (TPB) is a well-established social-psychological model developed by Ajzen in 1985. It has often been used in various studies to measure entrepreneurial intentions and pro-environmental behaviour (Fielding, McDonald & Louis 2008; Rueda, Liñán & Moriano 2015; Thondhlana & Hlatshwayo 2018). According to Ajzen (1991), three main factors are required when predicting intentional behaviour: personal attitude, subjective norm and perceived behavioural control. A former study related to environmental behavioural intention found a positive correlation between a positive attitude and a greater intention towards pro-environmental behaviour (Fielding et al. 2008). Similarly, a robust relationship also exists between entrepreneurial intention and personal attitude towards entrepreneurship (Chipeta 2015). In a study regarding the prediction of green purchasing behaviour of adolescents, Lee (2008) reported that social influence was discovered to be the top predictor of green purchasing behaviour. Troudi and Bouyoucef (2020) similarly state that social pressures have an essential effect on green purchasing behaviour.

Although instruments have been developed to determine entrepreneurial intent, no known measure has been designed to determine ecopreneurial intent. These studies are still scarce, particularly in developing countries such as South Africa (Abina et al. 2015; Nieuwenhuizen 2016). Therefore, this study combines the factors from the TPB with the previously discussed independent factors to determine participants' intentions towards becoming ecopreneurs. These factors include environmental concern, environmental knowledge, current pro-environmental behaviour, perceived effectiveness of pro-environmental behaviour and ecopreneurial intent.

### Generation Y university students in South Africa

Recent mid-year population estimates in South Africa reveal that the Generation Y cohort makes up approximately 36% of South Africa's entire population, making them the largest generational cohort in the country (Statistics South Africa 2018). Generation Y individuals find themselves in a great position of influence within the country, and researchers have displayed great interest in the cohort. They are the largest generation currently and the most educated and technologically savvy generation to date (Eisner 2005; Fry 2018; Nowak, Thach & Olsen 2006).

In South Africa, most of the Generation Y cohort was born into the post-apartheid era following the country's first

democratic election in 1994, contributing to equal education and career-related opportunities for all racial groups (Bevan-Dye 2016). According to Bevan-Dye (2016) and Markert (2004), members of the Generation Y cohort were born between the years of 1986 and 2005 (ages 15–34). As this study focuses on Generation Y university students, participants' ages are between 18 and 34 years.

For some Generation Y members, the importance of environmental awareness and environmentally responsible behaviour has been taught to them from as early as their pre-school days through to their higher education (Williams 2017). This is significant because the youth are the future leaders of the world, and subsequently, the future of the environment lies in their hands (Gruzina, Firsova & Melnichuk 2020; Ottman 2011). Barton, Fromm and Egan (2012) highlight that members of the Generation Y cohort are more likely to participate in large protest movements and champion for an environmental cause, the reason being that they believe they can collectively help make the world a better place. Furthermore, Generation Y students have also displayed significant entrepreneurial intention levels in previous studies conducted within the South African context (Iwu et al. 2016; Malebane & Swanepoel 2015; Marire 2015). A study by Abina et al. (2015) implied that university students reportedly have positive intentions towards ecopreneurship. Based on the literature, members from the Generation Y cohort are ideal advocates for pro-environmentalism and thus, they pose as ideal candidates for this study.

## Research methodology

### Study design

A single cross-sectional, descriptive, quantitative research approach was followed to collect the study's required data. This was deemed the most appropriate means to quantify the data collected from a relatively large sample numerically.

### Sampling strategy

A mix of convenience and judgement, non-probability sampling techniques, was incorporated to draw the study's sample population. The original sample was made up of 600 university students of which the final usable number amounted to 522. The sample consisted of both male and females, between the ages of 18 and 33 from three registered public South African higher education institutions (HEIs). Considering the sample size for this study, the historical reference approach was used. This approach involved looking at similar studies and using its sample sizes as a guideline. Similar studies referred to and relating to entrepreneurial intention and environmental concern include Marire (2015) with a sample size of 400 students; Synodinos (2014) with a sample size of 500 students; Cheah and Phau (2011) with a sample size of 600 and Minton and Rose (1997) with a sample size of 500. The three HEIs comprised one technical university, one comprehensive university and one traditional university.

