UNIVERSITY OF KWAZULU-NATAL

Factors affecting environmentally preferable purchasing of sustainable fish products: A theory of planned behaviour perspective

By

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DECLARATION

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ABSTRACT

Fish stocks have been in crisis for a long time. Many fish species are on the brink of extinction due to exploitation. As per the Millennium Development Goals 2010, green consumption is one of the core pillars in achieving environmental sustainability. Given that there is a high level of unsustainable fishing and fish consumption leading to the depletion of fish resources, it is critical to understand consumers and their perceptions and behaviours in relation to sustainable fish products. Better comprehension of factors influencing sustainable fish product purchases can help improve green marketing efforts to achieve sustainable consumption of these products. The current study followed a causal research design and quantitative method. The target population for the study was working individuals. The study population was formed by consumers who are part of the South African LinkedIn community and who eat fish, whether concerned or not about sustainability. Judgmental and snowball sampling techniques were used to draw a sample of 200 respondents. Univariate, regression and mediation analyses which were carried out through SPSS 27, provided crucial insights. The extended TPB as a theory underpinning the current study, led to the discovery of the following key findings: the independent variables (attitude towards sustainable fish products, subjective norm, perceived behavioural control, moral attitude, environmental concern, health consciousness, subjective knowledge and objective knowledge) predict intention to purchase sustainable fish products when they are all together. However, other than attitude towards sustainable fish products, no variable on its own is significant predictor of intention to buy sustainable fish products. Therefore, other than improving attitudes towards sustainable fish products, marketers cannot focus on one specific variable to increase sustainable fish consumption. All variables need to be addressed to achieve the desired behaviour of sustainable fish consumption. Recommendations are provided to social & green marketers to do this.

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TPB	Theory of Planned Behaviour
WWF	World Wildlife Fund
EPP	Environmentally Preferable Purchasing
GDP	Gross Domestic Product
FAO	Food and Agriculture Organization
LOHAS	Lifestyle of Health and Sustainability
MSC	Marine Stewardship Council
AMA	American Marketing Association
FMCG	Fast Moving Consumer Goods
TRA	Theory of Reasoned Action

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND

Over the past 20 years, sustainable fish consumption has become increasingly significant for almost everyone, including individuals, organizations and regulatory bodies around the globe (Honkanen & Young, 2015, p. 1289). According to the United-Nations-Environmental-Programme (2011, p. 14), the choices that consumers make are significant decisions that have a huge impact on the ecosystem, natural resources and communities. As per the Millennium Development Goals 2010, green consumption is one of the core pillars in accomplishing environmental sustainability (Yadav & Pathak, 2016a, p. 122). Over the past five decades, the world annual consumption of marine products per person has increased by more than 100%, from around 10kg in 1960 to more than 20kg in 2014 (Guillen et al., 2019, p. 111). According to Delgado, Wada, Rosegrant, Meijer, and Ahmed (2020, p. 2), countries that have high population increase, high income increase and urbanization often have the highest increase in consumption of animal products including fish and fish products. China was responsible for 36% of global consumption of fish products in 1997, compared to 11% in 1973 (Delgado et al., 2020, p. 2). Delgado et al. (2020, p. 2) also argued that China has experienced all three trends (income growth, urbanization and population growth), making it one of the biggest consumers of fish products.

Fish and seafood are important components of a healthy and balanced diet due to the fact that they have minimum fat content and offer high quality proteins, vitamins and minerals (Yaktine & Nesheim, 2007, p. 1). The intake of about 500mg of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) (found in fish and seafood) each day is expected to decrease the risk of death from coronary heart diseases (Carlucci et al., 2015, p. 13). While it is a healthier source of food, this trend of growing fish consumption is having a negative environmental impact since it leads to overfishing and affects the sustainability of several marine species (Carlucci et al., 2015, p. 14). However, the increasing demand for fish and fish products is not the only factor responsible for the depletion of fish species. Illegal fishing and subsidies put further pressure on the already limited fish resources (WWF, 2020b, para 5-6).

The amount of fish stocks that are overfished globally has tripled in just 50 years (WWF, 2020b, para 2). Fish that feeds 3 billion people is being depleted (WWF, 2020c, para 6). About 40% of fish caught in West Africa occurs illegally by companies from different parts of the world, including South Korea, Japan, Spain, Russia, Italy, France and China (Merem et al., 2019, p. 2). On the other hand, subsidies lead to overcapacity of the fishing vessels and reduce costs of production so that fishing continues when it would otherwise make no sense economically (WWF, 2020b, para 6).

Developing countries such as Nigeria are already short in supply of animal protein due to several reasons, including drought, virus diseases, scarcity and high cost of feeds (Tunde, Kuton, Oladipo, & Olasunkanmi, 2015, p. 1). The shortage of supply and the increasing human population have the combined effect of increasing the cost of animal protein to the point where it becomes extremely difficult for low income groups to access these significant nutrients (Tunde et al., 2015, p. 1). This has made fish and fish products a major source of animal protein in Nigeria since they're least expensive (Tunde et al., 2015, p. 2). West African countries including Nigeria obtain at least half of their animal protein from fish and fish products (Tunde et al., 2015, p. 1). Globally, fish is responsible for 17% of animal protein consumed, and the least developed countries consume 26% of that (WEF, 2018, para 3). This puts further strain on the already declining fish stocks. According to the United Nation's Food and Agriculture Organization (FAO), "70% of the fish population is fully used, overused or in crisis" (WWF, 2019, para 1).

A study by Vazifehdoust, Taleghani, Esmaeilpour, and Nazari (2013) introduced the concept of Environmentally Preferable Purchasing (EPP) which is also referred to as green purchasing. EPP is the purchase of eco-friendly products or services that yield benefits to the environment and avoiding those which are harmful (Vazifehdoust et al., 2013, p. 2490). In the case of fish products, this would be purchasing fish products that are within their sustainable level or not endangered or fished through destructive fishing methods. To facilitate EPP, several strategies used by product suppliers or marketers are evident.

"Market-based approaches that empower customer choice in seafood purchasing have shown promise in generating motivation for improved catching and culture practices" (Parkes et al., 2010, p. 344).

Venturing into the green product category gives marketers an opportunity to raise and maximize profit while broadening their market share (Chekima et al., 2016, p. 210). Environmental advertising is a market-based tool that assists in creating sustainable consumption. Environmental or green advertising helps create consumer values and translates these values into the purchase of sustainable products (Chekima et al., 2016, p. 212). Chekima et al. (2016, p. 213) state that the difference between environmental advertising and conventional advertising is that environmental advertising is associated with the sustainability of the environment. The authors further argue that green messages enable consumers to recognize the advantage of green purchasing power.

The strategies used to market green products and services plays a significant role in the consumer decision making process (Gingerich, 2015, p. 48). Some companies implement corporate social responsibility through eco-branding (Mokha, 2018, para 4). An "Eco-brand is a name, symbol or design of products that are not harmful to the environment" (Mokha, 2018, para 4). Eco-brand names, symbols and designs help consumers to distinguish sustainable products from unsustainable products (Mokha, 2018, para 4). There has been a proliferation in the number of schemes created to give consumers and resellers high quality information to help them make fully informed decisions when buying seafood (Parkes et al., 2010, p. 344). For example, eco-labels serves as a way of informing consumers about attributes such as the origin of food, ingredients and nutritional value (Vitale et al., 2017, p. 20). Vitale et al. (2017, p. 20) cite the FAO (1995) where it is argued that consumers can recognize eco-friendly seafood products through the presence of eco-labels.

Eco-labels are based on three principles which are consistent with the United Nations Food and Agriculture Organization's code of conduct (Vitale et al., 2017, p. 20). The principles are as follows: (a) the stocks of fish must be sustainable, (b) the impact on the environment must be minimized, and (c) there must be effective management practice (Vitale et al., 2017, p. 20). Eco-labeling has become a crucial market driver in the global arena (Gingerich, 2015, p. 45). Eco-labeling has the ability to incentivize fishers to change their practices to be more sustainable since it creates and/or serves, the already existing demand for sustainable fish products (Gutierrez & Thornton, 2014, p. 8196). Eco-labeling, environmental advertising and eco-branding are considered as the most significant green marketing tools in enhancing consumer's knowledge about green products (Mokha, 2018, para 2).

The significant upsurge in enterprise-based attempts addressing environmental sustainability is mainly due to the rise in environmental consciousness and consumers' environmental behaviours (Huang, Lin, Lai, & Lin, 2014, p. 146). This study seeks to evaluate factors that influence people's purchases of sustainable fish products. According to Delafrooz, Taleghani, and Nouri (2014, p. 2) green marketing is currently not reaching its full potential in improving the standard of living of consumers, whilst improving the environment. The world lacks specific literature on consumer perceptions towards sustainable seafood and factors influencing their purchases (Honkanen & Young, 2015, p. 1290). This shows that there is a gap in knowledge on the factors affecting, and effects of market-based attempts aimed at achieving environmental sustainability including the sustainability of fish resources. Therefore, the study seeks to close this knowledge gap by examining factors that influence consumer purchases of sustainable fish products using an extended version of the "Theory of Planned Behaviour (TPB)" developed by Icek Ajzen, (cited in Yadav & Pathak, 2016a, p. 123). The extended TPB is a modified version of the original TPB which consisted of three variables, namely: Attitude towards the behaviour, subjective norm and perceived behavioural control (Yadav & Pathak, 2016a, p. 124). The extended TPB consists of three more variables to the original ones, namely: moral attitude, health consciousness and environmental concern (Yadav & Pathak, 2016a, p. 124).

The TPB is widely accepted as a strong model for predicting people's green intentions and actions (Chekima et al., 2016, p. 211). The TPB, in either its original or extended form, has been used as a theoretical foundation to green consumption studies related to organic food (Yadav & Pathak, 2016a), sustainable housing (Judge, Warren-Myers, & Paladino, 2019; Tan, Ooi, & Goh, 2017), hotels (Nimri, 2018) and skincare products (Hsu, Chang, Yansritakul, & Services, 2017). The TPB is the theory that sets a foundation for the conceptual framework that influences the current study.

In addition to the variables from the extended TPB, the researcher added one more variable (environmental knowledge) which together with the extended TPB forms a conceptual framework that informs the development of study objectives and hypothesis. Several studies have looked at the intention to buy/consume sustainable products using the TPB with environmental knowledge as an additional variable e.g. De Freitas (2018); Koloba (2020). In both De Freitas (2018) and Koloba (2020) environmental knowledge was found to have predictive power. Carmi, Arnon, and Orion (2015, p. 185) stated that there is a positive correlation between environmental knowledge

and environmental behaviour. Therefore, it would be of great benefit to also test the environmental knowledge construct in the context of sustainable fish and fish products and determine if knowledge should be a separate variable in an extended TPB.

This study will help generate more creative and innovative ideas on how consumers can be encouraged to purchase sustainable fish products from a green marketing point of view. While the study aims to address the environmental problem of unsustainable fishing and fish consumption by investigating the TPB factors as influencers of this consumption, the research also takes place within the context of social and specifically green marketing. The current study also acknowledges the potential of social marketing in forming environmentally friendly behaviours.

"Social marketing seeks to develop and integrate marketing concepts with other approaches to influence behaviours that benefit individuals and communities for the greater social good" (French & Gordon, 2015, p. 4). Social marketing and green marketing can be useful in raising awareness with regards to marine issues (especially the depletion of fish resource) and changing consumer behaviour accordingly. According to Carins and Rundle-Thiele (2014, p. 2) social marketing has been applied successfully in creating positive behavioural change across different settings and populations. It has been applied in addressing the issue of road safety (e.g Robertson & Pashley, 2015), healthy eating (e.g Carins & Rundle-Thiele, 2014) and the issue of resource sustainability (e.g UN, 2019).

As a specific application of social marketing, green marketing focuses on protecting consumer welfare and the environment (Pant & Rastogi, 2018, p. 73). Hence, it is a possible tool for dealing with the issue of marine resource depletion. According to Sharma (2018, p. 95), green marketing refers to "the process of selling products and rendering services, based on environmental benefits". It is an extension of 'ecological marketing', a concept that was first coined in 1975 by the American Marketing Association (Gingerich, 2015, p. 47). The main purpose of green marketing is to produce, promote and sell goods and services that are ecologically friendly (eco-friendly) (B. N. Sharma, 2018, p. 95). Green marketing is a relatively new specialist area in marketing that is rapidly growing due to its ability to protect the environment for future generations (B. N. Sharma, 2018, p. 99). According to Hashim, Baig, Abrar, Afzal, and Mohsin (2019, p. 267), consumers like associating with companies that produce eco-friendly products.

This research investigates the role played by attitude towards behaviour, perceived behavioural control, subjective norm, moral attitude, environmental concern and health consciousness, from the extended TPB, as well as environmental knowledge as possible predictors of intention to purchase sustainable fish products in order to discover what influences sustainable fish product purchases. More specifically, this will then allow the researcher to make recommendations on how sustainable fish products sellers can improve their green marketing activities in order to gain favourable customer reaction towards them and facilitate effective implementation of green marketing strategies among retailers, restaurants and other seafood sellers.

1.2 RESEARCH PROBLEM AND PURPOSE

In the past decades, the advantages of fish consumption have become better appreciated (Thurstan & Roberts, 2014, p. 5). Due to this positive view towards fish and the rapid population increase, projections indicate a 30% increase in total fish consumption between 2010 and 2030 (World-Bank, 2013, p. 3). On the other hand, unsustainable fishing continues to be a major problem, putting further strain on fish stocks (Liddick, 2014, p. 292). Given that there is high fish consumption and unsustainable fishing practices leading to the depletion of fish resources, it is critical to understand consumers and their perceptions and behaviours in relation to sustainable fish products. Through better understanding of the factors that influence consumer purchases of sustainable marine products, it may be possible to help raise awareness regarding the danger faced by marine resources and help increase the effectiveness of green marketing activities targeted to marine product consumers.

Azeiteiro et al. (2012, p. 452) cited Verbeke, Sioen, Brunsø, De Henauw, and Van Camp (2007) who stated that "little research has been conducted to reveal the association of consumer perceptions towards sustainable fish consumption behaviour". Several studies have looked at factors that influence general fish consumption and sea food purchases, for example Fiandari, Surachman, Rohman, and Hussein (2019); Honkanen and Young (2015) and Lawley, Craig, Dean, and Birch (2019), however, none could be found that directly investigated factors influencing sustainable fish purchases. Thus, the primary purpose of this study is to evaluate people's behaviours towards sustainable fish products, using the extended TPB as a theoretical framework. According to Petrossian (2015, p. 6), by 2048 many fish stocks will be erased from existence if

the current depletion rate is not reduced. Unless enough awareness is raised with regards to all the issues faced by marine species the current depletion rate won't be reduced.

1.3 RESEARCH OBJECTIVES

The objectives of the current research study are to determine from a South African LinkedIn community that shop for groceries and/ or go to restaurants regularly:

1. The influence of Attitude towards sustainable fish products on intention to purchase these products.

2. The influence of Subjective norms in relation to sustainable fish products on intention to purchase these products.

3. The influence of Perceived behavioural control in relation to sustainable fish products on intention to purchase these products.

4. The influence of Moral attitude towards sustainable fish products on intention to purchase these products.

5. The influence of Environmental concern about sustainable fish products on intention to purchase these products.

6. The influence of Health consciousness in relation to sustainable fish products on intention to purchase these products.

7. The influence of Environmental knowledge on consumer intention to purchase sustainable fish products.

8. The combined predictive capacity of the factors in purchase intention of sustainable fish products.

1.4 CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

This section introduces the study's conceptual model and the hypotheses that were tested to get answers for the research questions. The conceptual framework and hypotheses development are discussed in chapter two.
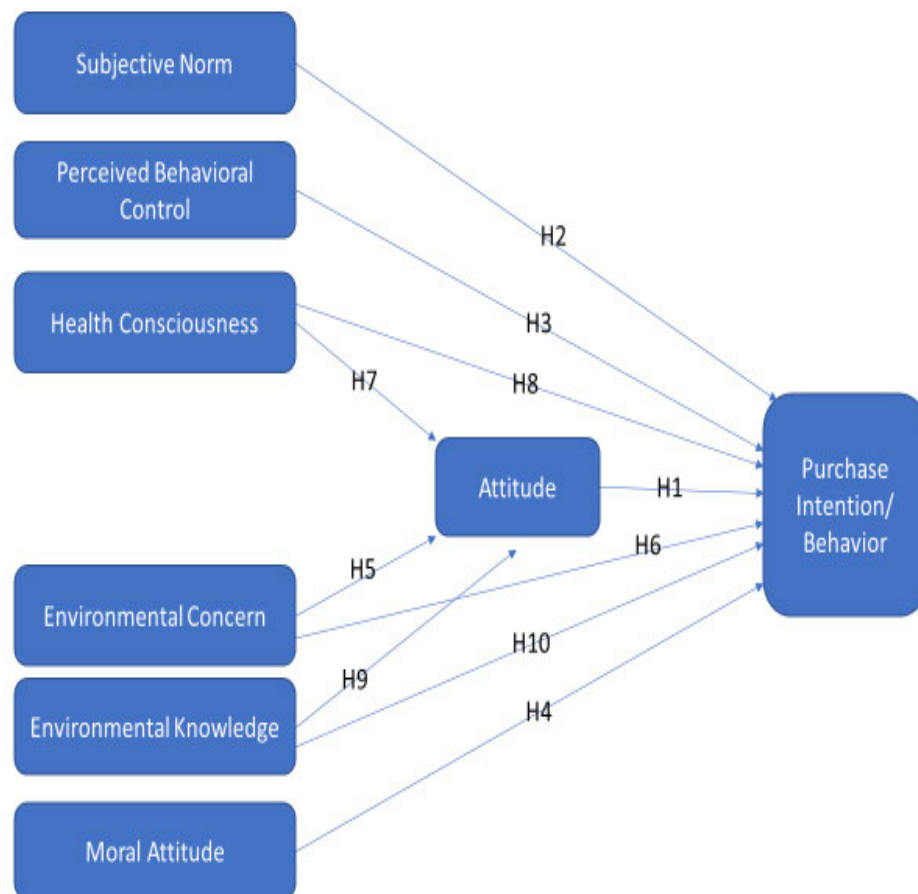
Figure 1: Conceptual framework

H1: Attitude towards sustainable fish products predicts the intention to buy these products.

H2: Subjective norm predicts the intention to buy sustainable fish products.

H3: Perceived behavioural control towards sustainable fish products predicts the intention to buy these products.

H4: Moral attitude towards sustainable fish products predicts the intention to buy these products.

H5: Environmental concern predicts the attitude towards sustainable fish products.

H6: Environmental concern predicts the intention to purchase sustainable fish products.

H7: Health consciousness predicts the attitude towards sustainable fish products.

H8: Health consciousness predicts the intention to buy sustainable fish products.

H9: Subjective environmental knowledge predicts the attitude towards sustainable fish products.

H10: Subjective environmental knowledge predicts the intention to buy sustainable fish products.

H11: Objective environmental knowledge predicts the attitude towards sustainable fish products.

H12: Objective environmental knowledge predicts the intention to buy sustainable fish products.

1.5 DELIMITATIONS

The study focused on a South African LinkedIn community that shop for groceries and/or go to restaurants regularly. This is because the study required insight from active buyers, those who consume fish/fish products. The study was limited to the South African population due to time and budget constraints. However, this geographic limitation helped acquire insight or perspective from a developing nation regarding sustainable purchasing and offer a basis for the development of recommendations that are applicable in developing countries.