## Data collection

A structured, self-administered survey questionnaire was developed and utilised to gather information from sample participants. The questionnaire comprised three sections: Section A, which required participants to provide demographic information relevant to the study; Section B containing previously validated scales adapted from Lee (2008) and Mostafa (2007), which aimed to collect information regarding participants' environmental concern, environmental behaviour, perceived effectiveness of pro-environmental behaviour and perceived environmental knowledge. Section C comprised previously validated scales adapted from Liñán and Chen (2009) and Fielding et al. (2008), which measured participants' attitude towards ecopreneurship, subjective norm, perceived behavioural control and intention towards ecopreneurship. The validated scales that were used in both Section B and Section C can be found in Appendix 1.

## Statistical analysis

The captured data was analysed using Statistical Package for Social Sciences (SPSS) version 26.0. The empirical data analysis methods included a reliability and validity analysis, a descriptive analysis, significance tests, internal consistency reliability, discriminant validity, nomological validity, factor analysis and regression.

## Ethical considerations

Approval to conduct the study was obtained from the North-West University, Economic and Management Sciences Research Ethics Committee (EMS-REC), clearance number NWU-0114-19-A4. Before participating, students were informed of the study's purpose and were assured that they would remain anonymous. Students completed the questionnaires voluntarily and were given the option to opt-out at any given point with no consequences.

## Results and discussion

### Demographic sample description

Of the 600 questionnaires, approximately 560 were returned, indicating a response rate of 93%. However, once screening was undertaken, the actual response rate was 87% or 522 responses. That meant 38 questionnaires were disregarded in the editing and cleaning process as these questionnaires did not meet the study's judgement criteria. These requirements included any participant that had not completed a minimum of 90% of the questionnaire, did not pass the screening question or was not a Generation Y cohort member. The demographic information of the participants is summarised in Table 1.

From Table 1, it can be noted that the majority of students indicated that their field of study is in economics and management sciences (44%), they are in the process of obtaining an undergraduate degree (91%) and they are under the age of 25 years (93%) and primarily speak English (21%) or Afrikaans (20%). The gender distribution was relatively

equally dispersed between females (51%) and males (46%), with 3% of respondents not disclosing their gender. The demographic information relates to the demographics of the larger South African population in that each of the 11 national languages of the country was represented in the study. Once the questionnaires had been screened and demographics computed, the data set was subjected to an exploratory factor analysis to assert the data's factorability.

## Exploratory factor analysis

The study implemented an exploratory principal components analysis using Promax rotation to determine whether any item questions were cross-loaded or loaded onto an incorrect factor. The first step entailed performing the Kaiser-Meyer-Olkin (KMO) test of sampling adequacy and Bartlett's test of sphericity. The KMO test yielded a result of 0.951, and Bartlett's test chi-square of 11 311.56 with  $df = 496$  and significance at  $p = 0.000 < 0.05$ . The outcome of these statistics was deemed satisfactory, thus establishing the data's factorability (Pallant 2010).

The next step was to assess the communalities originating from the exploratory principal components analysis. According to Hair et al. (2014), items yielding values below 0.50 are excluded from the final factor analysis. Based on the extraction results, seven factors explained 70.2% of the total variance in the data set. Problematic cross-loadings were observed for item B4 in the environmental concern construct 'I often think about how the environmental quality can be

**TABLE 1:** Demographics.

Demographics	%
<b>Field of study</b>	
Economics and management sciences	44
Computer sciences	17
Engineering	15
Health sciences	9
Humanities	6
Education	5
Law	3
Theology	1
<b>Degree level</b>	
Undergraduate degree	91
Postgraduate degree	9
<b>Gender</b>	
Female	51
Male	46
Unknown	5
<b>Home language</b>	
English	21
Afrikaans	20
Sesotho	11
Setswana	9
isiZulu	8
Sepedi	7
Tshivenda	5
Other	19
<b>Age</b>	
< 25	93
> 25	7

improved' (Lee 2008). Upon further investigation, it was determined that the item could be deleted without changing the construct's intended purpose. As a result, the environmental concern construct only constituted items B1–B3, and item B4 was not included in further data analysis.

Moreover, problematic cross-loadings were observed for the perceived effectiveness of the environmental behaviour construct (B13–RB16). Two of the items in the construct loaded on their own factor, and two of the items cross-loaded onto other constructs. A preliminary Cronbach alpha test of the construct was conducted, which yielded unsatisfactory results below the recommended cut-off level. Since the perceived effectiveness of environmental behaviour construct constitutes a supporting rather than an essential role in determining Generation Y students' intentions towards becoming ecopreneurs, it was omitted from further data analysis.

A rerun of the exploratory factor analysis was performed, excluding items B4 and B13 to RB16. The new factor analysis produced a KMO of 0.949 and Bartlett's test score of 10 947.1 with  $df = 465$  and significance at  $p = 0.000 < 0.05$ . Based on the new extraction results, seven factors explained 70.7% of the total variance. Table 2 summarises the rotated factors from the pattern matrix and factor communalities and extracted percentage variance.

As seen in Table 2, factors aligned with the relevant constructs showed that the variables loaded as expected, and that all items achieved values above the recommended 0.50 cut-off mark. Based on the new extraction results, the seven factors explained 70.7% of total variance within the accepted range, higher than 60% (Hair et al. 2014). The data set was then subjected to reliability analysis with the conclusion of satisfactory exploratory factor analysis.

### Reliability of scales

It is essential for a measurement to be trustworthy and to measure accurately that which it sets out. For this reason, the reliability of the measurement scales was analysed both in the pilot test and the main study. The Cronbach alpha values recorded for each construct, based on this study's survey data, are outlined in Table 3.

As depicted in Table 3, the construct with the highest Cronbach alpha value is the intention towards ecopreneurship construct (0.939), which is similar to the reported value (0.943) in the study from which the intention towards entrepreneurship construct was adapted from (Liñán & Chen 2009). Compared to their original sources, all the constructs in this study had lower Cronbach alpha values, except the perceived behavioural control and the environmental behaviour constructs. In this study, the perceived behavioural control construct yielded a value of 0.907, whereas Liñán and Chen (2009) reported a value of 0.847. In the case of the environmental behaviour construct, a value of 0.847 was recorded for this study, whereas Lee's (2008) study recorded

a value of 0.7. Interestingly, the higher Cronbach alpha values are both related to respondents' behaviour.

Conversely, the construct that yielded the lowest Cronbach alpha value (0.532) was the perceived effectiveness of environmental behaviour. This is much lower than the value (0.710) recorded for this construct by Lee (2008). Considering the low item-to-total correlation value of this construct (0.304), excluding this construct from the main study results was advisable. Further investigation proved that merely removing certain items from the construct did not improve its overall internal consistency reliability. One explanation for the low

**TABLE 2:** Exploratory principal components analysis.

Items	Factor loadings							Communalities
	1	2	3	4	5	6	7	
B1	-	-	-	-	-	-	0.867	0.746
B2	-	-	-	-	-	-	0.762	0.728
B3	-	-	-	-	-	-	0.632	0.658
B5	-	-	-	-	0.625	-	-	0.576
B6	-	-	-	-	0.537	-	-	0.604
B7	-	-	-	-	0.948	-	-	0.725
B8	-	-	-	-	0.687	-	-	0.584
B9	-	-	0.784	-	-	-	-	0.688
B10	-	-	0.833	-	-	-	-	0.755
B11	-	-	0.895	-	-	-	-	0.796
B12	-	-	0.790	-	-	-	-	0.667
C1	-	-	-	0.897	-	-	-	0.620
C2	-	-	-	0.892	-	-	-	0.755
C3	-	-	-	0.607	-	-	-	0.664
C4	-	-	-	0.739	-	-	-	0.765
C5	-	-	-	0.531	-	-	-	0.671
C6	-	-	-	-	-	0.623	-	0.640
C7	-	-	-	-	-	0.768	-	0.699
C8	-	-	-	-	-	0.688	-	0.677
C9	-	0.601	-	-	-	-	-	0.634
C10	-	0.427	-	-	-	-	-	0.707
C11	-	0.609	-	-	-	-	-	0.724
C12	-	0.934	-	-	-	-	-	0.774
C13	-	0.899	-	-	-	-	-	0.777
C14	-	0.570	-	-	-	-	-	0.587
C15	0.540	-	-	-	-	-	-	0.709
C16	0.666	-	-	-	-	-	-	0.707
C17	0.818	-	-	-	-	-	-	0.781
C18	0.957	-	-	-	-	-	-	0.842
C19	0.928	-	-	-	-	-	-	0.843
C20	0.977	-	-	-	-	-	-	0.811
Percentage variance	42.78	7.72	6.12	4.05	3.68	3.29	3.07	-