1.6 OVERVIEW OF LITERATURE

The literature review offers a comprehensive summary and critique of past research relevant to the topic at hand. The knowledge covered in the literature review chapter sets a foundation for the current study by unpacking crucial concepts and conveying current study-related ideas and knowledge that have been established so far. The literature review helps the reader relate the current study to previous studies and identifies the knowledge gap the current research aims to fill. It also sets a foundation for comparative recommendations. The chapter outlines and describes several areas which are briefly described below.

The literature review chapter starts by unpacking the drivers of unsustainable fishing and fish consumption which assist in comprehending the reasoning behind the declining fish stocks. It then looks at EPP which is at the core of the current study. EPP offers a foundation for the study by describing the term EPP itself and critically evaluating its use and success in various business settings. The chapter then looks at sustainable fish products, which helps the reader understand what sustainable fish or fish products are, how to identify them and their availability globally and locally. The chapter also critically discusses strategies that are currently used to increase the consumption of sustainable seafood to identify what is currently being done and how it can be improved. Thereafter the chapter describes and evaluates the factors that influence EPP and sustainable fish products purchases which provides a direction for green marketing

recommendations for promoting EPP. Lastly, the chapter provides an in-depth discussion of the TPB constructs and additional constructs of which together contribute to the development of the conceptual framework and theoretical foundation for the whole study.

1.7 OVERVIEW OF RESEARCH METHODOLOGY

The main purpose of the study was to determine the factors that affect consumer purchases of sustainable fish products. Due to the nature of the study, the researcher followed a positivist research philosophy. To achieve the study purpose, the study followed a causal research design and quantitative method. The study target population was working individuals who shop for groceries and or visit restaurants regularly, and who are fish eaters. Due to the restrictions that Covid-19 imposed on data collection amongst South African consumers, a South African LinkedIn community represented an accessible sampling frame. Therefore, the sample was drawn from a South African LinkedIn community. The desired sample size for the study was 280 which is the average of two studies with a methodology similar to the one of the current study. However, a response rate of 76% (214) was achieved and the sample was reduced to 200 due to some the respondents not meeting the criteria.

To collect data, a survey technique (questionnaire) was employed. The questionnaire consisted of multiple items that measured the various constructs, namely: Attitude towards sustainable fish products, perceived behavioural control, subjective norm, health consciousness, environmental concern, subjective and objective environmental knowledge, moral attitude and intention to purchase sustainable fish products.

Data were collected and analyzed using SPSS software version 27. To ensure study quality, validity and reliability analysis assessed and achieved. To assess study reliability, Cronbach alphas were calculated for internal consistency. To determine study validity, face, content, discriminant and convergent validity were assessed and achieved. Regression analysis was conducted to assess correlations and mediation analysis using Baron and Kenny (1986)'s procedure on SPSS.

Prior to the data collection process, ethical clearance was obtained from the University of KwaZulu-Natal Research Office. Moreover, privacy, confidentiality and anonymity of respondents was ensured.

1.8 CONTRIBUTION OF THE STUDY

The review of literature determined that several companies have already started addressing sustainability issues for their own benefit as well as for social and environmental benefit. These companies employ the so-called 'market-based' attempts. On the other hand, customers are indicating an increasing level of environmental consciousness. However, this increasing awareness level is not reflected in actual purchases. Several studies have attempted to study the reasons for this gap, however, none could be found that focused specifically on sustainable fish products. Thus, the main purpose of this study was to evaluate the factors that influence people's purchases of sustainable fish products. Due to the current depletion rate of marine resources and the potential that market-based efforts have for bringing the fish resources back to a sustainable level, it is essential to study factors that promote, as well as those that hinder, purchases of sustainable fish products. The identification of these factors offers a foundation for making valuable contributions on how companies can improve their green marketing tools to raise sales of sustainable fish products and ultimately save fish species.

The review of literature indicated that the TPB including the extended version hasn't been tested in the context of sustainable fishing nor on a South African population. Hence, the current study tested the extended TPB in a new product context and new population (South Africa), therefore determining its applicability to these extended contexts. The study also tested whether knowledge should be a separate variable in an extended TPB.

The major methodological contribution of the study is the use of LinkedIn for sampling and data collection. This may be useful for other studies that are interested in studying a wide population but limited by time and other resource and environmental constraints such as a pandemic.

1.9 CHAPTER OUTLINE

The study covers five fundamental chapters which are outlined in this section:

Chapter one introduces the study topic, aim and important concepts that are used throughout the paper. It also describes the research problem, objectives and study contribution to the body of knowledge.

Chapter two starts by investigating literature related to unsustainable fishing, fish consumption, EPP, strategies for achieving sustainable seafood consumption and green marketing. The chapter concludes by discussing the conceptual framework which provides a foundation for the study.

Chapter three discusses and justify the methodology employed to achieve the study objectives. It unpacks the research design, sample design and data collection tool that is utilized. The chapter also discusses the variables measured with their respective measurement scales and items. It then looks at data analysis techniques and quality control measures ensuring the validity and reliability of the research. In conclusion, it discusses measures taken to ensure that the study is conducted ethically without harming any respondent during the process.

Chapter four reports the findings obtained from data collected. It then offers a comprehensive analysis of the results and relates them to the literature.

Chapter five offer conclusions per study objective, provides applicable recommendations and study limitations.

1.10 CONCLUSION

This chapter has introduced the study and provided the background related to the topic. It then laid-out a foundation for subsequent chapters by introducing and briefly describing crucial concepts and theories. The chapter also outlined the research problem, study motivation, the objectives that the study aimed to achieve and boundaries set for the study. The next chapter offers a literature review and the development of the study's conceptual framework.

CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL MODEL DEVELOPMENT

2.1 INTRODUCTION

The depletion of natural resources, especially the fish resource, is a major global problem. As a result, environmentally friendly production and consumption behaviour has become a topic of interest and debate in the corporate space, agriculture and supply chain (Govindan, 2018, p. 420). This chapter investigates previously published or documented work of researchers from various disciplines, in line with the objectives of the current study. It sets a foundation for the current study by providing a comprehensive assessment of existing knowledge related to the current study and also discusses the theoretical framework and literature which underpins the development of the conceptual framework developed to achieve the study objectives.

The chapter commences with unpacking the drivers of unsustainable fishing and goes on to what drives fish consumption amongst consumers, which helps better understand the reasons behind the constantly declining fish stocks. It then proceeds by looking at fish consumption in developed versus developing countries. Due to certain factors discussed in detail in this chapter, fish consumption levels in developing regions differ from that of developed regions. The chapter then looks at Environmentally Preferable Purchasing (EPP) which lays the foundation for the core focus of the study. The study looks at EPP from a sustainable fish products perspective, therefore sustainable fish products are also explained in more detail in this chapter. Apart from understanding people's behaviour towards sustainable fish products, the study also seeks to provide the understanding of strategies that promote EPP and consumer response towards such strategies. Therefore, the literature also reviews the strategies that seek to improve EPP to give the reader more comprehensive information surrounding the promotion of EPP and also to set a foundation for possible recommendations. Lastly, the chapter looks at the extended TPB by Yadav and Pathak (2016b) which provides a foundation for the conceptual framework which includes the addition of the knowledge construct.

2.2 DRIVERS OF UNSUSTAINABLE FISHING

According to Pomeroy, Parks, Mrakovcich, and LaMonica (2016, p. 95), unsustainable fishing is mainly driven by weak governance and several social economic factors. Weak governance comes with issues such as corruption and poor law enforcement (Pomeroy et al., 2016, p. 95). Social economic factors involve poverty, globalization of economies and market access, limited livelihood options, population growth, technological advancements, human health, food insecurity, wealth inequalities, political marginalization, poor public health and educational services (Pomeroy et al., 2016, p. 95). Due to weak governance and socio-economic issues that exist, it becomes difficult to control and or reduce unsustainable fishing activities that cause a decline in fish stocks for example, in countries in Africa.

Another driver of unsustainable fishing is the use of modern fishing tools (Haryanto & Rosyadi, 2018, p. 4). According to Haryanto and Rosyadi (2018, p. 4), modern fishing is less ecologically friendly. Modern fishing includes the use of equipment such as cantrang and payang (Haryanto & Rosyadi, 2018, p. 4). An extended use of these two methods lead to extinction of certain fish species since the method involves catching all fish including those that have not spawned. Hence, the fish are depleted due to not being given an opportunity for biological regeneration (Haryanto & Rosyadi, 2018, p. 4).

2.3 FISH CONSUMPTION

The world appetite for fish continues to increase (Delgado, Wada, Rosegrant, Meijer, & Ahmed, 2003, p. 1; Kitano & Yamamoto, 2020, p. 1). There is a growing demand for fish in Asia, Pacific and Africa (Bradley et al., 2020, p. 4). According Delgado et al. (2003, p. 2), the global fish consumption has doubled since 1973 and developing nations are responsible for almost all this growth. This rapid increase in fish consumption in developing countries such as India and Southern Asia is mainly due to high population growth, high income growth and urbanization (Delgado et al., 2003, p. 2). Nigeria which is in third place in terms of having the highest number of people that depend on fish resources for food and nutrients (Bradley et al., 2020, p. 4). Various national and global organizations (e.g. UK Food Standards Agency) recommend a fish intake ranging between 97-550g per person a week, for health benefits (Thurstan & Roberts, 2014, p. 5). The fish consumption that results from this recommendation is further increased by the increasing global

human population. The world human population is expected to increase and reach 9 billion by year 2050 (Bahar et al., 2020, p. 1; Darling & D'agata, 2017, p. 65; Golden et al., 2016, p. 317).

While there is an increase in fish consumption in most parts of the world, countries such as Japan seems to be an exception. The level of fish consumption per person has declined in Japan over the years and this is because of intense competition coming from cheap animal products (Kitano & Yamamoto, 2020, p. 1). This section further explores the benefits of fish consumption and factors underlying fish consumption in developed versus developing countries. What drives fish consumption in developing nations is likely to be different from drivers of fish consumption in developed nations due to different conditions that exist. Identifying various drivers of fish consumption is crucial in developing and implementing successful green and social marketing strategies.

2.3.1 Benefits of fish

Fish and fish products serve as a crucial source of high-value protein and other important micronutrients such as different vitamins (A, B and D), minerals (zinc, calcium, iodine and selenium) and omega-3 fatty acids (Banrie, 2012, para 1; Hei, 2021, p. 18). Fish contain omega-3 fatty acids which are good for both the heart and brain (Hei, 2021, p. 18; Mansfield, 2011, p. 413). Scientific evidence shows that fish consumption helps reduce the likelihood of being affected by coronary heart disease, strokes, age-related macular degeneration and mental health problems (Banrie, 2012, para 1; Tacon, Lemos, & Metian, 2020, p. 451). However, eating fish or fish products is not always considered as healthy. Fish consumption is also associated with some health risks (Tacon et al., 2020, p. 451). Fish can be a potential source of human exposure to environmental contaminants such as polychlorinated dibenzo-p-dioxins, metals, dibenzofurans and perfluorinated compounds, which all present health risks to humans (Domingo, 2016, p. 981). To some people, the health risks associated with fish consumption may outweigh the benefits (Smith, Varble, & Secchi, 2017, p. 270), even though there's proven evidence showing that the adverse effects of the organic pollutants obtained from fish are still relatively limited (Domingo, 2016, p. 981).

The health benefits of fish consumption outweigh the potential risks (Pieniak, Verbeke, Scholderer, Brunsø, & Olsen, 2008, p. 899; Tacon et al., 2020, p. 451). Fish is a major source of animal protein (Barange et al., 2015, p. 263), a source of low cost protein and human food (Janko,

2014, p. 461). According to Barange et al. (2015, p. 263) fish as a source of animal protein overshadows other sources. This shows that fish is the largest consumed animal despite its depletion. To get an idea of which part of the world consume more fish and why, the section below looks at fish consumption in developed and developing countries.

2.3.2 Fish consumption in developed and developing countries

According to the World-Population-Review (2020a, Para 1), developed countries are independent states with highly developed economies, advanced technologies and superior infrastructure, when compared to other countries. There are many factors that determine whether a country is developed or not, for example, Gross Domestic Product (GDP), political stability, Human Development Index (HDI), industrialization and freedom (World-Population-Review, 2020a, Para 1). Germany, Australia, Singapore and the United States are counted amongst the most developed countries in the world (World-Population-Review, 2020a, Para 11). Developing countries are less industrialized than those which are classified as 'developed countries' (World-Population-Review, 2020b, para 1). These countries are also known as low- and middle-income countries (World-Population-Review, 2020b, para 1). A list of 2020 developing countries include Mozambique, Madagascar, Rwanda, South Africa, Haiti and India (World-Population-Review, 2020b, para 3).

According to Supartini, Oishi, and Yagi (2018, p. 1), health consciousness of developed nations and improvement of standards of living in developing nations have resulted in a consistent increase in total seafood consumption. European countries recommend that people should eat fish at least twice a week for a healthy diet (Smith et al., 2017, p. 270), due to the fact that fish consumption protects against chronic disease and offers benefits for child development and growth (Bogard, Farmery, Little, Fulton, & Cook, 2019, p. 159).

Africa has many people who are highly dependent on fish as a source of animal protein (Chan et al., 2019, p. 18). Fish is also considered as rich food for poor people (Béné & Heck, 2005, p. 9). "For those who cannot afford to buy food – especially not meat – fish obtained through the household's own fishing efforts (subsistence) is essential; it can make the difference between good and bad nutrition, between recovered health and prolonged illness, or between food security and starvation" (Béné & Heck, 2005, p. 9).

According to Venn and Strazdins (2017, p. 98), lack of income is a determinant of unhealthy eating. Low income is associated with an increase of 14-15% likelihood of eating inadequately healthy food (Venn & Strazdins, 2017, p. 103). According to Skuland (2015, p. 221), class (income) has some impact on fish consumption too. According to a World Fish Centre report, income growth is one of the factors that drives the increasing fish consumption in developing countries (Delgado et al., 2003). China accounted for approximately 36% of global fish consumption in 1997, while India and Southeast Asia combined, accounted for 17% in a similar year (Delgado et al., 2003, p. 2). This happened while the developed world was displaying a declining trend in fish consumption (Delgado et al., 2003). In 2005, fish consumption was the lowest in the Africa region (7.1%) and the highest in China (31.4%) (GreenFacts, 2015, Para 4). Six years later (2011), China accounted for 35% of global fish consumption (Kobayashi et al., 2015, p. 283).

The consumption of fish in China has also been influenced by urbanization (Delgado et al., 2003, p. 2). According to Wang (2019, p. 6), the urban population in China has increased at three times the rural population rate since 1980. Thus, the increase of population in urban arears results in an increase in demand for animal products including fish products (Wang 2019, p. 6). This is due to the fact that accelerated urbanization results in major changes in the food consumption rates, patterns and buying behaviour (Gandhi & Zhou, 2014, p. 116). According to Bradley et al. (2020, p. 4) households in urban arears consume more fish as compared to rural arears, and people with high income consume more fish as compared to those with low income. In the period 1961-2017, the global average annual growth rate of fish food consumption was 3.1% , 1.5% above annual population growth rate (FAO, 2020b, p. 15). In the same period, the fish food consumption per person rose from 9 kilograms to 20.3 kilograms (FAO, 2020b, p. 15). The 2018 preliminary estimates for per person consumption of fish were 20.5 kilograms (FAO, 2020b, p. 15). While the fish stocks are constantly declining, the demand and consumption of fish resources is constantly increasing. Therefore, it is important that people consume fish and other resources in a sustainable manner.

This section has discussed fish consumption in developed and developing countries. The literature reviewed in this section has indicated that fish consumption is increasing in both parts of the world,

and population increase and income inequalities play a key role in this increase. The following section discusses EPP which is a crucial component of sustainable consumption.

2.4 ENVIRONMENTALLY PREFERABLE PURCHASING (EPP)

Everyday consumption behaviour is a starting point to achieving sustainable development (Moser, 2015, p. 167). Consumers can promote environmental sustainability by practicing sustainable consumption which includes choosing eco-friendly products when shopping for groceries (Datta, 2011, p. 125; Tobler, Visschers, & Siegrist, 2011, p. 592). Hence, consumers can significantly contribute to sustainability through food choices. Sustainable consumption means that consumers must commit themselves to sustainable/green purchasing (Jackson, 2014, p. 256). EPP refers to a process of buying and utilizing products that pose no harm to the environment (Russel 2017, p. 9). EPP is a consumer practice of buying products and services that have none or minimal negative impact to the environment (Mainieri, Barnett, Valdero, Unipan, & Oskamp, 1997, p. 190; Vazifehdoust et al., 2013, p. 2490). EPP is also known as green purchasing (Vazifehdoust et al., 2013, p. 2490). Green purchasing is crucial since unplanned purchasing can seriously damage the environment (Joshi & Rahman, 2015, p. 128). These authors further assert that consumers have the ability to prevent or reduce damage to the environment by practicing EPP.

Eco-friendly purchasing decisions substitute high-impact products with products that are eco-friendly, therefore, reduce the negative environmental impact (Moser, 2015, p. 167). Consumers have realized the power that they have in changing the state of the environment, hence, they are moving to green purchases. The lifestyles of health and sustainability (LOHAS) is gaining popularity (Kotler, 2011, p. 144). According to Kotler (2011, p. 134) the LOHAS market was worth approximately $209 billion and covered approximately 17%-19% of all consumers in 2011. The number of people who consciously purchase environmentally friendly products is on the rise (Punyatoya, 2014, p. 281). The Mobium Group 2017, cited in Seočanac (2019, p. 34), stated that in 2017 there were approximately 150 million LOHAS consumers world-wide and this market was worth $750 Billion.

Businesses have noticed this new demand for eco-friendly purchases, and some have even made 'green' their value proposition (Kim & Periyayya 2013, p. 29). For example, to satisfy the customer need for green products and showcase that they're environmental conscious, brands now offer recyclable plastics and packaging, fuel efficient vehicles and organic products (Punyatoya,

2014, p. 281). To address the same issue, retailers, restaurants and other distributors that sell seafood have adopted seafood labels which are eco-labels for marine products (Richter & Klöckner, 2017, p. 2). Without eco-labels, it is almost impossible for seafood consumers to make purchasing decisions that fulfill all the criteria of seafood sustainability (Richter & Klöckner, 2017, p. 2). Seafood labels make EPP easy (Richter & Klöckner, 2017, p. 3). According to Richter and Klöckner (2017, p. 3) increased purchases of eco-labeled seafood motivate the fishing industry to achieve certification standards. Figure 1 below shows how eco-labeling or environmental certification facilitates the consumer purchases of sustainable seafood and encourages sustainable harvesting of fish products.
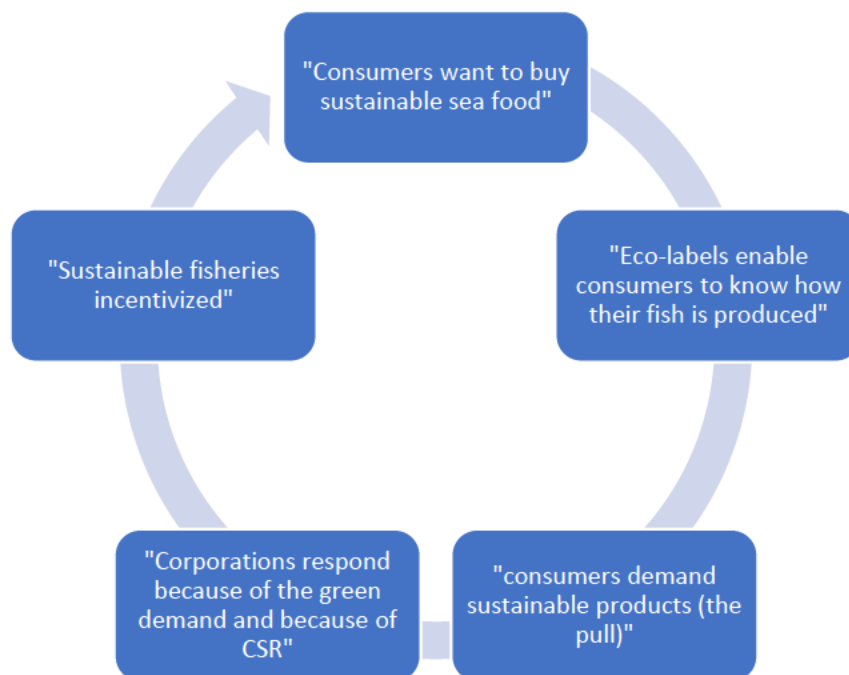
Figure 2: Model of consumer's role in eco-labeling

(Adapted from Gutierrez & Thornton, 2014, p. 8196).