**TABLE 3:** Reliability results.

Items	Total items	Construct name	$\alpha$ Pilot study	$\alpha$ Main study
B1–B3	3	Environmental concern	0.642	0.740
B5–B8	4	Environmental knowledge	0.853	0.756
B9–B12	4	Environmental behaviour	0.916	0.847
<b>B13–RB16</b>	<b>4</b>	<b>Perceived effectiveness of environmental behaviour</b>	0.674	0.532
C1–C5	5	Attitude towards ecopreneurship	0.800	0.869
C6–C8	3	Subjective Norm	0.830	0.763
C9–C14	6	Perceived behavioural control	0.888	0.907
C15–C20	6	Intention towards ecopreneurship	0.955	0.939

Note: Bold items were deleted.

value of the perceived effectiveness of environmental behaviour construct could be that reverse-scored items, or items stated in the negative form, often yield significantly lower Cronbach alpha values than regular statements (Schriesheim et al. 1991). Satisfactory Cronbach alpha values were recorded for the remaining constructs (Hair et al. 2014).

## Descriptive analysis

Participants were asked to respond to statements using a six-point Likert scale in Sections B and C of the questionnaire. A response of one indicated that the participant strongly disagreed, whereas six suggested that the participant strongly agreed with the statement. Reported mean values higher than (Mean = 3.00) would indicate a positive attitude towards the construct, whilst mean values that were lower than (Mean = 3.00) would indicate a negative attitude towards the construct. Therefore, a higher mean value signifies a higher level of agreement to the statements in the construct, and a lower mean value indicates a lower level of agreement. Table 4 reports the mean statistics, standard deviation, skewness and kurtosis values of each scale used in the measuring instrument.

From Table 4, it can be derived that participants generally displayed high levels of agreeability towards each construct as all constructs yielded mean values greater than 3. The degree to which participants agreed varied, however. The environmental concern construct yielded the highest mean value (Mean = 4.36), followed by the environmental knowledge construct (Mean = 4.03). Conversely, the lowest mean value was recorded for the perceived behavioural control construct (Mean = 3.34), closely followed by the intention towards ecopreneurship construct (Mean = 3.30). Generation Y students' knowledge regarding environment and concern for the environment is thus relatively high compared to the other constructs. Their intention towards ecopreneurship and perceived behavioural control is relatively low compared to the other constructs.

Thus, it can be deduced that Generation Y students in South Africa display high levels of knowledge related to the environment and seem to be concerned about the deteriorating state of the environment and indicate that they advocate pro-environmental behaviour to some extent. Furthermore, Generation Y students can also be said to have positive attitudes towards ecopreneurship, consider ecopreneurship as something their peers or influencers would approve of, perceive themselves to have reasonable behavioural control to some degree and appear to show positive intentions towards becoming ecopreneurs. However, when it comes to their perceived behavioural control and intention towards ecopreneurship, Generation Y students display lower levels of agreeability than they do for the other constructs. Ntanos et al. (2018) and Williams (2017) have reported similar findings regarding Generation Y students displaying high environmental concern and knowledge levels. Thondhlana and Hlatshwayo (2018) also found that many university students within the South African context

do not always behave in a way that could be considered pro-environmental. The main reasons for this, as indicated by the students, were laziness, forgetfulness, comfort and convenience, in that particular order.