The model depicted above can be interpreted as follows:

1. There are consumers who are environmentally conscious and want to buy sustainable seafood.

2. These consumers have clear knowledge regarding seafood products that they are buying (i.e., how they're produced).

3. Eco-labels offer an environmental sustainability signal that allows consumers to show demand for eco-friendly sea products.

4. The higher demand for eco-labeled products forces retailers to provide more of such products.

5. Higher demand for certified sustainable products from the end consumer and retailers incentivizes fishermen to alter their practices to be more sustainable.

(Gutierrez & Thornton, 2014, p. 8196).

This section has discussed the importance of EPP and how EPP of seafood is facilitated by eco-labeling. It has also provided a deeper comprehension of how conventional purchasing leads to sustainability problems and how eco-labels are helping in creating a chain of green suppliers and buyers. The following section discusses sustainable fish products which are key to the study.

2.5 SUSTAINABLE FISH PRODUCTS

According to Ponte (2012, p. 301), the Marine Stewardship Council (MSC) has been able to secure eco-labeling of several fisheries in an attempt to address the supply issues of fish resources. MSC is an international non-governmental organization (NGO) that is responsible for ensuring the sustainable harvesting of fish resources and managing of fish businesses to maintain fish stocks (Usher & Maroun, 2018, p. 2).The MSC has encouraged the market demand for sustainable fish through having big retailers, restaurants, food service companies and other distributors carry certified products (Ponte, 2012, p. 301). Before delving deeper into sustainable fish products or sustainable seafood it is crucial to understand what sustainable fishing is. According to the MSC (2020b, para 1), sustainable fishing refers to a fish harvesting process that leaves enough fish in the ocean, respecting the environment and ensuring that fishing communities can still maintain their livelihoods. Therefore, sustainable fish products are fish products made from sustainably sourced fish. To know if the seafood is sustainable, consumers can look for the MSC blue fish tick which is a label that depicts that fish or fish products "can be traced back to healthy fish populations that have been sustainably fished" (MSC, 2020a, para 1). The high consciousness of the

importance of purchasing sustainable fish and seafood can ensure future access to marine resources (Bonanomi, Colombelli, Malvarosa, Cozzolino, & Sala, 2017, p. 1). However, to actually ensure future access to marine resources, specifically fish products, there must be accessibility of sustainable fish products.

According to the MSC (2020a, para 2), sustainable seafood is already available to several famous retailers. In Australia and New Zealand alone, there are more than 500 products that have the MSC blue fish tick (MSC, 2020a, para 2). According to Hadjimichael and Hegland (2016, p. 130), at the beginning of 2015 the MSC website displayed that 192 fisheries were granted MSC certification and 68 were still under assessment. Several retailers such as Tesco, Sainsbury's, Wal-Mart, Marks and Spencer and Whole Food Market are selling MSC certified products (Pérez-Ramírez, Phillips, Lluch-Belda, & Lluch-Cota, 2012, para 3). The MSC certification program also has a wide presence in the marketplace of developing nations (Pérez-Ramírez, Almendarez-Hernández, Avilés-Polanco, & Beltrán-Morales, 2015, p. 4626).

In South Africa, Spar and Pick n Pay are some of the retailers that have committed themselves to the provision of sustainable fish products to their customers (BrandS.A, 2011; Spar, 2019). Spar offers a wide variety of sustainable fish such as Namibian Hake, Norwegian Salmon and Canned Tuna (Spar, 2019). According to Spar (2019), these fish products are not from endangered species; they are caught in well managed fisheries, they're traceable from boat to plate and they're caught using sustainable fishing methods. To communicate all the above mentioned details to customers, Spar fish products are certified by the MSC and they are eco-labeled (Spar, 2019, para 5).

The section below looks at current strategies attempting to increase the consumption of sustainable fish products.

2.6 STRATEGIES TO INCREASE CONSUMPTION OF SUSTAINABLE SEAFOOD

Over the past few years, many consumers have become exposed and aware of challenges that surround the sustainability of food production and consumption, leading to higher interest in sustainable food among consumers (Clonan, Holdsworth, Swift, & Wilson, 2010, p. 2). This has generated more pressure for businesses to incorporate environmental responsibility into their strategies (Johnstone & Tan, 2015, p. 311). Several companies have started offering eco-friendly

products (Johnstone & Tan, 2015, p. 311), including companies that sell fish products. Commercially based methods that promote customer choice in marine product purchasing have the potential to create the motivation for sustainable catching (Parkes et al., 2010, p. 344). The core objective of these market-based efforts is to alter the market demand in a way that will promote and support sustainability and benefit the environment, however, these efforts have not yet achieved their desired objectives (Parkes et al., 2010, p. 347). Consumer consumption of eco-friendly products has not kept pace with the increasing environmental concern (Johnstone & Tan, 2015, p. 311).

Previous studies e.g Lawley et al. (2019); Malin Jonell, Beatrice Crona, Kelsey Brown, Patrik Rönnbäck, and Troell (2016) indicate that market-based efforts entail the provision of information regarding sustainability, such as country origin, organic, fair trade and eco-labels. According to Lawley et al. (2019, p. 2339), labels and certification schemes are not uniformly effective; consumers often get confused due to the proliferation of eco-labels and certification schemes. Seafood eco-labels are supposed to give environmentally conscious consumers confidence that they are buying eco-friendly products (Gutierrez & Thornton, 2014, p. 8196), not to confuse them at the same time. According to Cooper, Ludlow, and Clift (2012, p. 36) eco-labelling is a tool used to educate customers about the benefits of certain products with the aim of promoting purchases of that product.

This section has provided an overview of strategies currently utilized to encourage people to consume sustainable seafood. Most of the strategies outlined in this section are market based, in other words, they are green marketing strategies. The following section look at green marketing as a tool for encouraging green purchasing in more details.

2.7 GREEN MARKETING AS A TOOLS FOR ENCOURAGING EPP

Past marketing research papers has been proposing concepts such as green marketing, environmental and social marketing as possible corporate social responsibility programs (Abzari, Safari Shad, Abedi Sharbiyani, & Parvareshi Morad, 2013, p. 641). This section discusses green marketing as a set of tools that can help encourage EPP.

2.7.1 Defining 'green marketing'

Over the past few decades multiple specialist areas of marketing have emerged and gained popularity in the field, and 'green marketing' is one of those terms. Green marketing which was first introduced in 1969 (Kumar, 2016, p. 137), is a concept used to define marketing activities that are directed at reducing the adverse ecological and social effects of the present methods of production, marketing, communication and distribution (Katrandjiev, 2016, p. 72). According to Groening, Sarkis, and Zhu (2018, p. 1850), green marketing consists of marketing activities (e.g. planning, price, process, production, promotion, and people) that are pointed to all consumers, designed to showcase the firm's goal of reducing the ecological impact of the products and services it offers.

2.7.2 Success of green marketing

According to Makower (2011, Para 6), green marketing has failed in doing what it is supposed to do, which is making people buy goods that are better for the environment. The author further asserts that no eco-friendly vehicle, cleaner, clothing, cosmetic, carpet, coffee, cellphone or credit card has been able to capture more than 2% market share. Even where eco-friendly products seem to be selling, it is not really about the environment (Makower, 2011, Para 5). Hybrid vehicles reduce expensive trips to fuel stations, organic foods are about what people put into their bodies, Energy Star televisions and other appliances reduce energy costs (Makower, 2011, para 5). However, nine years on, evidence of real growth in the sales of sustainable products seems to be emerging.

According to FranchiseHelp (2020, para 1), going green is becoming a very attractive business strategy. Sales for green products were above $35 billion in 2014 compared to just $3.4 billion in 1997, and these sales are expected to continue climbing (FranchiseHelp, 2020, para 10). Businesses that offer products which are produced with a green marketing mix have a stable competitive advantage, due to the increasing number of consumers willing to purchase green products (Yeng, Yazdanifard, & Research, 2015, p. 17). The marketing mix is a set of various marketing decisions that are used by a company to sell its offerings (Singh, 2012, p. 40). Companies that want to operate effectively and achieve their objectives must be able to effectively manage all the marketing mix elements (product, price, place and promotion) (Išoraitė, 2016, p. 26).

2.7.3 Marketing mix in green marketing

The green marketing mix is a marketing mix that consists of eco-friendly product/product(s), green pricing, eco-friendly distribution and green promotion (Leonidou, Katsikeas, & Morgan, 2013, p. 155). According to Kinoti (2011, p. 267), the green marketing mix consists of green product development and pricing execution, promotional and distribution strategies that are specifically targeted at preserving environmental welfare. According to Abzari et al. (2013, p. 644), green production and its success requires good information, specific attention to concepts of the environment and a high level of integration and communications. To increase awareness and encourage purchase of green products, green marketing uses several tools including eco-labels, eco-brands, and environmental advertising (Yeng et al., 2015, p. 18). Green marketing mix elements: green pricing, green promotion, green distribution and green products are discussed in detail below.

2.7.3.1 Green Pricing

According to Abzari et al. (2013, p. 645) green price is a significant element of the green marketing mix. Kinoti (2011, p. 268) cites Peattie (1999) who argued that the consumer assumption that environmentally friendly products are typically charged at higher than conventional products may be true, however, the conventional products are unrealistically inexpensive since they don't incorporate socio-ecological costs of production, the use of a product and disposal. Green pricing is the most difficult part of green marketing (Abzari et al., 2013, p. 645). The price premium of green products results from numerous costs including putting in new technologies, machine training of personnel, absorbing external expenses and altering waste into recycled products (Arseculeratne & Yazdanifard, 2014, p. 133). Companies that attract the expenses of developing green products are faced with several dangers (Arseculeratne & Yazdanifard, 2014, p. 133): if they absorb the additional costs they risk not making any or sufficient profit, while if they transfer these added costs on to customers the products become relatively more expensive and consumers may not be prepared to pay the premium.

2.7.3.2 Green Promotion

Green promotion plays a significant role in marketing mix strategies (Davari & Strutton, 2014, p. 566). These authors further assert that, green promotion tactics are generally applied to pass on messages that are aimed at persuading customers that deciding to buy green products benefits the

environment. Green promotion includes green advertising discussed below in more detail. The success of green promotion depends on selecting the right promotional medium, channels and messages at the right time to reach the target market (Arseculeratne & Yazdanifard, 2014, p. 132). According to Arseculeratne and Yazdanifard (2014, p. 132), no promotion can work unless what is being discouraged is not practiced within the business. Basically, companies should 'walk the talk' (do what they say they will do) for promotion to be effective (Arseculeratne & Yazdanifard, 2014, p. 132), otherwise unfavourable publicity will result (Nyilasy, Gangadharbatla, & Paladino, 2014, p. 693) and consumers will become skeptical towards green products (Sheehan & Atkinson, 2016, p. 5).

Environmental advertising

Environmental advertising can be defined as any advertisement that meets one or a combination of the following requirements:

"(1) Explicit or implicitly addressing the relationship between a product/ service and the biophysical environment, (2) Promotes a green lifestyle with or without highlighting a product/service, and (3) Presents a corporate image of environmental responsibility" (Banerjee, Gulas, & Iyer, 1995, p. 22).

Companies perform environmental advertising due to the following three reasons: "the emergence of a green consumer segment, the greening of other stakeholder groups (notably owners and/or stockholders) and the increase in responsible business development" (Zinkhan & Carlson, 1995, p. 1). Several marketers have used green advertising to inform buyers about green benefits of their brands, even when claims are incorrect, unknown, or lack relation to the product (Sheehan & Atkinson, 2016, p. 5). Due to unfavourable publicity generated by these claims, not all companies get rewarded for being eco-friendly (Nyilasy et al., 2014, p. 693). Buyers become cynical towards green product performance and advertised claims (Sheehan & Atkinson, 2016, p. 5). However, despite this negativity, environmental advertising has increased by almost 10 times in the past 20 years and almost tripled since 2006, and by 2008, 80% of marketers were planning to increase their budgets on environmental marketing to target green consumers (Environmental-Leader, 2009, p. 6).

China has had a series of campaigns designed to discourage the consumption of endangered fish species e.g. shark fin (Fabinyi, 2016, p. 85). The campaigns employed a number of promotion strategies, e.g. utilizing well-known people such as the actor (Jackie Chan) and the former basketball star (Yao Ming) Fabinyi (2016, p. 85). The campaigns, together with other factors have been successful in reducing the consumption of shark fin (Fabinyi, 2016, p. 85).

2.7.3.3 Green distribution

Green distribution which is also referred to as green place decisions involves the distribution of eco-friendly products from manufacturing point to consumption point (Davari & Strutton, 2014, p. 567). Environmentally conscious companies are faced with a fundamental decision of deciding where to make green products available (Davari & Strutton, 2014, p. 567). Companies need to reach eco-friendly customers where they're available (Davari & Strutton, 2014, p. 567). According to Arseculeratne and Yazdanifard (2014, p. 133), most environmental damage results from movement of goods. Hence, green distribution includes carefully selecting channels so that environmental damages are minimized (Arseculeratne & Yazdanifard, 2014, p. 133).

2.7.3.4 Green Products

Green products are products normally created through eco-friendly processes (Davari & Strutton, 2014, p. 566).These are products that incur minimal harm to the environment (Abzari et al., 2013, p. 644). They assist in maintaining resources and reduce omission of toxic materials, pollution and waste (Abzari et al., 2013, p. 644). According to Polonsky and Mintu (1997, p. 189), green-based products represent a significant product opportunity. The green product components include eco-brands, eco-labels and eco-packaging, and these are explained below.

Eco-brands

According to the American Marketing Association (AMA), a "brand is a name, sign, symbol, design or combination of them applied to recognize goods or services of one seller or group of sellers and differentiate them from those of competition" (Yeng et al., 2015, p. 18). This description is also true for eco-friendly brands. Eco-branding has played a significant role in motivating and enabling food retailers to participate in developing markets for sustainable certified products (Chkanikova & Lehner, 2015, p. 75). Ranjan & Kushwaha's (2017, p. 17) study discovered that an eco-brand is a crucial influencer of green purchasing behaviour of buyers. Eco-

brand have a positive impact on consumer buying behaviour (Rizqiyana & Wahyono, 2020, p. 218). Stronger and better eco-brand feature result in customers being more convinced to buy a product (Rizqiyana & Wahyono, 2020, p. 218).

Eco-packaging

Packaging is one of the most significant elements of food and non-food products because a properly packed product can guarantee consumer protection (Orzan, Cruceru, Bălăceanu, & Chivu, 2018, p. 1). Packaging plays a significant role in marketing by offering physical projection, creating customer perceptions and positioning of the product (Choi & Lee, 2020, p. 2). Packaging is one of the essential marketing tools in Fast Moving Consumer Goods (FMCG) success (Silayoi & Speece, 2007, p. 1496). Due to environmental concern and the need for environmental protection, the package should not only protect the product but the environment as well. According to Orzan et al. (2018, p. 1), packaging has four unique marketing functions: "(1). It contains and protects the product; (2). It promotes the product; (3). It helps consumers use the product and (4). It facilitates recycling and decreases environmental damage. Packaging is the first step in creating strategies for ensuring that communities in both` developed and developing countries appreciate sustainability (Abubakar, 2018, p. 6).

The environmental footprint of the product doesn't only depend on product itself, but also the package (Magnier, Schoormans, & Mugge, 2016, p. 132). Hence, consumer product producers have adopted eco-packaging. Eco-packaging, which is also known as eco-friendly packaging or green packaging (Prakash & Pathak, 2017), is a type of packaging that has a low ecological impact (Steenis, van Herpen, van der Lans, Ligthart, & van Trijp, 2017, p. 278). According to Magnier et al. (2016, p. 132) eco-packaging refers to changing the product's packaging in an attempt to reduce its footprint by using more ecologically friendly materials. Green packaging influences consumers in several ways. In food products, the sustainability of the package has a positive influence on perceived quality of the product (Magnier et al., 2016, p. 139). Consumers perceive the quality of eco-packaged products as higher than that of conventional counterparts and they are willing to pay higher prices for these products (Magnier et al., 2016, p. 139). However, for some consumers the willingness to purchase green packaged products also depends on price, meaning that they wouldn't be willing to buy an eco-packaged product if its price is too high (Wandosell, Parra-Meroño, Alcayde, & Baños, 2021, p. 14).

Eco-labels

Eco-labeling initiatives have become more prominent in countries such as China (Fabinyi, 2016, p. 85). An eco-label, also known as environmental label (Yeng & Yazdanifard, 2015, p. 18) is a symbol or a logo that is placed on a product to demonstrate that the product is ecologically safe and can be considered as a green product (N. Sharma & Kushwaha, 2019, para 1). Previous studies (e.g Baumeister & Onkila, 2017; Choudhury, 2015; Delmas & Grant, 2014; Foley & Havice, 2016; Leroux & Pupion, 2018) show that eco-labeling has been applied in various industries such as: wine, textile, hotel, airline and fishing. Eco-labels are not only limited to the promotion of environmental consumerism, but they have also become a most useful tool in facilitating the consumer decision making process and achieving general marketing ends. Environmental labels allow consumers to easily differentiate eco-friendly products from typical standard products (Yeng & Yazdanifard, 2015, p. 18). Chin, Chin, and Wong (2018, p. 264) cited Proto, Malandrino, and Supino (2007) who stated that environmental labels act as a guide for consumers in green product selection. Eco-labeling is a crucial marketing communication tool that offers ecological information to consumers (Russel & Robidas, 2019, p. 3). However, scientific evidence shows that adapting environmental labeling has been difficult to achieve in some parts of the world (Carlson & Palmer, 2016, p. 130).

A study of Ecological Economics by Carlson and Palmer (2016) has depicted that certification or eco-labeling has high costs and barriers in developing countries as compared to developed countries. Some of the barriers to eco-labeling outlined by Carlson and Palmer (2016, p. 130) are that people are not familiar with eco-labeling programs and there is a lack of government regulations.

Carlson and Palmer (2016, p. 131) suggest that many developing country producers fail to access MSC certification due to complexity of certification processes. According to Carlson and Palmer (2016, p. 131), the information on the requirement of certification, finding an auditor, and the certification process itself, can be hard to obtain and understand, and sometimes it may not be available in an appropriate language.

"Certification is most effective when it is supported by strong mandatory government regulation" (Carlson & Palmer, 2016, p. 131). However, providing the required level of support is difficult for many developing countries since they have limited environmental institutional capacity (Carlson

& Palmer, 2016, p. 131). Despite the challenges of eco-labeling, it also provides several benefits for both producers and buyers.

An eco-label is a proven tool in creating awareness and trust between consumers regarding a company's attempts to be sustainable and it can also transform a consumer's attitude into more green consumption patterns (Galarraga Gallastegui, 2002, p. 316; Russel & Robidas, 2019, p. 4). According to Kijek (2015, p. 66), the main objective of eco-labeling is to get rid of 'information asymmetry' such as consumers being unable to detect ecological impacts of a product prior to purchase. This author further asserts that no information or signal is credible without intervention from a third party. In this case, a third party is MSC which facilitates the provision of eco-labels. Due to this credibility, consumers then become certain that the products they purchase reduce environmental impacts (Russel & Robidas, 2019, p. 4).

According to Testa, Iraldo, Vaccari, and Ferrari (2015, p. 253), consumers often depend on a company's promotion activities to inform their buying decisions. However, greenwashing is undermining the confidence towards such promotional activities (Dennis, Harris, Peattie, & Crane, 2005, p. 358). Testa et al. (2015, p. 253) cite Eurobarometer (2011) where it is shown that the confidence towards green information from companies is constantly decreasing. Without confidence towards advertising and other promotional claims, consumers cannot exercise the power of eco-friendly purchasing (Testa et al., 2015, p. 253). Testa et al. (2015, p. 260) discovered that consumers with broad understanding of eco-labels are more likely to participate in EPP. Eco-labels offer some level of trust towards the company and its brand(s) to the extent that the role played by a brand in guiding consumption decisions is reduced, "since the tendency to trust the third-party certification credibility appears to become a surrogate for other forms of loyalty on which consumers traditionally rely" (Testa et al., 2015, p. 262). This is even more important since there is a lot of green washing happening today.

Eco-labels also increase demand for green products which results in a reduction of ecological impacts in domestic economies (Kijek, 2015, p. 66). Hayat, Hussain, and Lohano (2020, p. 2) cite Porter and Van der Linde (1995) who argued that eco-labels allow companies to secure a large number of eco-friendly consumers and earn a price premium which helps improve profitability. In the tourism industry some tourists want eco-friendly services and the use of credible mechanism (e.g. third party eco-labels) allows tourism service providers to offer such differentiation (Sipic,

2017). According to Rivera (2002, p. 350), successful differentiation can allow a company to charge higher prices for the services or products it offers, which leads to sustainable higher profits.

Bin Magbool, Amran, Nejati, and Jayaraman (2016, p. 539) assert that, global survival requires a different competitive advantage which cannot be copied. Companies aim to employ and compete for the most promising talent. One of the talent attracting factors is ethicality, e.g. the extent to which the company acts responsibly towards nature and the society (Osburg, Yoganathan, Bartikowski, Liu, & Strack, 2020, p. 535). The study by Bin Magbool et al. (2016, p. 554), discovered that environmental sustainability and Corporate Social Responsibility makes the recruitment process and employee retention easy. Eco-labeling as a symbol for environmental sustainability makes it even easier to attract desirable talent since it holds some element of credibility (Choudhary & Agarwal, 2021, para 24).

The above section has looked at green marketing as a tool used to promote EPP. Green marketing strategies and the benefits of green marketing practices were discussed to create a clear picture of what green marketing is and how it benefits companies. The following section looks at factors that affect EPP and those that specifically affect sustainable fish/fish products purchasing. Examining these factors helps determine the barriers of EPP, and therefore sets a foundation for problem solving or provision of effective recommendations.

2.8 FACTORS THAT INFLUENCE ENVIRONMENTALLY PREFERABLE PURCHASING (EPP)

Although the number of people that are willing to practice EPP has increased over the past few years, there is limited evidence of the increase in purchases of eco-friendly products, despite the environmental consciousness and positive feelings towards sustainability (Bray, Johns, & Kilburn, 2011, p. 599). In a study conducted by Mkhize and Ellis (2020, p. 4), most participants reported that they feel positive about organic products, while only few stated that they purchase organic products. Another study conducted in South Africa revealed that most respondents had high environmental concern and low environmental behaviour (Mkhize & Ellis, 2018, p. 121). This suggests that environmental awareness and positive attitude towards green products are not enough to achieve environmental sustainability. There are other factors that negate the process and this section seeks to identify those factors.

According to Joshi and Rahman (2015, p. 129), the gap that exists between consumers' positive attitudes towards and the actual purchase of, eco-friendly products or services is referred to as 'green attitude behaviour gap' or 'green purchasing inconsistency'. These authors suggest that factors such as availability of product, price and social influences might be the reason for the 'green attitude behaviour gap'. However, according to a study by Ham and Lee (2011, p. 1057), the purchasing behaviour of consumers is a reflection of their environmental consciousness.

Vermeir and Verbeke (2006, p. 4) state that price, convenience, quality and brand familiarity are the most significant decision-making factors. Consumers are often reluctant to change their buying patterns due to premium prices that are charged for eco-friendly products (Ham & Lee, 2011, p. 1057). However, some studies suggest the opposite, e.g. Haytko and Matulich (2008, p. 2) assert that consumers who were reluctant to pay more for eco-friendly products are increasingly demonstrating willingness to do so. A study conducted by Chaudhary and Bisai (2018, p. 807) revealed that consumer willingness to pay higher prices moderates the relationship between EPP intention and green purchasing behaviour. According to Ahamat, Ahmad, and Mohd (2018, p. 241), in a situation where a product price is higher, the eco-friendly product must be clearly differentiated along ecological lines and customers must be willing to pay more for the product.

Uddin and Khan (2018) investigated environmental knowledge, altruism and interpersonal influence as factors that indirectly affect green purchasing behaviour. Environmental knowledge refers to everything that individuals know about the environment (Carmi et al., 2015, p. 184). Uddin and Khan (2018, p. 272) cite Schwart (1968,1977) who defined Altruism as "the condition under which the consumer acts on another's behalf without expecting any type of benefit" and defined interpersonal influence as an act where one convinces or persuade others. The study discovered that interpersonal influence have a significant influence on environmental attitude of young consumers (Uddin & Khan, 2018, p. 276). Environmental knowledge and altruism were also found to have a significant explanatory power towards environmental attitude (Uddin & Khan, 2018, p. 276). Therefore, environmental knowledge, altruism and interpersonal influence have an indirect effect on EPP.

This section has discovered and described green attitude behaviour gap, green products prices, the convenience of green products, quality, brand familiarity, environmental knowledge, altruism and

interpersonal influence as some of the factors that influence EPP. The following section looks at factors affecting sustainable fish product purchasing as an example of EPP.

2.8.1 Factors affecting sustainable fish product purchasing

There is limited research that looks specifically at factors affecting EPP in relation to fish products. However, two studies that look at factors influencing sustainable seafood purchases were found. The first study by Anuar, Salleh, and Talaat (2020) looked at 'sustainable seafood consumption amongst generation Y'. Amongst the things that were studied, the study also looked at the factors that affect the purchases of sustainable seafood by young consumers (Anuar et al., 2020, p. 710). The factor that came up as the most dominant influencer of sustainable seafood purchases among generation Y was the price (Anuar et al., 2020, p. 716). According to Anuar et al. (2020, p. 716), 56.2% of respondents agreed that they fail to purchase sustainable seafood because of the price tag, while only 13.1% of respondents reported that they were willing to pay more for environmentally friendly seafood. The other factors that were determined were for general seafood consumption, and these included sustainability, nutritional value, the presence of contaminants, additives and dyes (Anuar et al., 2020, p. 716).

On the other hand, a study by Lawley et al. (2019) looked at the role played by sustainability knowledge in purchasing decisions related to seafood. The study discovered that a higher sustainability knowledge level raises the likelihood of consumes buying seafood products (Lawley et al., 2019, p. 2346). According to the study, consumers with a vast understanding of seafood sustainability are motivated to buy sustainable seafood products, while consumers who lack understanding are less driven to consider the environmental friendliness of the product in their buying decision (Lawley et al., 2019, p. 2346).

The section above has identified price and knowledge of sustainability of seafood as factors that influence the purchases of sustainable seafood. The above two studies however did not look into factors that affect EPP in relation to sustainable fishing or seafood. No further information was found beyond this point. This shows that there is a lack of literature regarding the factors influencing EPP from a fishing context, offering solid reason for conducting the current study. To pull together the various factors found in the literature, the TPB, a commonly used theory for investigating factors affecting sustainable product purchases, is examined in the section below.

2.9 THEORETICAL FRAMEWORK: THE THEORY OF PLANNED BEHAVIOUR (TPB)

The TPB was first proposed in 1985 by Ajzen (Yadav & Pathak, 2016b, p. 733) as a model that could help overcome the shortcomings of the Theory of Reasoned Action (TRA) (Ajzen, 1991, p. 181). The TPB came as an extension of the Theory of Reasoned Action (TRA) (Conner & Armitage, 1998, p. 1430). According to Knabe (2012, p. 22) the TRA provided clues to the development of the TPB. The TRA states that human beings consider the implications of behaviour before taking action (Knabe, 2012, p. 22). According to the TRA, there are two major determinants of intention, namely, a person's attitude towards the behaviour and subjective norms (Knabe, 2012, p. 22). According to Yadav and Pathak (2016a, p. 123), attitude towards the behaviour is the extent to which an individual has "a favourable or unfavourable evaluation or appraisal of the behaviour", while subjective norm is "the perceived social pressure to perform or not to perform the behaviour".

The TPB has been a popular framework in guiding research conducted on health-related behaviour for more than 30 years (Sniehotta, Presseau, & Araújo-Soares, 2014, p. 1). These authors further argue that the TPB is well-recognized by researchers. The TPB was first introduced 34 years ago, however, it has become one of the most frequently cited and influential theories used to predict people's behaviour (Ajzen, 2011, p. 1113). Both the TRA and TPB were developed to offer "parsimonious explanations of information and motivational influences of behaviour" (Conner & Armitage, 1998, p. 1430). These theories hold the assumption that, prior to behavioural decision making, individuals carefully consider all the available information (Conner & Armitage, 1998, p. 1430). The TRA suggest that behaviour is only under the control of intention, and by that it restricts itself to actions that are taken consciously (volitional) (Conner & Armitage, 1998, p. 1430). Hence, the TRA is likely to poorly predict behaviours that require skills or resources (Terry, Gallois, & McCamish, 1993). On the other hand, the TPB predicts both volitional and nonvolitional behaviours through the inclusion of perceptions of control over the practice of the behaviour as an additional predictor (Ajzen, 1991, p. 183). Perceived behavioural control refers to opportunities and resources available to an individual to perform the behaviour (Ajzen, 1991, p. 183).

According to Conner and Armitage (1998, p. 1430), the "consideration of perceptions of control are important because they extend the applicability of the theory beyond easily performed,

volitional behaviours to those complex goals and outcomes which are dependent upon performance of a complex series of other behaviours" (e.g. healthy eating). The TPB was necessarily developed to overcome the limitations of the TRA in predicting behaviours where individuals have incomplete volition control (Ajzen, 1991, p. 181). As in the TRA, intention to perform a given action is a central factor in the TPB (Ajzen, 1991, p. 181). Intention refers to person's willingness to perform a given behaviour (Conner & Armitage, 1998, p. 1430).

The initial TPB consists of three variables: Subjective norm, attitude towards behaviour and the perceived behavioural control which all lead to behavioural intention which then influence people's behaviour (Ajzen, 2002, p. 665). According to the TPB, the behaviour of human beings is guided by three types of considerations, namely: behavioural belief (beliefs regarding likely consequences), normative beliefs (belief regarding normative expectations of other people) and control beliefs (belief regarding factors that may hinder or further the performance of the behaviour (Ajzen, 2002, p. 665). The author further argues that it is the behavioural beliefs that create a positive or negative attitude towards the behaviour, and the normative beliefs that create subjective norm or perceive social pressure and control beliefs that lead to the ease or difficulty in performing a behaviour (perceived behavioural control).

The TPB has been used to predict various behaviours including but not limited to cyberloafing (Askew et al., 2014), condom use (Asare, 2015), texting while driving behaviour (Bazargan-Hejazi et al., 2017), blended learning (Jnr et al., 2020) and Covid-19 vaccine take up (Fan et al., 2021). It has also been used to predict food choices and consumption decisions (e.g Ajzen, 2015). Reicks, Kim, and Sjoberg (2003) applied the TPB in attempt to comprehend dairy product consumption by older adults. Yadav and Pathak (2016a) used TPB to study the intention to purchase organic food in developing countries while Ahmed et al. (2021) used it to study the same thing but among young consumers. This indicates that the TPB is one of the most popular and useful models in the field of marketing, used to predict human social behaviour. Hence, the TPB is an appropriate framework to study the factors that influence people's purchases of sustainable marine products. Although no record could be found of TPB being used to study the influencers of people's consumption of sustainable fish products, it has been used in relation to fish products in general as discussed in the section below.

A study by Higuchi, Davalos, and Hernani-Merino (2017) provides evidence of the application of the TPB in marine product purchases. Higuchi et al. (2017) successfully used the TPB in identifying the core determinants of fish consumption. The study discovered that, norms, personal attitudes and past experience have a positive influence on the intention to eat fish (Higuchi et al., 2017, p. 206). The study further identified that socio-economic factors such as income have a very limited explanatory power in predicting the frequency of fish consumption. According to Higuchi et al. (2017, p. 206) TPB is "the most reliable approach for explaining fish consumption frequency". On the other hand, Arsil and Yanto (2019) developed a conceptual framework for fish consumption using the TPB and Alphabet theory. The study came up with an integrative conceptual framework with six core variables: social norms, attitude, behavioural control, habits, information and knowledge (Arsil & Yanto, 2019, p. 6). According to Arsil and Yanto (2019, p. 4), the TPB has been used to predict the intention to consume fish, however, the theory has not been able to explain how consumer knowledge, habits and past experience influence attitudes and fish consumption behaviour. The authors further assert that the inclusion of the alphabet theory which consists of attitude, habit, information and knowledge, can form a reliable conceptual framework.

Although no research could be found using TPB to research consumer intentions to purchase sustainable fish products, the TPB has been used in research on a wide range of other sustainable products.

2.9.1 The TPB and EPP

The TPB has been successfully used to study human behaviour in the context of several sustainability behaviours, for example, energy saving and carbon reduction (Chen, 2016), sustainable fashion (Saricam & Okur, 2019) and green product purchase and consumption in general (Liobikienė, Mandravickaitė, & Bernatonienė, 2016; Paul, Modi, & Patel, 2016). The subsequent section discusses previous studies on sustainable products conducted using the TPB.

Verma and Chandra (2018a), studied young consumers' intentions to visit sustainable hotels in India using the TPB. The study used the TPB as a standard framework and incorporated two more variables (consciousness & moral reflectiveness) as antecedents of the intention to visit a green hotel. Verma and Chandra (2018a, p. 1153), cite Reynolds (2008) who defined moral reflectiveness as the extent to which an individual reflects moral values in his or her daily

behaviour, and also cite McCrae and Costa Jr (1985) who defined consciousness as a "personality trait in which individuals have a tendency to be systematic, self-disciplined, responsible, and they tend to follow specific procedures and norms of the society". The inclusion of morality and consciousness was due to the fact that they contribute to the formation of green/eco-friendly behaviour (Verma & Chandra, 2018a, p. 1153). Verma and Chandra (2018a, p. 1158) found that all the variables significantly impacted young consumers' intentions to visit a sustainable hotel.

Wang, Fan, Zhao, Yang and Fu (2016) applied an extended TPB to predict consumer intention to purchase hybrid electric vehicles. Hybrid electric vehicles are vehicles that produce less carbon emission as compared to conventional vehicles, and this leads to a favourable impact on the environment (Wang et al., 2016, p. 124). To better understand consumers' purchases of these products, Wang et al. (2016, p. 126) incorporated environmental concern and personal moral norm into the TPB model to form an extended version.

The study revealed that the intention to adopt hybrid electric vehicles was influenced by attitude, subjective norm, perceived behavioural control and personal moral norm as hypothesized (Wang et al., 2016, p. 134). However, the addition of personal moral norm increased the explained variance by less than expected and this is due to the fact that collectivism is dominant in China and social pressure plays a significant role in affecting people's behaviour (Wang et al., 2016, p. 134). Therefore, the role played by subjective norm in predicting the intention to purchase hybrid electric vehicles dominates individual moral norms (Wang et al., 2016, p. 134).

Attitude, perceived behavioural control, subjective norm and personal moral norm were all affected by environmental concern (Wang et al., 2016, p. 135). However, the mediation effect analysis revealed that the effect of environmental concern on intention to adopt hybrid electric vehicles was only partially mediated by the four elements of the extended TPB (Wang et al., 2016, p. 135). Environmental concern was therefore found to have a significant direct and indirect influence on the intention to adopt hybrid electric vehicles through the elements of the extended TPB and the increase in environmental concern may not be enough to guarantee the adoption (Wang et al., 2016, p. 135).

2.9.2 Research on EPP in relation to green behaviours (using the TPB)

A study conducted by Koloba (2020) investigated intention to purchase eco-friendly products among South African consumers. The sample consisted of participants aged 18 to 73 (Koloba, 2020, p. 40). The study findings demonstrate that consumers in South Africa manifest intention to buy green products (Koloba, 2020, p. 45). According to Koloba (2020, p. 46), perceived behavioural control, environmental concern and environmental knowledge had an impact in predicting the intention to buy green products. However, attitude lacked predictive influence on intention to buy green products among South African consumers (Koloba, 2020, p. 46).

De Freitas (2018) studied "South African consumers' intended behaviour towards selecting green hotels" using a self-extended TPB that included anticipated regret, perceived moral obligation, environmental concern and environmental knowledge as additional constructs. The sample included participants aged between 18 and 74 (De Freitas, 2018, p. 71). According to Rivis, Sheeran, and Armitage (2009, p. 2987) anticipated regret refers to the "prospect of feeling positive or negative emotions after performing or not performing a behaviour". Perceived moral obligation is the same as moral attitude and is when one is aware of the consequences of his or her actions and is willing to take full responsibility (Merrigan & Bailey 2008, cited in De Freitas, 2018, p. 24). The study by De Freitas (2018) depicts that the factors of TPB are strong predictors of green behaviour intention. The extended TPB was able to predict the behavioural intention of South African consumers towards the selection of eco-friendly hotels. Subjective norm, attitude and perceived behavioural control were able to predict the intended behaviour of South African consumers towards selecting environmentally friendly hotels (De Freitas, 2018, p. 122). The study also discovered that including anticipated regret and perceived moral obligation as factors directly affecting intention, as well as including knowledge about the environment as a factor directly affecting attitude, could best statistically explain the intended behaviour of South African consumers towards selecting eco-friendly hotels (De Freitas, 2018, p. 122).

Finally, a study that explored the barriers to purchase and consume organic products in South Africa, conducted by Mkhize and Ellis (2020), utilized the extended TPB by Yadav and Pathak (2016a). The sample consisted of consumers who consume organic food less frequently and or those who do not consume it at all, but who have a positive feeling towards organic food (Mkhize & Ellis 2020, p. 3). In this study, the extended TPB was successful in explaining the barriers towards organic food purchase and consumption. The main barrier that the study identified was

the lack of understanding or knowledge related to the benefits of organic food products (Mkhize & Ellis 2020, p. 8).