With reference to the normality of the data set, no irregularities were identified as all kurtosis and skewness values fall in the valid range of -2 and +2, as such the data can be deemed as normally dispersed (Berndt & Petzer 2011). The negatively skewed values indicate high scores in the distribution; in other words, the mean fell within the agreement area of scale responses. The standard deviation values recorded for each construct indicate variability in participants' answers to items in that scale. The lowest standard deviation value (standard deviation [SD] = 0.95) was recorded for the environmental knowledge construct, exhibiting low variability of responses. Conversely, the highest standard deviation value (SD = 1.32) was recorded for the intention towards ecopreneurship construct, indicating larger variability of responses (McDaniel & Gates 2013:458).

## Correlation and nomological validity

A correlation analysis serves to determine whether a linear relationship exists between variables. Constructing a correlation matrix is also a useful method of determining the nomological validity of constructs (Hair et al. 2010). This study utilised Pearson's Product-Moment correlation coefficients to conduct the correlation analysis. The significance level was set at  $p \leq 0.01$ . Table 5 outlines the correlation matrix, which reports on the correlation between each of the constructs presented.

As is seen from Table 5, all corresponding constructs yielded a positive significant correlation coefficient amongst one

**TABLE 4:** Descriptive statistics construct summary.

Items	Total items	Construct name	Mean	Standard deviation	Kurtosis	Skewness
B1–B3	4	Environmental concern	4.36	0.96	0.44	-0.63
B5–B8	4	Environmental knowledge	4.03	0.95	-0.14	-0.29
B9–B12	4	Environmental behaviour	3.53	1.17	-0.45	-0.24
C1–C5	5	Attitude towards ecopreneurship	3.95	1.12	-0.29	-0.38
C6–C8	3	Subjective norm	3.97	1.06	0.12	-0.38
C9–C14	6	Perceived behavioural control	3.34	1.16	-0.47	-0.03
C15–C20	6	Intention towards ecopreneurship	3.30	1.32	-0.88	-0.05

**TABLE 5:** Correlation matrix.

Construct	EC	EK	EB	AE	SN	PBC	IE
EC	-	-	-	-	-	-	-
EK	0.452**	-	-	-	-	-	-
EB	0.464**	0.563**	-	-	-	-	-
AE	0.508**	0.446**	0.565**	-	-	-	-
SN	0.417**	0.442**	0.555**	0.590**	-	-	-
PBC	0.348**	0.476**	0.588**	0.621**	0.586**	-	-
IE	0.389**	0.402**	0.529**	0.691**	0.523**	0.751**	-

\*\* Correlation is significant at the 0.01 level (two-tailed).

EC, environmental concern; EK, environmental knowledge; EB, environmental behaviour; AE, attitude towards ecopreneurship; SN, subjective norm; PBC, perceived behavioural control; IE, intention towards ecopreneurship.

another ( $p \leq 0.01$ ). According to the results, nomological validity is thus established as all measurement constructs are positively correlated (Berndt & Petzer 2011). Some constructs, however, display stronger relationships with each other. The two weakest correlation coefficients were both in relation to the environmental concern construct, the weakest being perceived behavioural control ( $r = 0.348, p < 0.01$ ) and the second weakest, intention towards ecopreneurship ( $r = 0.389, p < 0.01$ ).

Contrastingly, the strongest two correlation coefficients were both in relation to intention towards ecopreneurship, the strongest being perceived behavioural control ( $r = 0.751, p < 0.01$ ) followed by attitude towards ecopreneurship ( $r = 0.691, p < 0.01$ ). Liñán and Chen (2009) report similar findings; however, in their study, the strongest correlation was between intention towards entrepreneurship and personal attitude, and the second strongest was between the former and perceived behavioural control. A positive relationship, therefore, exists between Generation Y students' concern for the environment, environmental knowledge, pro-environmental behaviour, attitude towards ecopreneurship, subjective norm, perceived behavioural control and their intention towards ecopreneurship.

## Implications and recommendations

The findings of this study mainly contribute to the limited available literature in the field of ecopreneurship, as this area is still in its infancy and lacks a broad empirical foundation (Farinelli et al. 2011). Furthermore, this study's results also contribute to the broader fields of the Generation Y cohort, that is, higher education students, environmentalism and entrepreneurship as the empirical objectives that were achieved and provide valuable findings and information on each of these topics. Educational institutions can utilise the results of this study to expand the study field of entrepreneurship to include the niche field of ecopreneurship.