The above discussion shows that the TPB has been widely applied, especially in studying sustainable product purchases, however, no study could be found investigating sustainable fish product purchasing using the TPB. Based on the studies on the factors affecting EPP in different contexts and the research on factors affecting fish consumption and specifically sustainable fish consumption, the following section discusses the application of TPB in the conceptual model and hypotheses developed for the study.

2.10 THE EXTENDED TPB AND ITS APPLICATION TO SUSTAINABLE FISH PRODUCT PURCHASES FOR THE CONCEPTUAL MODEL DEVELOPMENT

Yadav and Pathak (2016a, p. 123) cited Ajzen (1991) who argued that the TPB can be broadened by incorporating new variables or changing the path of the original variables. The authors also cited Arvola et al. (2008) and Donald, Cooper, and Conchie (2014) who asserted that "inclusion of additional predictor variables has resulted in improving predictive utility of the TPB across various domains". Hence, Yadav and Pathak (2016b) deemed it necessary to have additional variables in the model informing their study. According to Yadav and Pathak (2016a, p. 123) there are some specific factors that are not incorporated into the initial TPB and as a result these two authors broadened the TPB by providing additional constructs, namely: moral attitude, health consciousness and environmental concern. Yadav and Pathak (2016a) successfully used their extended TPB model to predict young consumer intention to purchase organic food.

Figure 2 below, depicts the extended version of the TPB which contributes to the formation of conceptual framework for the current study.
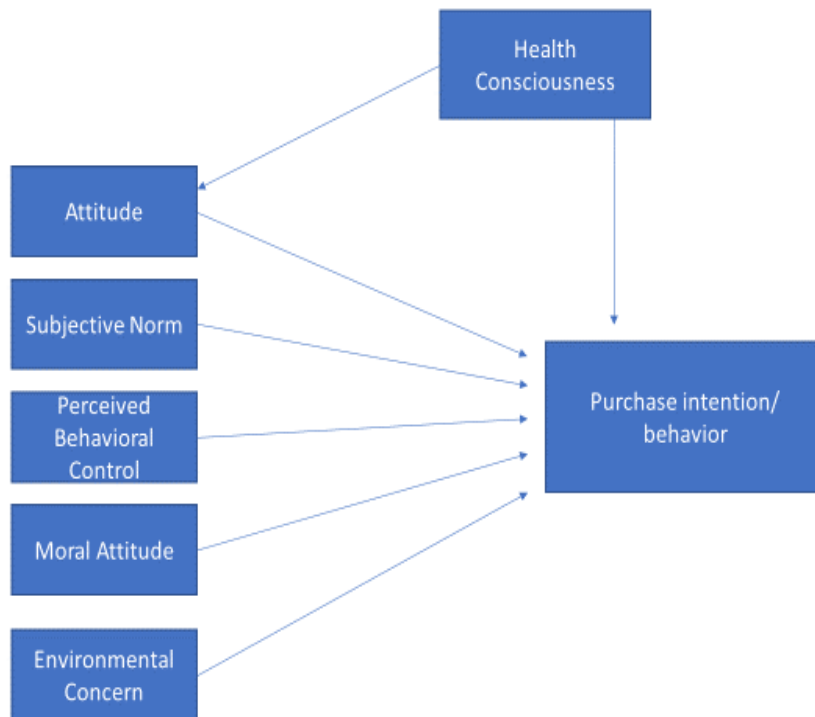
Figure 3: Extended TPB
(adapted from Yadav & Pathak, 2016a)

According to Yadav and Pathak (2016a, p. 124) the convergent and discriminant validity of the constructs was tested based on three components, namely factor loading, composite reliability and variance extracted. The Cronbach alphas for all the measured constructs are as follows: Attitude = .902; Subjective Norm = .793; Perceived Behavioural Control = .780; Moral Attitude = .802; Health Consciousness; Environmental Concern = .831; Purchase Intention = .908 (Yadav & Pathak, 2016a, p. 125). "Alpha measures the extent to which item responses correlate with each other" (Vaske, Beaman, & Sponarski, 2017, p. 165). According to Vaske et al. (2017, p. 168), the acceptable alpha level ranges from .65 to .80. Yadav and Pathak (2016a, p. 124) therefore state that the theoretical framework was found to have adequate validity and reliability.

The following section presents and describes the variables that forms the conceptual framework for the study. It also outlines and clarify the hypotheses that were tested.

2.10.1 Attitude towards behaviour

Attitude is a psychological mental tendency that is conveyed by assessing something with like or dislike (Chen & Chai, 2010, p. 30; Tsau, Mohammad, Jalil, & Teck, 2018, p. 81). Attitude towards the green product is the degree to which a person has a positive or negative evaluation towards the behaviour in question (K. Chen & Deng, 2016, p. 2; Yadav & Pathak, 2016a, p. 123). Al Mamun, Mohamad, Yaacob, and Mohiuddin (2018, p. 74) point to Tanner and Wölfing Kast (2003), who argued that positive attitude towards the environment can increase the consumption of natural food. In the study conducted by Yadav and Pathak (2016b, p. 126), attitude was found to play a role in determining the intention to purchase organic food among young consumers in India. De Freitas (2018, p. 122) depicts that the factors of TPB are strong predictors of green behaviour intention. The extended TPB was able to predict the behavioural intention of South African consumers towards the selection of eco-friendly hotels. Subjective norm, attitude and perceived behavioural control were able to predict the intended behaviour of South African consumers towards selecting environmentally friendly hotels (De Freitas, 2018, p. 122). This discussion then leads to the proposed hypothesis that follows.

H1: Attitude towards sustainable fish products predicts the intention to buy these products.

2.10.2 Subjective Norm

'Subjective norm' can be comprehended as "perceived social pressure to perform or not perform the behaviour" (Yadav & Pathak, 2016a, p. 123). Subjective norm depicts the extent to which a person feels morally responsible for other people by purchasing eco-friendly products and the extent to which a positive social image is crucial to him/her (Liobikienė et al., 2016, p. 40). An individual consumer is most likely to act in a way that corresponds with important referents such as family, relatives, colleagues and friends (K. Chen & Deng, 2016, p. 3). Yadav and Pathak (2016a, p. 125) discovered that subjective norm did not have any significant influence on the intention to purchase organic food among young consumers in India. Strydom (2018, p. 11) who studied recycling behaviour in South Africa, also discovered that subjective norm plays a very limited role in influencing people to recycle. However, De Freitas (2018, p. 122) discovered a positive relationship between subjective norm and intention to select green hotels among South African consumers. Due to the fact that a relationship between subjective norm and green

behaviour has been found to exist among South African consumers, the below hypothesis is worth investigating.

H2: Subjective norm predicts the intention to buy sustainable fish products.

2.10.3 Perceived behavioural control

According to Chen (2016, p. 1747),'perceived behavioural control' refers to a "person's belief in the inherent difficulty in completing a certain behaviour". This means that a person's belief about access to opportunities and resources that are required to perform a behaviour should be taken into consideration (Chen, 2016, p. 1747). The author further asserts that 'perceived behavioural control' is supposed to have a motivational effect on the individual's intention. With regards to green purchase behaviour, factors that may cause difficulty in making the purchase decision are: economic costs (price), availability of product information, actual product availability and the ease of use (K. Chen & Deng, 2016, p. 3). Amongst the variables investigated in relation to organic food purchase by Yadav and Pathak (2016a), perceived behavioural control was identified as the most significant determinant of intention to purchase organic food among young consumers in India. On the other hand Koloba (2020, p. 42) found perceived behavioural control to have a strong relationship with intention to buy eco-friendly products. As a result of this discussion, the hypothesis below is then developed.

H3: Perceived behavioural control towards sustainable fish products predicts the intention to buy these products.

2.10.4 Moral attitude

According to Wang (2017, p. 1556) moral attitude refers to a personal evaluation of the moral element of the behaviour and it is based on ethical reasoning. In the context of sustainability of resources, individuals may be concerned about themselves, future generations and the environment (Bamberg & Möser, 2007, p. 15). Hence, there may be a conflict between individual and social gain (Yadav & Pathak, 2016a, p. 123). These authors further assert that, when there is conflict between personal and social gain, moral attitude plays a crucial role. For example, an individual might not be interested in purchasing sustainable fish products, but because he/she feels morally obligated to make such a purchase, that individual might end up taking an environmentally favourable decision. Yadav and Pathak (2016a, p. 123) cite Arvola et al. (2008) and Dowd & Burke (2013) who indicate that moral attitudes are well applicable in behavioural studies and they have

significant effect in the TPB. Moral attitude forms part of Yadav and Pathak's (2016a) extended TPB theory that they used to study intention to purchase organic food among young consumers in India. Yadav and Pathak (2016a, p. 125) discovered that moral attitude has a significant positive influence on intention to buy organic food among young consumers. This discussion leads to the following hypothesis.

H4: Moral attitude towards sustainable fish products predicts the intention to buy these products.

2.10.5 Environmental concern

According to Diekmann and Franzen (2019, p. 254), environmental concern is a personal awareness of the fact that the environment is threatened by resource depletion and pollution that result from unfavourable human activities. The authors continue and assert that environmental awareness is associated with a person's willingness to protect the environment from damaging human activities. The study by Pagiaslis and Krontalis (2014, p. 343) pointed out that environmental concern is a significant antecedent of environmentally friendly consumption behaviour. The authors further discovered that, people who possess a high level of concern for the environment are more likely to behave in a manner that protects the environment. Previous studies have looked to identify if there is a favourable relationship between environmental concern and attitude towards environmentally friendly products e.g. Hassan (2014); and Tang, Wang, and Lu (2014). These authors discovered that people who are more environmentally conscious tend to be more positive towards eco-friendly products (Hassan, 2014, p. 389; Tang et al., 2014, p. 90). However, some authors e.g. Akehurst, Afonso, and Gonçalves (2012) have a unique perspective towards this. According to Akehurst et al. (2012, p. 983), environmental concern doesn't necessarily lead to favourable attitude towards eco-friendly products. Consumer attitude plays a crucial role in the intention to conduct certain behaviour (Hassan, 2014, p. 383). In the study conducted by Yadav and Pathak (2016a, p. 126), it was discovered that environmental concern does not have any influence on intention to purchase organic food among young consumers. While Koloba (2020, p. 43) discovered a moderate relationship between environmental concern and intention to buy eco-friendly products. Albeit that the literature is contradictory, there is a relationship between environmental consciousness and green product purchases and it is worth studying, especially in the sustainable fishing context. Due to this, the following hypotheses was then developed.

H₅: Environmental concern predicts the attitude towards sustainable fish products.

H₆: Environmental concern predicts the intention to purchase sustainable fish products.

2.10.6 Health Consciousness

Health conscious people tend to look for healthy food such as organically produced food or any other food that contains important body nutrients (Hoque, Alam, & Nahid, 2018). According to Prasad, Strijnev, and Zhang (2008, p. 302), "health conscious behaviour is a consistent preference for healthy versions of products across categories". United States consumers with healthy lifestyles often have healthy diets that consist of fish products (Supartini et al., 2018, p. 2).This shows that there may be a relationship between health consciousness and the purchase of sustainable fish products. Previous studies show that there is a relationship between health awareness and fish consumption (e.g Clonan, Holdsworth, Swift, Leibovici, & Wilson, 2012). However, when it comes to balancing sustainability with health motivations, consumers can face a dilemma (Clonan et al., 2012, p. 278). Fish and fish products are considered as healthier food options (Smith et al., 2017, p. 270). Hence, health concern is one of the factors underlying fish and fish products consumption. However, it remains unknown whether health concern is related to sustainable fish products consumption, or not.

The study by Yadav and Pathak (2016a) discovered that health concern positively influences both attitude towards organic food and intention to buy these items. This shows that health concern has a direct and mediated effect on intention to purchase organic food. However, for a study by Higuchi et al. (2017) this wasn't the case. Higuchi et al. (2017, p. 206), discovered that the positive health prospects presented by fish consumption didn't impact the intention to purchase fish. No further evidence was discovered in literature showing a relationship between health concern and food purchases, especially within a sustainable food context. Thus, there appears to be a lack of research on health consciousness and consumer intention to purchase sustainable products, specifically fish products. To examine it, the study tests the following hypotheses.

H₇: Health consciousness predicts the attitude towards sustainable fish products.

H₈: Health consciousness predicts the intention to buy sustainable fish products.

2.10.7 Additional variables

According to Scott and Vigar-Ellis (2014, p. 643), ecological behaviour requires knowledge. Knowledge reflects what an individual knows (Carmi et al., 2015, p. 184), while environmental

knowledge reflects an understanding of environmental issues and possible ways of resolving environmental problems (Kaufmann, Panni, & Orphanidou, 2012, p. 52). According to Laroche, Bergeron, and Barbaro-Forleo (2001, p. 505), one can be considered environmentally knowledgeable if he or she is able to identify environmental symbols and concepts. Several studies show that individuals with high environmental knowledge are more likely to behave in an eco-friendly manner (e.g Pagiaslis & Krontalis, 2014, p. 336; Zhao, Gao, Wu, Wang & Zhu, 2014, p. 148). Thus there is a positive correlation between knowledge and environmental behaviour (Carmi et al., 2015, p. 185).

According to study findings by Zhao et al. (2014, p. 147), personal environmental perceptions are determined by knowledge. A study on eco-friendly product purchase intention, discovered that 'green brand knowledge' affects both attitude towards green products and intention to buy these products (Suki, 2016, p. 2903). This shows that knowledge has a direct and mediated effect on intention to purchase green products. The evidence found in the literature portrays that knowledge is a significant determinant of consumer intention to purchase eco-friendly products as it has a dual role (direct and mediated effect). Therefore, the study also examined the role of environmental knowledge in the context of sustainable fish product purchases. The study investigated environmental knowledge from three different angles, namely: knowledge of sustainable fish products, knowledge of the depletion of fish resources and knowledge of eco-labels.

2.10.7.1 Knowledge of sustainable fish products

The word 'sustainable' is used interchangeably with green, eco-, environmentally friendly (Kim, Lee, & Fairhurst, 2017, p. 227). Sustainable products are products that comply with environmental standards; they do not damage the environment and they are not harvested or produced in the way that undermines the environment (Durif, Boivin, & Julien, 2010, p. 25). These products often have labels indicating their sustainability, known as eco-labels (Gutierrez & Thornton, 2014, p. 8200). In the case of sustainable fish products, these are fish products that were acquired through fishing techniques that do not promote overfishing (Gutierrez & Thornton, 2014, p. 8200). There is a lack of literature that shows the correlation between the specific knowledge of sustainable fish products and attitude and the intention to buy these products. The current study examined this relationship to close the literature gap that seems to exist.

2.10.7.2 Knowledge of the depletion of fish resources

According to WWF (2020b, para 2) the global amount of overfished stocks has tripled in just 50 years. Most fish stocks among the top ten species such as anchoveta in Southeast Pacific and blue whiting in Northeast Atlantic, are overexploited (GreenFacts, 2020 , para 2). No study could be found that looked at the relationship between specific knowledge of the depletion of fish resources and attitude and intention to buy sustainable fish products. This offers a solid reason for examining the correlation between these variables in this study.

2.10.7.3 Knowledge of eco-labels

Testa et al. (2015, p. 253) argued that product specific ecological knowledge such as eco-labels offering proper and precise information is a crucial requirement for facilitating EPP decisions. The study by Taufique, Siwar, Chamhuri, and Sarah (2016), is one of the few studies that has investigated the effects of the knowledge of eco-labels in relation to consumer attitudes towards the environment. Taufique et al. (2016, p. 43) discovered that "eco-labels have positive effects on consumer attitudes towards the environment".

The study by Nyremo and Widerberg (2020, p. 48) tested the hypothesis that the knowledge of eco-labels has a positive correlation with the intention to purchase eco-labelled food products within the FMCG sector through attitude. Nyremo and Widerberg (2020, p. 44) discovered that there is no direct or indirect relationship between the knowledge of eco-labels and intention to buy eco-labelled food products within the FMCG sector. High knowledge of eco-labels does not lead to greater attitude or intention to buy (Nyremo & Widerberg, 2020, p. 59).

To strengthen the literature and clarify the relationship between the knowledge of eco-labels and attitude and intention to purchase eco-friendly products, further research is still required. The current study measures the specific eco-label knowledge under the environmental knowledge construct. The following are hypotheses tested in order to determine the relationship between environmental knowledge and intention to buy sustainable fish products:

H9: Subjective environmental knowledge predicts the attitude towards sustainable fish products.

H10: Subjective environmental knowledge predicts the intention to buy sustainable fish products.

H11: Objective environmental knowledge predicts the attitude towards sustainable fish products.

H12: Objective environmental knowledge predicts the intention to buy sustainable fish products.

The following section presents a conceptual framework that shows all the relationships and hypothesizes described in the above section. It also describes the direct and indirect effects of independent variables towards the dependent variable.

2.11 THE CONCEPTUAL FRAMEWORK
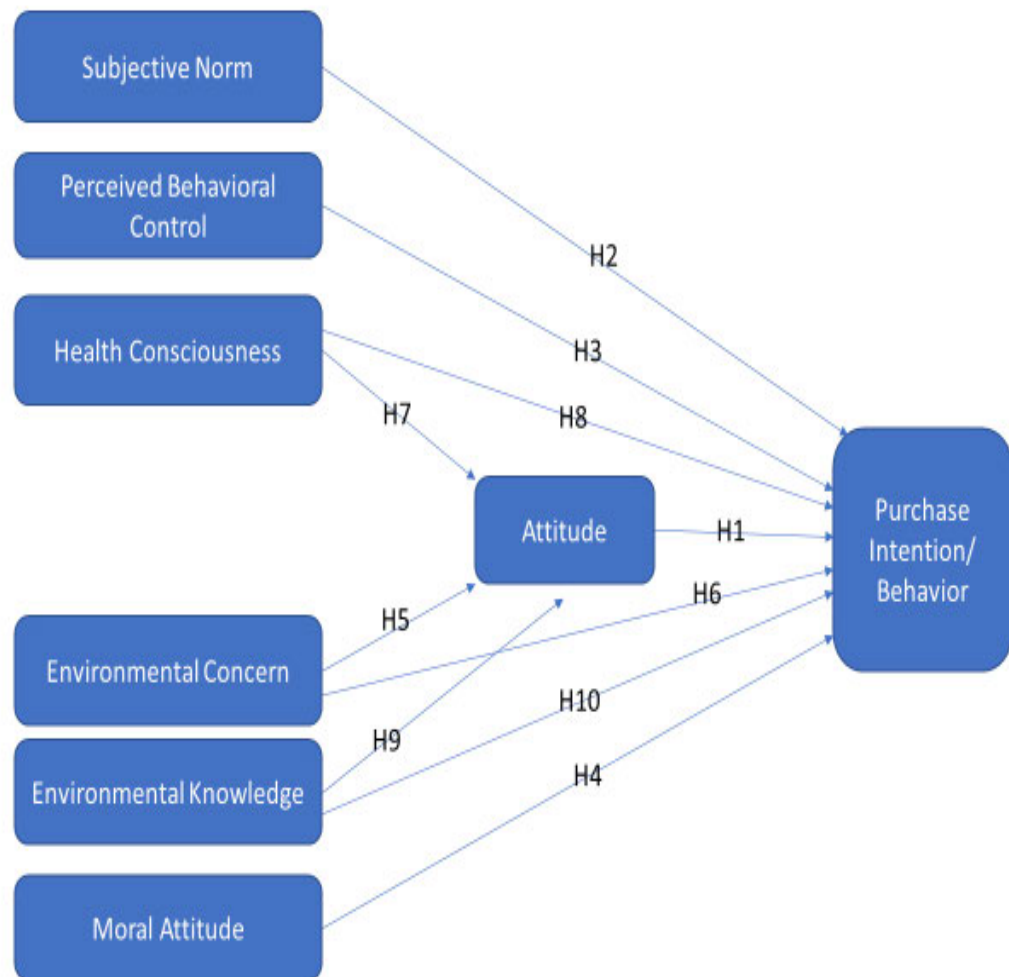
Figure 4: The proposed conceptual framework.

The above model shows all the direct indirect relationships between the independent variables and dependent variable. These are the relationships that are tested in the study. All the hypothesized relationships are outlined in the next chapter on table 1.