The findings of this study provide insight into students' intentions towards becoming a solution to environmental problems through ecopreneurship. Therefore, the results are valuable to all who seek to develop entrepreneurs who wish to solve environmental issues through innovation or simply manage an organisation in an environmentally sustainable way. This study contributes explicitly to the literature within a South African context; however, the findings could also be used for cross-cultural or international type studies.

Six main recommendations are proposed based on the results from this study.

### Developing a greater understanding of ecopreneurship as a field of study and practice

As mentioned in the literature review section, ecopreneurship is still a relatively new research area as it has only started to gain popularity over the past two decades. Although there has been a surge of interest, there is a great scarcity of academic writings on the topic in mainstream literature, more specifically in South Africa (Lenox & York 2011; Sáez-

Martínez, González-Moreno & Hogan 2014). It can be recommended that more research regarding the field of ecopreneurship needs to be conducted to expand its theoretical and empirical foundations.

### Greater awareness of the severity of environmental issues and the importance of ecopreneurship

Although there has been a growing awareness across the globe on the importance of making the business sector more environmentally sustainable (Dean & McMullen 2007), more will be needed to be done to change the course of environmental degradation before it reaches the point of no return (WEF 2019). It can be recommended that nationwide environmental awareness programmes be reinforced regularly across all possible platforms, including entertainment and media platforms, the business sector and educational institutions, ranging from pre-school through to tertiary institutions. As these platforms and institutions facilitate people at different stages of their life, it may prove valuable to implement such awareness programmes across all these platforms as this will be more impactful in the long run. People can only act effectively to bring about preferred outcomes once they have sufficient knowledge.

### Inclusion of ecopreneurship in entrepreneurship education curricula

Linton and Klinton (2019), Kumari (2018) and Valerio, Parton and Robb (2014) claim that entrepreneurs are made not born, and that the discipline, skill and mindset embodied by entrepreneurs can be taught. As a niche form of entrepreneurship, the same can also be said for ecopreneurship. Vaičekauskaitė and Valackienė (2018) emphasise that education plays a vital role in cultivating entrepreneurs. Education should therefore also be a crucial part in developing ecopreneurs. For this reason, it is recommended that ecopreneurship be included in educational programmes and curricula within the field of entrepreneurship.

### Mitigate barriers to ecopreneurship

Past studies have shown that Generation Y students in South Africa display high levels of entrepreneurial intent (Iwu et al. 2016; Malebane & Swanepoel 2015; Marire 2015). To encourage the successful development of ecopreneurs, it is therefore recommended that governmental and non-governmental institutions alike provide more incentives for pro-environmental behaviour, eco-innovation and green startups while mitigating the barriers to entrepreneurs and ecopreneurship.

### Target the Generation Y cohort

The Generation Y cohort makes up a large portion of the South African population and represents the nation's future. As one of the most educated generations to date, they are likely to become leaders and trendsetters within their spheres of influence. Moreover, this generation is technologically savvy, with instant access to countless media platforms and information sources worldwide. The results from this study suggest that Generation Y students in South Africa display

high levels of environmental concern. Therefore, it would be beneficial to raise leaders from this group to address the environmental issues facing the world today.

### Appeal to Generation Y males and females

Researchers found females to show considerably higher levels of environmental concern than their male counterparts in the past. However, the difference gap has become smaller over the years (Strydom, Meyer & Synodinos 2020). Therefore, special female incubation hubs could assist in the further development of ecopreneurs.

### Limitations and future studies

Great care was taken to ensure that the sample would be adequately represented in the study. However, limitations such as sampling bias could still arise when generalising convenience sampling results to the population. In addition to this, using a single-cross sectional research design could also be limiting as it only represents a single point in time instead of multiple observations made over a more extended period.

It would be feasible to use qualitative, mixed-method, longitudinal designs, panel data analyses or probability sampling techniques for future research on the topic of Generation Y students' intentions towards ecopreneurship. Moreover, the study could be repeated with another sample, and the data analysis could be extended to include further Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM). Possible future studies on the subject could also include developing a process to categorise and define different types of ecopreneurs based on their position on the ecological orientation continuum and exploring the incentives and barriers for ecopreneurship within a South African context.

## Conclusion

The primary objective of this study was to determine Generation Y students' intentions towards ecopreneurship. Based on the analysis and interpretation of the collected data, it can be deduced that Generation Y's intention towards ecopreneurship, whilst positive is relatively low, especially compared to their perceived environmental concern and environmental knowledge. Following the findings from Ntanos et al. (2018) and Williams (2017), Generation Y students reported being highly concerned and knowledgeable over environmental issues. The disparity between Generation Y students' concern or knowledge and their intentions towards becoming ecopreneurs is, to some extent, due to lower perceived behavioural control. Thondhlana and Hlatshwayo (2018), in their study, suggested that the main reasons given by university students in South Africa for not always acting in a pro-environmental manner were laziness, forgetfulness, comfort and convenience. Regarding the correlation between constructs, it was determined that a positive relationship does exist between environmental concern, environmental knowledge, environmental behaviour, attitude towards ecopreneurship, subjective norm, perceived behavioural

control and intention towards ecopreneurship. Each construct, therefore, has some influence on the others.

Although the results of this study mainly contribute to the literature within a South African context, they can also prove helpful in international or cross-cultural studies. The findings of this study contribute to the existing literature on entrepreneurship, ecopreneurship, environmentalism and Generation Y students within the South African context. Based on these findings, it is recommended that more should be done to develop a greater understanding and awareness of environmental problems and the importance of ecopreneurship. As a field of research, there is still much to discover about ecopreneurship, and it would be beneficial to include the subfield of ecopreneurship in entrepreneurship education. Moreover, it is also recommended that the barriers and risks faced by ecopreneurs within the business sector should be investigated and mitigated to encourage greater participation in and adoption of ecopreneurship.

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Appendix 1 starts on the next page →

## Appendix 1: Questions included in the research instrument.

### Section B: Environmental concern & behaviour

- B1 I am worried about the worsening quality of the environment.
- B2 The state of the environment is one of my main concerns.
- B3 I am emotionally involved in environmental protection issues.
- B4 I often think about how the environmental quality can be improved.
- B5 I know more about recycling than the average person.
- B6 I know how to select products and packages that reduce the amount of waste ending up in rubbish dumps.
- B7 I understand the environmental phrases and symbols on product packages.
- B8 I know a lot about environmental issues.
- B9 When I want to buy a product, I look at the ingredients label to see if it contains things that are environmentally-damaging.
- B10 I prefer environmentally-friendly products over normal products when their product qualities are similar.
- B11 I choose to buy products that are environmentally-friendly.
- B12 I buy green products even if they are more expensive than the non-green ones.
- B13 I think if I carry out some environmentally-friendly behaviours in my everyday life, I would contribute a lot to our environment.
- B14 I think my participation in environmental protection would influence my family and friends to participate too.
- B15 The quality of the environment will stay the same even if I engage in some environmentally-friendly behaviours.
- B16 Even if I recycle and reuse things, the quality of the environment will remain as it currently is.

### Section C: Intention towards ecopreneurship

- C1 Being an ecopreneur implies more advantages than disadvantages to me.
- C2 A career as an ecopreneur is attractive for me.
- C3 If I had the opportunity and resources, I'd like to start a green business.
- C4 Being an ecopreneur would entail great satisfaction for me.
- C5 Among various options, I would rather be an ecopreneur.
- C6 People who are important to me behave in an environmentally friendly way.
- C7 People who are important to me would approve of me behaving in an environmentally friendly way.
- C8 People who are important to me encourage me to behave in an environmentally friendly way.
- C9 To start a green business and keep it working would be easy for me.
- C10 I am prepared to start a viable green business.
- C11 I can control the creation process of a new green business.
- C12 I know the necessary practical details to start a green business.
- C13 I know how to develop an eco-entrepreneurial project.
- C14 If I tried to start a green business, I would have a high probability of succeeding.
- C15 I am ready to do anything to be an ecopreneur.
- C16 My professional goal is to become an ecopreneur.
- C17 I will make every effort to start and run my own green business.
- C18 I am determined to create a green business in the future.
- C19 I have very serious thoughts of starting a green business.
- C20 I have the firm intention to start a green business someday.