2.12 CONCLUSION

The depletion of fish resources persists across the globe. This chapter discussed green marketing and consumption as a way in which fish resources can be saved. Fish consumers need to practice EPP in order to help save fish resources. However, for fish consumers to practice EPP sustainable fish products need to be present and marketed in a green manner. Green marketing strategies were also discussed in detail.

The main purpose of the current study was to determine factors that influence EPP of sustainable fish products. Thus, the conceptual framework underpinning the study (Extended TPB) was also discussed in detail. The subsequent chapter discusses the methods used to obtain the required data and ensure that data is of high quality and it is collected within research ethics.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research methodology refers to a "procedure by which researchers go about their work of describing, explaining and predicting phenomena" (Goundar, 2012, para 41). It explains the methods that the researcher applies to proceed with the research or gives a workplan of the research (Goundar, 2012, para 40). Ragab and Arisha (2018, p. 2) cite Kothari, (2004) who defined research methodology as a method that systematically provides a solution to the research problem. According to Kumar (2018, p. 4), research methodology offers techniques that assist in finding answers to research questions. This section reports on methods followed to gain insight into the research problem that the current study seeks to solve. It describes the research design, sample sampling technique, sample size, data analysis and data collection procedures.

3.2 PROBLEM STATEMENT

Fish stocks have remained in crisis for a long time (Beddington, Agnew, & Clark, 2007, p. 1713). Since 1990, about one-quarter of fish stocks have been subjected to either exploitation, depletion or they're recovering from depletion (Beddington et al., 2007, p. 1713). In 1990, 90% of fish stocks were within their natural sustainable level (FAO, 2020c , Para 6) but 27 years later (2017), fish stocks that were within their sustainable level were only 65.8% (FAO, 2020c, pp., Para 6). On the other hand, fish consumption is massively increasing due to factors such as population growth and increasing understanding of the health benefits presented by fish (Thurstan & Roberts, 2014, p. 5; World-Bank, 2013, p. 3). There is a growing appetite for fish and fish products (FAO, 2020c, Para 1). Better comprehension of factors influencing sustainable fish product purchases can help improve green marketing efforts to achieve sustainable consumption of these products. Several studies have looked at factors influencing purchases of various sustainable products (e.g. organic food (Arvola et al., 2008), hybrid electric vehicles (Wang et al., 2016) and sustainable hotels (Leroux & Pupion, 2018)) except sustainable fish products.

Thus, the purpose of this study was to determine the factors that influence consumer purchases of sustainable fish products which could assist marketers develop more effective green marketing

strategies and help policy markers make sound decisions regarding increasing the consumption of sustainable fish products in South Africa and abroad.

3.3 RESEARCH OBJECTIVES AND HYPOTHESIS

As discussed, and justified in the development of the conceptual framework in the previous chapter, Table 1 below shows the study objectives and their corresponding hypothesis:

Table 1: Study objectives and hypothesizes

Objectives	Hypothesis
To determine from the South African LinkedIn community that shop for groceries and/ or go to restaurants regularly:	
1. The influence of Attitude towards sustainable fish products on intention to purchase these products	H_1: Attitude towards sustainable fish products predicts the intention to buy these products.
2. The influence of Subjective norms towards sustainable fish products on intention to purchase these products.	H_2: Subjective norm predicts the intention to buy sustainable fish products.
3. The influence of Behavioural control in relation to sustainable fish products on intention to purchase these products.	H_3: Perceived behavioural control towards sustainable fish products predicts the intention to buy these products.
4. The influence of Moral attitude towards sustainable fish products on intention to purchase these products.	H_4: Moral attitude towards sustainable fish products predicts the intention to buy these products.

5. The influence of Environmental concern on attitudes towards and intention to purchase sustainable fish products.	H_5: Environmental concern predicts the attitude towards sustainable fish products. H_6: Environmental concern predicts the intention to purchase sustainable fish products.
6. The influence of Health consciousness on attitudes towards and intention to purchase sustainable fish products.	H_7: Health consciousness predicts the attitude towards sustainable fish products. H_8: Health consciousness predicts the intention to buy sustainable fish products.
7. The influence of Environmental knowledge on attitudes towards and intention to purchase sustainable fish products.	H_9: Subjective environmental knowledge predicts the attitude towards sustainable fish products. H_{10}: Subjective environmental knowledge predicts the intention to buy sustainable fish products. H_{11}: Objective environmental knowledge predicts the attitude towards sustainable fish products. H_{12}: Objective environmental knowledge predicts the intention to buy sustainable fish products.
8. The combined predictive capacity of the TPB factors in purchase intention of sustainable fish products.	

3.4 RESEARCH DESIGN

Every researcher follows a certain philosophy as a foundation; it can either be a positivism, critical realism, constructivism/ interpretivism, postmodernism or pragmatism (Ryan, 2018, p. 2). "Research philosophy is a system of assumptions and beliefs regarding the development of knowledge" (Saunders, Lewis, & Thornhill, 2009, p. 124). Due to the nature and objectives of the present study, a positivist approach was followed. Positivist research often uses existing literature or theory to develop hypotheses (Saunders et al., 2009, p. 137). These authors further assert that the hypotheses are then tested and confirmed, leading to further theory development which may be tested by further research. Positivists remain neutral and detached from the study to avoid influencing study findings (Saunders et al., 2009, p. 137). Positivists collect measurable and quantifiable data (Crossan, 2003, p. 46; Saunders et al., 2009, p. 137). The current study adapted an existing theory (TPB) and used it to develop a conceptual framework. The study tested several hypotheses using statistical tools which are outlined in this chapter.

"Research design is a technical document that is developed by one or more researchers and is used by them as a guide or plan for carrying out a research project" (Blaikie & Priest, 2019, para 4). This document is prepared prior to commencement of the research project, and it includes multiple decisions and their justifications (Blaikie & Priest, 2019, para 1). According to McDaniel and Roger (2010, p. 49), research design is basically a plan for addressing the research objectives. Depending on a study objectives, a research can be in a descriptive, correlational or exploratory form (Sekaran & Bougie, 2016, p. 43). A descriptive study mainly focuses on describing rather than investigating relationships (Sekaran & Bougie, 2016, p. 43). The correlation study does the opposite of the descriptive as it investigates whether there's a correlation between variables (Sekaran & Bougie, 2016, p. 44). The last type of research (exploratory research), refers to a situation where a researcher is trying to explore an area where there's very limited information (Sekaran & Bougie, 2016, p. 43).

The current study tested several hypothesized relationships between variables. Therefore, the study followed a causal (correlation) research design and quantitative method. According to Sekaran and Bougie (2016, p. 44), "causal research studies test whether or not one variable causes another variable to change". Ralph and Robert (1996, p. 15) who refer to causal research as relational research, claim that causal research is when two or more related variables or conditions are measured.

The quantitative research method collects statistical data which is analyzed by using mathematic tools (Muijs, 2010, p. 1). A special feature of quantitative research is its ability to test theories by creating hypotheses and using statistical analysis tools (Watson, 2015, p. 2), making it the best method for the present study since it tests several relationships. Due to its unique feature (previously mentioned), the quantitative approach works well with causal research design. The quantitative method has been effectively used in a number of causal studies e.g. Brown (2020), (Callas, 2020) and (Nelander & Mao, 2017).

3.5 SAMPLE DESIGN

The target population for the study was working individuals; those who can afford to shop for groceries and/or visit restaurants regularly. The study population consisted of individuals that eat fish whether concerned or not about sustainability. The study excluded non-fish eaters. Given the restrictions that Covid-19 imposed on data collection amongst South African consumers, the social media community (specifically LinkedIn) represented an accessible sampling frame. Social media are attractive means of identifying and recruiting potential human research subjects since they may enable researchers to access wider population segments and target people on the basis of personal information (Gelinas et al., 2017, p. 3). "One of the persistent problems with questionnaires and surveys is the possibility of a high rate of non-response" (Otieno & Matoke, 2014, p. 963). The quality of research findings depends on the completeness of data and the lack of completeness introduces the problem of bias (Otieno & Matoke, 2014, p. 963). Social media offers new techniques for researchers to run surveys economically and quickly (Otieno & Matoke, 2014, p. 965).

A study conducted by Unkelos-Shpigel, Sherman, and Hadar (2015) , titled "Find the Missing Link to Industry" where LinkedIn was used as a research facilitator, managed to achieve a relatively high response rate over a relatively short period of time. This depicts that LinkedIn has a potential to bring about a desirable response rate and therefore eliminate bias. According to Osman (2020, para 4), LinkedIn has more than 575 million users and more than 560 million monthly active users. "Unlike Facebook and other more general social media, LinkedIn is a platform that connects professionals in various fields and, therefore, provides greater ability to target data collection to an appropriate social network" (Dusek, Yurova, & Ruppel, 2015, p. 282). LinkedIn is a social media tool that is used for professional networking, people use it to share resumes, experiences

and create business connections (Dave, 2019, Para 1). According to NapoleonCat (2020, para 1) there are 7 940 000 LinkedIn users in South Africa and this number can be broken down into five age groups: 18-24 (20.2%), 25-34 (60.5%), 35-54 (16.4%) and 55+ (3%).

On LinkedIn, each user is directly linked to his or her connections (friends). The study employed both judgmental and snowball sampling techniques to draw a sample. Due to study's specific inclusion criteria (South African, working individuals, who shop for groceries and/or visit restaurants frequently), judgment sampling was used to set out a basis for snowball sampling. Judgement sampling is useful when there are some specific characteristics required from the sample member (Babin & Zikmund, 2015, p. 349). Snowball sampling which is also known as Chain-referral-sampling starts with convenience sample of initial subjects (Etikan, Alkassim, & Abubakar, 2016, p. 1). The initial subject (the seed) is recruited by the researcher, the initial subject in turn recruits subject 2 and the process continues leading to an expansion of the sample (Etikan et al., 2016, p. 1). Each referred respondent assist in recruiting more respondents until the desirable sample size is reached (Baltar & Brunet, 2012, p. 61). To avoid distortion (explained below), the researcher ensured that the chosen seeds were from different ethnic backgrounds and that there was a gender balance. Since snowball sampling is a non-probability sampling method, sample sizes of similar studies guided the study.

3.5.1 Sample size

One of the issues involved in snowball sampling is distortion which simply means that the participants in the chain share the same characteristics due to the starting points (Waters, 2015, p. 372). For example, they may be of a similar ethnic background, same gender and so forth. Waters (2015, p. 372) further asserts that large sample sizes can help alleviate this issue. Through oversampling of respondents the recruitment bias can be managed (Baltar & Brunet, 2012, p. 61). In attempt to develop a desirable sample size, the researcher couldn't find any studies that specifically used LinkedIn for collecting data related to sustainability. This might have been due to the fact that LinkedIn is new as a way of distributing questionnaires. However, two studies were found, where one used snowball sampling technique through Facebook network (Scott & Vigar-Ellis, 2014) and the other used purposive sampling technique through online survey (Zhao, Lee & Copeland, 2019) to study sustainability. Scott and Vigar-Ellis (2014) achieved a final sample of 323 respondents while Zhao et al. (2019) achieved a final sample of 236. Through careful

consideration of the sample sizes and results of these two studies including the distortion issue mentioned earlier, the desirable sample size for the current study was determined as the average of the sample sizes of the above-mentioned studies which was 280. However, only a 76% (214) response rate was achieved. The final sample was 200 respondents as 14 respondents were excluded since they were not fish consumers and some of them were not from South Africa.

3.6 DATA COLLECTION TOOL

Due to quantitative nature of the study, a quantitative tool (survey) was employed to collect relevant data from research respondents. Survey study is largely considered as being quantitative in nature (de-Vause, 2002, p. 5). The survey was conducted using a questionnaire with closed ended questions to measure the study variables. A questionnaire refers to a set of questions in which a respondent provides answers, usually with predetermined alternatives (Sekaran & Bougie, 2016, p. 142). The development of statements for the questionnaire was guided by, and adapted from past research (e.g. Cottrell (2003, p. 14); Mostafa (2007, p. 228); Paul et al. (2016, p. 131); Yadav and Pathak (2016a, p. 125)). The adapted items are outlined and discussed in the section below.

3.7 VARIABLES THAT WERE MEASURED

The constructs/variables that were measured were those depicted in the conceptual model developed in the preceding chapter, namely: Attitude, Subjective norm, Perceived behavioural control, Moral attitude, Environmental concern, Health consciousness, Knowledge of sustainable fish products, Knowledge of depletion of fish resources and Knowledge of sustainable fish eco-labels and Purchase Intention. Figure 4 below depicts the conceptual framework's variables that the study sought to measure.
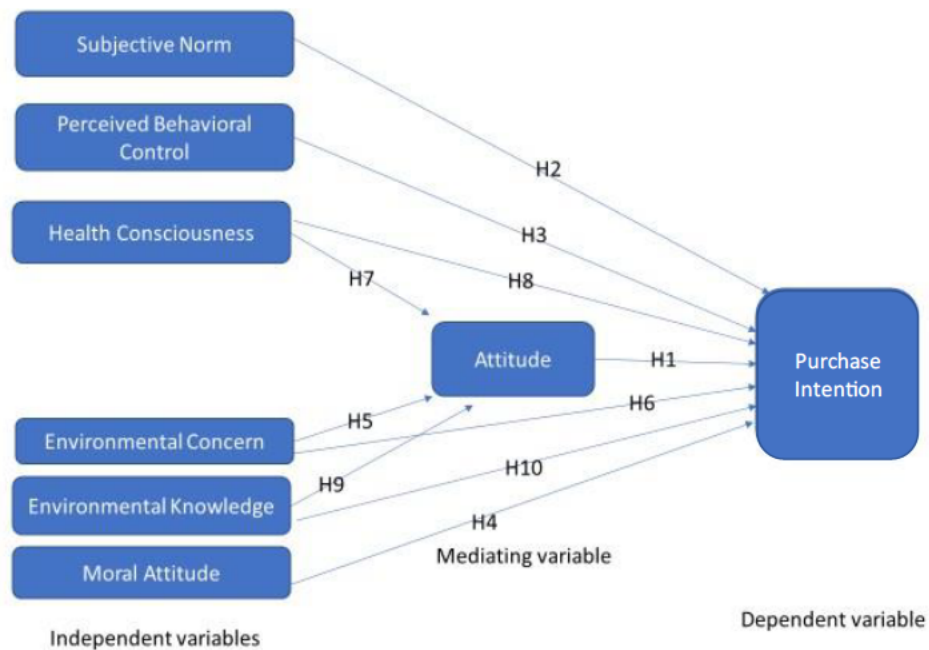
Figure 5: Conceptual model

To measure the relationships demonstrated in the conceptual model, a questionnaire was developed. Different scales that have been validated in previous research studies were used to measure the items allocated to each variable. Each item was measured on a 5-point Likert's scale, where 1 is strongly disagree and 5 is strongly agree. *Refer to the questionnaire that is attached as Appendix 1.*

3.7.1 Attitude

To measure the attitude variable, a four-item attitudinal measure developed by Wang, Wiegerinck, Krikke, & Zhang (2013) and used by Yadav and Pathak (2016a, p. 125), was used. Yadav and Pathak (2016a) used these items to measure attitude towards organic produce. The application of this attitudinal measure is also present in other recent studies (e.g. Paul et al., 2016). In the study conducted by Yadav and Pathak (2016a, p. 126), the Cronbach's alpha for the attitudinal measure was found to be 0.9 which is above the minimum acceptable level of 0.6 (Hair, Bush, & Ortinau, 2009, p. 353). Cronbach's Alpha is one of the most used reliability estimators (Ursachi, Horodnic, Zait, & Finance, 2015, p. 680). Wang et al. (2013) who studied consumer purchase intention towards remanufactured products using the attitudinal measure also found the Cronbach's alpha to be 0.9. According to Ursachi et al. (2015, p. 681), the acceptable level of Cronbach Alpha is 0.6-0.7 while 0.8 and above indicates a very good level. The scale was found to be valid in both studies Wang et al., 2013, p. 875; Yadav & Pathak, 2016a, p. 126. All the items were slightly adjusted to match the current study context. The following were the attitude measurement items:

- I like the idea of buying sustainable fish products.
- Buying sustainable fish products is a good idea.
- Buying sustainable fish products is a wise choice.
- Buying sustainable fish products would be pleasant.

3.7.2 Subjective norm

Six items were used to assess subjective norm. These items were adapted from Liobikienė et al. (2016); and Yadav and Pathak (2016a) and reworded to fit the study context. The first three items were taken from Yadav and Pathak (2016a) and the last three were taken from Liobikienė et al. (2016). In both papers, the items were used in the context of green buying behaviour. Yadav and Pathak (2016a, p. 126) found the Cronbach's Alpha for the three items to be 0.793 which is above the acceptable level of 0.6 (Hair et al., 2009, p. 353). While Liobikienė et al. (2016) do not state the specific reliability for the Subjective norm scale. They found the Cronbach's Alpha for all the scales used in the study to vary from 0.5 - 0.8 (Liobikienė et al., 2016, p. 41). All scales were tested for validity and validity was achieved (Liobikienė et al., 2016, p. 41; Yadav & Pathak, 2016a, p. 126). The following were measurement items for subjective norm:

- Most people who are important to me think I should buy sustainable fish products when going grocery shopping/eating out at a restaurant.

- Most people who are important to me would want me to buy sustainable fish products when grocery shopping/eating out at a restaurant.

- Most people whose opinions I value would prefer that I buy sustainable fish products.

- Eating sustainable fish products is a right thing to do.

- My family think buying sustainable fish products is a right thing to do.

- Buying sustainable fish products sets a good example.

3.7.3 Perceived behavioural control

Four items adapted from Paul et al. (2016) were used to measure perceived behavioural control. Paul et al. (2016) used seven perceived behavioural control items in a study to predict green product consumption. The scale was tested for validity and construct validity was achieved (Paul et al., 2016, p. 128), making it a good measure. The discriminant validity was 0.708 and the explanatory power was 0.51 (Paul et al., 2016, p. 128). The items were also found to be reliable measures of perceived behavioural control. The Cronbach's Alpha was found to be 0.819 which is above the acceptable level of 0.6 (Paul et al., 2016, p. 128). For the purpose of this study and to avoid having a questionnaire with too many items which might lead to a lower response rate, only four items were taken from Paul et al. (2016). These items sought to measure the level of ease or difficulty in purchasing sustainable fish products. The four items used in the current study were used and found reliable and valid by Maichum, Parichatnon, and Peng (2016). Maichum et al. (2016, p. 10) found the Cronbach's Alpha for perceived behavioural control to be 0.850. Factors loadings for all the four items were found to be above 0.7, depicting an acceptable validity level (Maichum et al., 2016, p. 10). The following were measurement items for perceived behavioural control:

- I am confident that I can buy sustainable fish products rather than normal fish products when I want.
- I see myself as capable of buying sustainable fish products in future.
- I have resources, time and willingness to buy sustainable fish products.

- There are likely to be plenty of opportunities for me to buy sustainable fish products.

3.7.4 Moral attitude

The three-item scale developed originally by Arvola et al. (2008) and used by Yadav and Pathak (2016a), was used to measure moral attitude. Yadav and Pathak (2016a) used these items to measure factors affecting intention to purchase organic food. The proposed items were ideal because they have been tested and found valid. The reliability for the items was also achieved at 0.802 Cronbach's Alpha which is above the minimum acceptable level of 0.6 (Yadav & Pathak, 2016a, p. 126). The following were measurement items for moral attitude:

Purchasing sustainable fish products instead of unsustainable fish would make me:

- Feel like I am personally contributing to something better.
- Feel like I am doing the morally right thing.
- Feel like a better person.

3.7.5 Environmental concern

The four-item scale for measuring environmental concern was taken from the study conducted by Yadav and Pathak (2016a, p. 125). These items were found valid and reliable in measuring the influence of environmental concern on attitude towards green products (Yadav & Pathak, 2016a, p. 126). The scale items were found to have a Cronbach's Alpha of 0.831, exceeding the acceptable reliability level of 0.6 (Yadav & Pathak, 2016a, p. 126). Therefore, these environmental concern items adapted originally from Roberts and Bacon (1997) could be used with a high level of confidence that they would have the necessary predictive power. The following were items for measuring environmental concern:

- The balance of nature is very delicate and can be easily upset.
- Human beings are severely abusing the environment.
- Humans must maintain the balance with nature in order to survive.
- Human interferences with nature often produce disastrous consequences.

3.7.6 Health consciousness

Four items were used to measure health consciousness. Three of these items were adapted from Yadav and Pathak (2016a) and the last item was developed by the researcher. For the items adapted from Yadav and Pathak (2016a): I choose food carefully to ensure good health; I consider myself

as a health-conscious consumer; I think often about health-related issues, a Cronbach's Alpha that is above the minimum acceptable level of 0.6 was achieved (0.833) (Yadav & Pathak, 2016a, p. 126). A factor loading of 0.8 for health consciousness items was achieved (Yadav & Pathak, 2016a, p. 126), indicating high validity (Bagozzi & Yi, 1988, p. 82). Several studies have indicated that health consciousness and the health benefits of fish and fish products are the main reasons for high fish consumption (e.g. Barange et al., 2015; Domingo, 2016; Pieniak et al., 2008). The additional item sought to measure the level of health awareness amongst fish consumers and their perceptions with regards to fish being part of healthy foods. The following were items for measuring health consciousness:

- I choose food carefully to ensure good health.
- I consider myself as a health-conscious consumer.
- I think often about health-related issues.
- Fish or fish products are a significant part of a healthy diet.

3.7.7 Environmental knowledge

Twenty items were used to measure environmental knowledge. These items measured specific components of environmental knowledge from two perspectives (subjective knowledge and objective knowledge). Pucci, Casprini, Nosi, and Zanni (2019, p. 278) cited Johnson and Bestian (2007) who distinguished between objective knowledge and subjective knowledge. According to these authors objective knowledge is what consumers really know while subjective knowledge refers to how much a person thinks he/she knows. The specific components of environmental knowledge that were measured were: knowledge of the depletion of fish resources, knowledge of sustainable fish products and knowledge of sustainable eco-labels.

3.7.7.1 Subjective knowledge of the depletion of fish resource

The first three items of the four items used to measure subjective knowledge of the depletion of fish resources were items of the Knowledge of Environmental Issues Scale present in Cottrell (2003, p. 15). This scale consists of four items, however only three items were adaptable to fit the knowledge of the depletion of fish resources context. The last item for the current scale was taken from Shin, Im, Jung, and Severt's (2017, p. 650) five items environmental knowledge scale. Only one item of Shin et al. (2017) scale was adjustable to fit the knowledge of depletion of fish resources context. The scale Cronbach's Alpha in Cottrell (2003) was found to be 0.84, exceeding

the acceptable reliability level of 0.6, while Shin et al. (2017, p. 651) achieved a composite reliability of 0.90 for the knowledge scale which is also above the minimum acceptable level of 0.6. The average factor loading for items used to measure environmental knowledge in Cottrell (2003) was 0.8, indicating a high level of validity, while the factor loadings for Shin et al. (2017, p. 651) were all above 0.68 establishing acceptable construct validity. The items were reworded where necessary to maintain the study context.

- I am knowledgeable about the depletion of fish stocks.
- I am informed about the local fish stock problems and issues.
- I am informed about the threats the depletion of fish stocks will have for the global ecosystem
- I know more about local fish stock problems than the average person.

3.7.7.2 Subjective knowledge of Sustainable fish products

- Three items were used to measure subjective knowledge of sustainable fish products. These items were adapted from Arisbowo and Ghazali's (2017, p. 46) five item environmental knowledge scale. The remaining two items were not used since they lacked adjustability to fit the knowledge of sustainable fish product context. The items were tested for reliability and validity in Arisbowo and Ghazali's (2017, p. 45) study making them the best option for measuring subjective knowledge of sustainable fish products. The five items achieved a Composite Reliability of 0.910 and the four items included in the current study achieved an average factor loading of 0.82. I know more about sustainable fish products than an average person. I know how to select fish products that are sustainable.
- I understand the environmental phrases on sustainable fish products.

3.7.7.3 Subjective knowledge of sustainable fish eco-labels

The four subjective knowledge of sustainable fish eco-label items were taken from the Shin et al. (2017, p. 650) five item environmental knowledge scale. The average factor loading for the four items used was achieved at 0,79, establishing acceptable construct validity (Shin et al., 2017, p. 650). Composite reliability was also tested and achieved at 0.90 which is an acceptable level (Shin et al., 2017, p. 651). These items were adjusted to fit the context of knowledge of sustainable eco-labels. Only four items were taken from the 5-item scale as they were the only ones adaptable to fit the context.

- I am very knowledgeable about sustainable fish product eco-labels.
- I understand the environmental phrases in eco-labels on sustainable fish/fish products package.
- I understand the meaning of symbols on sustainable fish/fish products packaging.
- I know that buying eco-labeled fish/fish products reduces the pressure that fish stocks are facing.

Objective knowledge tests knowledge of facts or how much a person knows (Han, 2019, p. 3) and thus the items are measured using true-false dichotomous questions. The questions, their correct answers as well as justification for them are provided next.

3.7.7.4 Objective knowledge of the depletion of fish resources

The items used to measure objective knowledge of the depletion of fish resources were developed by the researcher due to the lack of scales with tested items.

- Overfishing is the main cause of the depletion of fish resources.

The correct answer for the above statement is 'true'. According to Hernández-Barrero, Barco, Reyes, Sierra, and Stotz (2020, p. 2), overfishing has been considered as the main cause of the depletion of fish resources in the whole world. The unfavourable act of overfishing is emptying international oceans, threatening the livelihood of many people and food security (Jönsson, 2019, p. 225).

- All fish stocks are within their sustainable level.

The correct answer for the above statement is 'false'. Most fish stocks are not within their sustainable level. According to FAO (2020a,para 3) the proportion of world fish stocks that are within their natural sustainable level has decreased from 90% in 1974 to 65.8% in 2017, and no progress has been made towards achieving sustainable development goal number 14 (life below water).

- Fish resources will never be depleted.

The correct answer for this statement is 'false'. According to Giglio, Ternes, Luiz, Zapelini, & Freitas's (2018, p. 142) study, overfishing has put fish resources under extinction risk and in some cases it has led to the depletion of specific species. Approximately 90% of global fish stocks in oceans are fully exploited, overexploited or depleted (WEF, 2018 ,para 2).

3.7.7.5 Objective knowledge of sustainable fish products

The items used to measure objective knowledge of sustainable fish products were developed by the researcher due to a lack of scales with tested items.

- Buying sustainable fish products is good for the environment.

The statement above is true. According to Moser (2015, p. 167), everyday consumption behaviour is a starting point towards contributing to environmental protection. Twenty one to thirty three percent of the environmental impact of household consumption comes from groceries (Fisher et al., 2013, p. 5). Therefore, sustainable purchasing in day-to-day buyer behaviour offers an opportunity to eliminate the negative impact to the environment (Moser, 2015, p. 167).

- Sustainable fish products are not available in South Africa.

The statement above is false. There are several retailers and restaurants that offer sustainable fish and or fish products in South Africa. Some of the retailers that sell sustainable fish and fish products to South Africans are Spar and Pick n Pay (BrandS.A, 2011; Spar, 2019).

- Sustainable fish products are made from fish species that are within their sustainable level.

The above statement is true. Sustainable fishing is fish harvesting that respects the environment by leaving enough fish for biological reproduction to occur in oceans (MSC, 2020b, para 1). Therefore, sustainable fish products are made of sustainably harvested fish.

3.7.7.6 Objective knowledge of sustainable fish eco-labels

The first two items below were adapted from Taufique, Vocino, and Polonsky's (2017, p. 520) four-item eco-label knowledge scale. Only these two items were taken since the other remaining two couldn't be adjusted to fit the context. The last item was developed by the researcher using an eco-label picture adapted from Ecolabel-Index (2020). The eco-label knowledge scale by Taufique et al. (2017) were tested for reliability and validity, and it was found reliable and valid.

- 'Eco-friendly' means the same as environmental consciousness.

The above statement is incorrect. Mishal, Dubey, Gupta, and Luo (2017, p. 684) cited Zelezny and Schultz, (2000), who defined environmental consciousness as factors that determine a person's propensity to get involved in pro-ecological behaviours. According to Mishal, Dubey, Gupta and Luo (2017, p. 684) environmentally conscious consumers often refrain from purchasing products that are harmful to the environment. On the other hand, environmentally friendly means not harmful to the environment (Holze, 2018, para 2). The author further explains that the concept

often refers to products or practices that assist in conserving resources such as energy and water, and/or prevent water, land and air pollution (Holze, 2018 , para 2). In the case of seafood, this would be sustainably harvested seafood and/or the act of sustainable fishing itself.

- Eco-labels indicate that the product meets environmental standards.

The answer for the above statement is true. According to Olopade and Dienye (2017, p. 99), eco-label can be a logo or a statement on fish products or any other product that shows that the product meets environmental standards. Eco-labels offer environmentally friendly consumers' confidence that they are purchasing green products or products that are aligned with environmental standards (Gutierrez & Thornton, 2014, p. 8196).

- The picture below represents an eco-label for sustainable fish/fish products used in South Africa.

The answer for the statement above is true. The above is an eco-label from the Marine Stewardship Council (MSC) used in sustainable seafood worldwide (Hartigh, 2011 , para 11). MSC is an international certification scheme that investigates seafoods against several sustainability standards and proves to customers that they meet these standards with the provision and application of a label (Blandon & Ishihara, 2021, p. 1).

3.7.8 Purchase intention

Purchase intention was measured using a five item scale of purchase intention for green products where 1 was strongly disagree and 5 was strongly agree adapted from Rizkalla and Setiadi (2020, p. 14). These items were used to measure green product purchase intention (Rizkalla & Setiadi, 2020, p. 7). These items were also used in Kim and Choi (2005, p. 595) to assess the factors that influence green purchase behaviour. The items were found to be reliable in measuring the purchase intention in both studies. In Rizkalla and Setiadi (2020, p. 16) the Cronbach's Alpha was found to be 0.792, while in Kim and Choi (2005, p. 595), the Cronbach's Alpha was found to be 0.83. The

average Cronbach's Alpha for the two studies is 0.81 which is above the minimum level of 0.6 recommended in Hair et al. (2009, p. 353). The following were items for measuring purchase intention. These items were adjusted accordingly to meet the current study context.

- I would like to buy sustainable fish products.
- I would switch my choice of fish products to sustainable fish products for environmental reasons.
- I would prefer buying sustainable fish products to conventional fish products because doing so won't harm the environment.
- I would buy sustainable fish products because it is environmentally friendly.
- I would not consider buying fish products if they cause damage to the environment.

Except for objective knowledge which was measured using dichotomous questions, all items were measured on 5-point Likert scales. The wording used in the Likert scale was: 1=Strongly disagree, 2=Disagree, 3=Neutral (mid-point), 4=Agree and 5=Strongly agree (Chyung, Roberts, Swanson, & Hankinson, 2017, p. 15). The last point (5-strongly agree) represented a positive view and first point (1-strongly disagree) a negative view. The Likert scale is one the most popular response scales employed in survey design (Chyung et al., 2017, p. 15). The Likert scale was first introduced by an American social psychologist (Rensis Likert) in the 1930s as a tool of measuring attitude related propositions (Chyung et al., 2017, p. 15).

3.7.9 Sample Profiling questions

To develop a sample profile, the Gender, Age, Income, Race, the frequency of fish/fish products consumption at home (per month) and/or at restaurants and whether consumers specifically look for sustainable fish when buying or eating fish/fish products were measured.

3.8 DATA COLLECTION PROCEDURE

The researcher started the data collection process immediately after ethical clearance was granted. Data was collected online on the LinkedIn social media platform. An electronic or digital questionnaire was designed through google forms, and the link was forwarded to initial research subjects. Seeds were asked to forward the link to the questionnaire to their network or friends whom they share similar characteristics with. To enable for a follow-up, the seeds were asked to send the list of all the people they sent the questionnaire link to. To further boost the response rate

as the initial strategy seemed to be working slowly, a LinkedIn post was made, asking people to complete the survey, and share on their LinkedIn wall and ask their connections to also complete the survey. *Refer to Appendix 5.*

3.9 DATA ANALYSIS

Following the data collection process, data analysis techniques were applied to analyse data. This section discusses data analysis techniques used by the researcher to analyse and draw conclusions on collected data. Firstly, the data collected using the online survey questionnaire were coded and captured as per SPSS 27 requirements. To determine the distribution of responses, univariate analysis of each of the variables was conducted. Univariate analysis is the descriptive analysis of one construct at a time (Ong & Puteh, 2017, p. 15). Within the univariate analysis, central tendency was measured to determine the center of the distribution of scale values per variable. Measures of central tendency which was used include the mean, median and mode (Sekaran & Bougie, 2016, p. 282). These are summary measures that describe the entire data set with one value to make it easy to interpret or understand data (ABS, 2021, para 1).

SPSS version 27 was used for all the analysis. SPSS is statistical package for social sciences which is widely used by researchers world-wide to conduct various statistical tests (Ong & Puteh, 2017, p. 18). The authors further assert that, this software allows frequency analysis to be conducted. SPSS offers quantitative measures of the reliability and validity of constructs (Yadav & Pathak, 2016a, p. 124). To have accurate and reliable data for analysis of the relationships in the conceptual model, and due to the correlational nature of the study, regression analysis was used to analyze data. Regression analysis is a method for investigating functional relations between variables (Chatterjee & Hadi, 2015, p. 1). "Multiple regression analysis provides a means of objectively assessing the degree and the character of the relationship between the independent variables and the dependent variable" (Sekaran & Bougie, 2016, p. 314). According to Uyanık and Güler (2013, p. 234), regression analysis is conducted to determine the relationship between variables and to make sold predictions for the topic at hand. This analysis assisted in determining how much variance in the dependent variable is explained by the independent variables (Uyanık & Güler, 2013, p. 235).

Regression analysis offers simple tactics for establishing a functional relationship between variables being measured (Chatterjee & Hadi, 2015, p. 3). This type of analysis can be used to

investigate the extent to which a change in one variable may lead to a change in another variable (Lorenzo, 2020, p. 53).This statistical data analysis tool has several areas of application including finance, economics, business, medicine, law, biology, education, sports and so forth (Chatterjee & Hadi, 2015, p. 2). Regression analysis is a method of statistically identifying which variables have an impact (Gallo, 2015, para 4). "It answers the questions: Which factors matter most? Which can we ignore? How do those factors interact with each other? And, perhaps most importantly, how certain are we about all of these factors?" (Gallo, 2015, para 4). In a study by Fumo and Biswas (2015), simple, multiple and quadratic regression analysis were applied to predict residential energy use.

Regression analysis expresses the relationship as an equation or a model that connects the dependent variable and independent variable(s) (Chatterjee & Hadi, 2015, p. 1). In the current study, the dependent variable was sustainable fish products purchase intention and the independent variables were attitude towards sustainable fish products purchases, subjective norm, perceived behavioural control, moral attitude, environmental concern, health consciousness, knowledge of sustainable fish products, knowledge of depletion of fish resources and knowledge of sustainable fish eco-labels. In the present study, multiple regression analysis was utilized to comprehend the relationship between various variables and to test the hypothesizes. Multiple regression analysis gives details regarding the extent to which the dependent variable can be explained by independent variables, and also offers an indication of a relative contribution from each independent variable (Pallant, 2010, p. 153). The study also sought to measure a number of mediated relations, hence, the following sub-section outlines the procedure that were utilized to measure such relationships.

3.9.1 Mediation analysis

To test the mediation relationships, the procedure of Baron and Kenny (1986) was utilized to empirically test the mediating relationships for intention to consume sustainable fish products. The mediating variable that was measured against the independent and dependent variables was the 'attitude towards sustainable fish products'. Baron and Kenny's procedure tests mediation by following three regression equations which are explained in the analysis chapter (Baron & Kenny, 1986, p. 1177).

3.10 QUALITY CONTROL

3.10.1 Validity Analysis

A measurement tool must be deemed valid to be used in a study (Rutherford-Hemming, 2015, p. 390). According to McDaniel and Roger (2010, p. 253), there are different types of validity:

3.10.1.1 Face validity

Face validity is considered as the weakest, but necessary type of validity (Sekaran & Bougie, 2016, p. 221). This type of validity looks at the extent to which the measurable components of the construct represent the construct (Hair et al., 2009, p. 337; Sekaran & Bougie, 2016). Face validity is often measured by showing research measurements to experts and getting feedback on whether the measurements are measuring what they are supposed to measure (Hardesty & Bearden, 2004, p. 99). However, if the measure is known to have content validity, the researcher can assume face validity (Mohajan, 2017, p. 16). For the current study, literature was used to develop constructs and measurement scales, adapted from past relevant research where they were tested and found valid. Hence, face validity can be assumed.

3.10.1.2 Content validity

Content validity can be defined as the extent to which items in an instrument represent a properly prepared definition of the concepts (Rutherford-Hemming, 2015, p. 390). Zamanzadeh et al. (2014, p. 164) defined content validity as "the ability of the selected items to reflect the features of the construct in the measure". To achieve content validity, content experts should agree that the instrument items are relevant to a construct(s) (Rutherford-Hemming, 2015, p. 390). However, content validity can also be obtained from previous research (Rutherford-Hemming, 2015, p. 390). For the current study, literature was used to set the foundation for concepts and constructs that are involved. The inclusion of constructs was based on and supported by thorough assessment of past research. The majority of questionnaire items were taken from past studies, meaning that they were already tested for validity. Content validity provides preliminary evidence on construct validity (Zamanzadeh et al., 2014, p. 164).

3.10.1.3 Construct validity

"Construct validity testifies to how well the results obtained from the use of the measure fit the theories around which the test is designed" (Sekaran & Bougie, 2016, p. 222). When dealing with what the researcher is attempting to measure, construct validity applies theory to formulate a construct that will be measured (McDaniel & Roger, 2010, p. 256). In the present study, the researcher used exiting theory to formulate constructs for the study: attitude towards sustainable fish products purchases, subjective norm, perceived behavioural control, moral attitude, environmental concern, health consciousness, knowledge of sustainable fish products, knowledge of the depletion of fish resources and knowledge of sustainable fish eco-labels.

It is crucial to determine if the validity of the study measurement is acceptable or not (Chang & Chen, 2014, p. 1762). To determine the construct validity of the measurement used in the study, a Principal Component Analysis was conducted on SPSS to determine convergent and discriminant validity. Convergent and discriminant validity was achieved after removing items that didn't have sufficient loading and those that cross loaded.

5.10.2 Reliability Analysis

The reliability of a measure displays the extent to which the measure is free of error therefore ensuring the consistency of it across time and various items in the instrument (Sekaran & Bougie, 2016, p. 223). To ensure reliability in the study, Cronbach alphas were calculated for internal consistency. To obtain high marginal internal consistency or the acceptable norm, Cronbach alpha scores should be above 0.6 (Hair et al., 2009, p. 353). The Cronbach Alphas for all variables were calculated and found to be at an acceptable level, except for objective environmental knowledge.

5.11 ETHICAL ISSUES

Prior to commencement the data collection process, the researcher sought ethical clearance from the University of KwaZulu-Natal Research Office. *Refer to Appendix 2.* "The privacy, confidentiality and anonymity of respondents are the key issues that need to be considered when conducting an online survey research" (Nayak & Narayan, 2019, p. 34). Anonymity of respondents was ensured, and their personal details and other information related to them is kept confidential. No names were recorded in the SPSS file and all subsequent publications. As an ethical research requirement, the researcher acquired consent from participants prior to taking any opinions. Respondents that were willing to participate in the study had to fill in an informed consent form. The informed consent form made the potential respondents aware of the purpose of the research study and their rights such as to withdraw at any stage. *Refer to Appendix 6.*

5.12 CONCLUSION

This chapter has explained the methodology used to achieve the research aim and objectives. The research study used an online survey questionnaire with closed-ended questions. The target population for the study was South African fish consumers who are active on LinkedIn. These fish consumers assisted in gaining insights related to factors that affect EPP of sustainable fish products in South Africa.

Findings related to each variable and hypothesized relationships are presented and discussed in the following chapter. The chapter commences with the sample profile, followed univariate analysis, multivariate analysis and concludes with findings and discussion for the mediation analysis.

CHAPTER 4. FINDINGS, ANALYSIS AND DISCUSSION

4.1 INTRODUCTION

The previous chapter looked at the methods and instruments used to collect and analyze data which is presented in the current chapter. The current chapter presents the analysis of data collected from the South African LinkedIn population and findings which are discussed in relation to literature.

The quantitative data that are analyzed and discussed in this chapter were collected through a structured or closed-ended online questionnaire. The chapter is structured as follows: it commences by outlining and discussing the important demographic factors of the study sample in general and also in relation to sustainable fish products consumption. This is then followed by univariate analysis which is where each variable is analyzed independently. To determine the combined as well as individual effects of the variables on intention to purchase sustainable fish products and to determine whether environmental concern, health consciousness, subjective knowledge and objective knowledge have direct and/or mediated effects on intention to buy sustainable fish products, regression analysis is conducted for the former and mediation analysis is conducted for the latter.

4.2 SAMPLE PROFILE

The study targeted the South African LinkedIn population: individuals who shop for groceries and or visit restaurants frequently. However, from this group only those who consume fish/fish products were included in the final sample as per pre-determined inclusion criteria. The targeted sample size was 280 respondents but only 76% (214) response rate was achieved over the three months data collection period. Of the 214 questionnaires, only 200 were usable, offering a 71% effective response rate.

The sample profile of the study included the following variables: Gender, Age and Race.

Table 2: Demographic Profile summary

Summary of Demographic Profile of the Study						
Demographics	**Frequency (Percentage)**					**Missing**
Gender	Male	Female				
	67 (33.5)	126 (63)				7 (3.5)
Age	18-20	21-30	31-40	41-50	51 & Above	
	17 (8.5)	127 (63.5)	42 (21)	7 (3.5)	6 (3)	1 (0.5)
Race	African	White	Indian	Coloured	Others	
	176 (88)	9 (4.5)	13 (6.5)	1 (0.5)	1 (0.5)	

4.2.1 Gender and Age

The study sample had unequal mix of genders, with female participants (63%) being more prevalent than male participates. A skewness level of - 0.143 shows that the gender distribution is moderately skewed. The youngest respondents in the study were 18 years old whilst the eldest was 61 years old. The majority, 63.5% (127) of respondents falls within the 21-30 age group. The mean age was 27.7, while standard deviation was found to be 8.1. According to 2020 statistics from NapoleonCat (2020), the 18-34 age group makes up 70.7% (5 613 580) of the South African LinkedIn population. This represent 15% of South African adult population (37 338 382) which is made up of individuals aged 20-59 (Statssa, 2019, p. 10). From age perspective, the sample is a good reflection of the South African LinkedIn population.

4.2.2 Race

Africans form 88% (176) of the study sample, whilst Whites, Indians, Coloured and others combined form only 12% (24). As per 2020 stats from Statista (2020), Africans represent 81.2% of the South African population, while Coloured, Indians and Whites form 18.8%, thus the sample is fairly representative of the South African population.

4.3 FISH CONSUMPTION

This section looks at the frequency of the consumption of fish/fish products and whether respondents specifically look for sustainable fish when buying or eating fish/fish products. The study's findings depict that 55.5% (111) of the sample consume fish/fish products once or twice per month, 32.5% (65) 3-4 times a month, 9.5% (19) 5-7 times and 2.5% more than 8 times a month. Due to the nature of the study and that people who do not consume fish were not part of the sample, no comments can be made in relation to the extent of fish consumption in the

population. However, these findings do show that regular fish consumption is low. Only 12% (2.5 +9.5) of respondents consume fish regularly more than once a week on average. Most of the respondents appear to eat or buy fish infrequently.

Although the frequency of fish consumption is reasonable among South African fish consumers, the number of people who consciously consume sustainable fish products is extremely low. When asked if respondents specifically look for sustainable fish when eating / buying fish, 70% (141) of the sample stated that they do not consider whether the fish or fish product is sustainable or not when making the purchase. This is a problem as more than two thirds of consumers appear to not see the need to be playing part in achieving sustainability, specifically the sustainability of fish resources. This low consciousness of the importance of buying sustainable fish products can cut future access to fish resources (Bonanomi et al., 2017). Hence it is important to identify the factors that influence consumer intention to purchase sustainable fish products and therefore which factors social and green marketers could focus on to increase the effectiveness of their strategies and ultimately increase EPP fish products.

4.4 UNIVARIATE ANALYSIS

This section presents findings from univariate analysis. All items, for each variable except objective knowledge, were measured on a 5-point Likert scale, where 1=Strongly disagree, 2=Disagree, 3=Neutral (mid-point), 4=Agree and 5=Strongly agree. In this section, frequencies, means and standard deviations are presented for the items or statements for each variable.

4.4.1 Intention to purchase sustainable fish/fish products

The table below presents the results on the 'intention to purchase sustainable fish products' scale. Respondents were asked questions related to buying sustainable fish products to measure their level of intention to buy these products.

Table 3: Summary of intention to purchase sustainable fish/fish products scale results

Intention to Purchase	Frequency (Percentage)							
Statements/Items	SD	D	N	A	SA	Missing	Mean	Standard Deviation
5. I would like to buy sustainable fish products.	5 (2.5)	10 (5)	48 (24)	60 (30)	77 (38.5)	0 (0)	3.97	1.027
6. I would switch my choice of fish products to sustainable fish products due to environmental reasons.	6 (3)	9 (4.5)	33 (16.5)	62 (31)	90 (45)	0 (0)	4.11	1.029
7. I would prefer buying sustainable fish products to conventional fish products because doing so won't harm the environment.	6 (3)	10 (5)	33 (16.5)	62 (31)	89 (44.5)	0 (0)	4.09	1.038
8. I would buy sustainable fish products because it is environmentally friendly.	6 (3)	9 (4.5)	26 (13)	58 (29)	101 (50.5)	0 (0)	4.20	1.026

9. I would not consider buying fish products if they cause damage to the environment.	15 (7.5)	21 (10.5)	44 (22)	42 (21)	78 (39)	0 (0)	3.74	1.282

Note: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree & SA=Strongly Agree

When respondents were asked if *they would like to buy sustainable fish products*, 68.5% of the respondents agreed. On the other hand, only 7.5% disagreed while 24% of the sample was neutral. The higher mean score of 3.97 shows that most respondents agreed with the statement *"I would like to buy sustainable fish products"*.

When respondents were asked if they *would switch choice of fish products to sustainable fish products due to environmental reasons*, most of the respondents (76%) agreed, 16.5% were neutral, while 7.5% disagreed. The 4.11 mean indicates that more respondents had positive feelings towards the environment. Similarly, when respondents were asked if they *would prefer buying sustainable fish products to conventional fish products because doing so won't harm the environment*, most of respondents (75.5%) agreed, 16,5% were neutral, and 8% disagreed. A higher mean in this case also shows that most respondents had a positive feeling towards sustainability.

Most respondents (50.5%) strongly agreed when they were asked if they *would buy sustainable fish/fish products because it is environmentally friendly*, 29% agreed, bringing a total of those in agreement to 79.5%. Only 3% strongly disagreed and 4.5% disagreed while 13% were neutral. A high mean of 4.2 indicates that most respondents scored at the higher parts of the scale and they would like to act in an environmentally friendly manner.

The last item of the scale provided almost similar results to the previous item. When respondents were asked if they *"would not consider buying fish products if they cause damage to the environment"* most of them were positive. Sixty percent of respondents agreed to some extent, 18% disagreed, and 22% were neutral. A mean score of 3.74 depicts that most of the respondents were in support of the statement.

The statement "*I would buy sustainable fish products because it is environmentally friendly*" got the highest mean score (4.20) showing that there was the highest amount of agreement with this statement. However, respondents actually exhibit high levels of purchase intention overall with all

means above 3.5 on a 5-point scale. Some of the statements especially statement five and nine had fairly high neutral responses. The reason for this might be that the respondents who are neutral don't know where and how to find sustainable fish products and some may not know what these sustainable fish products really are. The relatively high mean score and low standard deviations shows high intention to buy sustainable fish products among respondents.

These findings are in line with what Bray et al. (2011) discovered in their study that looked at ethical consumption. The high number of people who want or are willing to practice EPP doesn't necessarily translate to high purchases of environmentally friendly products (Bray et al., 2011, p. 4) , in this case sustainable fish products. In a study that was conducted by Anuar et al. (2020, p. 716) to assess factors that affect the purchases of sustainable seafood, more than 50% of respondents said high price is a barrier to buying sustainable seafood. Even though the current study didn't look at things such as the price of sustainable fish products, the gap between intention to purchase and actual purchase might be partially or fully explained by unaffordable prices. Hence, further investigation is required.

According to findings of the current study, 70% of people currently don't specifically look for sustainable fish products yet there is a strong intention to purchase sustainable fish products. Apart from price this could also be because green or social marketers are not making it easy enough to make sustainable fish product purchases. Not all consumers can comprehend the meaning of various eco-labels. Although 70% of respondents reported that they don't specifically look for sustainable fish products they could still be buying them unconsciously.

Since there is an intention or willingness to support sustainable fish products, it is important to find out what factors might facilitate these purchases.

The section below presents results for attitude towards sustainable fish products.

4.4.2 Attitude towards sustainable fish products

The table below presents findings for the 'attitude towards sustainable fish products' scale. Respondents were asked questions about sustainable fish products to see if they have negative or positive feelings towards these products.

Table 4: Summary of attitude towards sustainable fish products scale results

Attitude towards sustainable fish products	Frequency (Percentage)							
Statements/Items	SD	D	N	A	SA	Missing	Mean	Standard Deviation
10. I like the idea of sustainable fish products.	1 (0.5)	7 (3.5)	20 (10)	62 (31)	110 (55)	0 (0)	4.37	.840
11. Buying sustainable fish products is a good idea.	3 (1.5)	5 (2.5)	19 (9.5)	62 (31)	111 (55.5)	0 (0)	4.37	.869
12. Buying sustainable fish products is a wise choice.	1 (0.5)	8 (4)	22 (11)	55 (27.5)	114 (57)	0 (0)	4.37	.869
13. Buying sustainable fish products would be pleasant.	1 (0.5)	8 (4)	30 (15)	63 (31.5)	98 (49)	0 (0)	4.25	.888

Note: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree & SA=Strongly Agree

In simple terms, attitude towards sustainable fish products is the extent to which an individual has a positive or negative evaluation towards the behaviour in question (K. Chen & Deng, 2016, p. 2). Attitude was also measured on a 5-point Likert scale using 4 items developed by Wang et al. (2013) and used by Yadav and Pathak (2016a, p. 125). The mean scores ranged between 4.25 and 4.37 which shows extremely high positive attitude towards sustainable fish products among South African LinkedIn users. When respondents were asked if they *like the idea of sustainable fish products* 55% strongly agreed, 31% agreed, 10% were neutral and only 4% disagreed. Similarly, when respondents were asked if *buying sustainable fish products is a good idea*, 4% were negative, 9.5% were neutral and 86.5% were positive.

When respondents were asked if *buying sustainable fish products is a wise choice*, 84.5% were positive, 11% were neutral and only 4.5% were negative. In response to the statement *"buying sustainable fish products would be pleasant",* 80.5% of respondents were positive 15% were neutral and only 8.5% were negative. These findings reflect a high positive attitude towards sustainable fish products.

However, the results also show that there is gap between attitude towards sustainable fish products and the actual purchase of sustainable fish products since 70% of respondents don't consider sustainability when making their purchases. According to Joshi and Rahman (2015, p. 129) this gap is called the green attitude-behaviour gap and factors such as product availability, price and social influence might be the reason behind this gap. This means unaffordable prices of sustainable fish products, negative subjective norm and inability to find sustainable fish products might serve as barriers in buying sustainable fish products, hence the green attitude-behaviour gap. The attitude-behaviour gap was also discovered by Mkhize and Ellis (2020, p. 5). According to Mkhize and Ellis (2020, p. 5) this green behaviour barrier can be eliminated through effective communication of the benefit of performing the desired behaviour, which is purchasing sustainable fish products in the current study.

In the current study attitude represented a mediating variable between several relationships and this mediation will be discussed in the last section of this chapter. This last section of the chapter will look at the mediating effect of attitude on the ability of environmental concern, health consciousness, subjective knowledge and objective knowledge to predict consumer intention to purchase sustainable fish products. The following section presents the 'subjective norm scale' findings.

4.4.3 Subjective norms in relation to sustainable fish products

The table below presents findings for the 'subjective norm' scale. Respondents were asked questions about people who are close to them to see if there is any level of influence coming from their family members or friends in relation to buying sustainable fish products.

Table 5: Summary of perceived social pressure towards sustainable fish/fish product purchase scale results

Subjective Norm	Frequency (Percentage)							
Statements/Items	SD	D	N	A	SA	Missing	Mean	Standard Deviation
14. Most people who are important to me think I should buy sustainable fish products when going grocery shopping / eating out at a restaurant.	42 (21)	36 (18)	56 (28)	28 (14)	38 (19)	0 (0)	2.92	1.387
15. Most people who are important to me would want me to buy sustainable fish products when grocery shopping.	34 (17)	28 (14)	66 (33)	38 (19)	34 (17)	0 (0)	3.05	1.302
16. Most people whose opinions I value would prefer that I buy sustainable fish products.	27 (13.5)	28 (14)	56 (28)	48 (24)	41 (20.5)	0 (0)	3.24	1.300
17. Eating sustainable fish products is a right thing to do.	3 (1.5)	8 (4)	30 (15)	58 (29)	101 (50.5)	0 (0)	4.23	.950
18. My family think buying sustainable fish products is the right thing to do.	23 (11.5)	21 (10.5)	77 (38.5)	35 (17.5)	44 (22)	0 (0)	3.28	1.245
19. Buying sustainable fish products sets a good example.	8 (4)	5 (2.5)	31 (15.5)	60 (30)	96 (48)	0 (0)	4.16	1.037

Note: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree & SA=Strongly Agree

Subjective norm refers to an individual perception of whether other's would approve performance of the behaviour in question or not (Wang, Pacho, Liu, & Kajungiro, 2019, p. 4). In the current

study, 6 items were used to measure subjective norm among South African LinkedIn users. The positively worded items were measured on a 5-point Likert scale. Respondents are showing a positive perceived social pressure towards sustainable fish/fish products purchase. The lowest mean (2.92) score came from the item *"most people who are important to me think I should buy sustainable fish products when going grocery shopping / eating out at a restaurant".* While the highest mean (4.23) came from the statement" *Eating sustainable fish products is a right thing to do".*

When respondents were asked if *people who are important to me think I should buy sustainable fish/fish product when doing grocery or eating at the restaurant,* most responses were negative (39%), 28% were neutral and 33% were positive. This is likely because most of the respondents had not felt any social pressure in the past when it comes to buying sustainable fish products possibly because people who are close to them are not aware of or concerned about sustainable fish products.

The largest group of respondents (36%) were positive towards the statement that *Most people who are important to me would want me to buy sustainable fish products when doing grocery shopping.* Thirty one percent of the respondents were negative towards the statement and 33% were neutral. This shows that the responses are almost equally spread, hence the high standard deviation (1.302). In response to the statement *most people whose opinions I value would prefer that I buy sustainable fish products,* 44.5% of the respondents were positive, 27,5% were negative and 28% were neutral. This shows that a reasonable number of fish consumers believe that people who are close to them or whom they look up to are environmentally conscious and would want them to act positively towards fish resources. However, this is not a desirable level of subjective norm as more than half of fish consumers are not confident that the people who are close to them would want them to act in a manner that protects and preserves fish resources.

The majority of respondents think (79.5%) eating sustainable fish products is the right thing to do, 5.5% think eating sustainable fish products is not the right thing to do, with 29% of the respondents neutral. Similarly, when respondents were asked if *buying sustainable fish products sets a good example,* 78% agreed while only 6.5% disagreed and 15.5% were neutral. However, when respondents were asked if their *family think buying sustainable fish products is the right thing to do,* responses were distributed almost equally across the scale with 39.5% of respondents in agreement, 38.5% neutral and 22% in disagreement. This shows that fish consumers as individuals see the value in buying and consuming sustainable fish products, but they don't know if their loved ones or people who are close to them hold a similar position or not. The reason behind this might be that society lacks enough conversations around sustainability and the protection of the environment, specifically protection and sustainability of fish resources. Initiating sustainable conversations that are related to fish resources can be a great starting point for social and green marketers.

These results are slightly out of line with that of De Maya, López-López, and Munuera (2011, p. 1173) which argued that people are often influenced by the perception of those who are close to them. The respondents in the current study appear to know that buying sustainable fish is the right thing to do and sets a good example, but they are generally closer to neutral when it comes to feeling social pressure to buy sustainable fish. While some people feel social pressure, almost as many in the sample are either not sure whether they do, and perhaps haven't noticed any social pressure or definitely have not felt any social pressure, thus these do not yet seem to represent social norms in this South African sample. This is probably due to lack of communication and knowledge about sustainability issues within families and friendships. The following section presents findings for perceived behavioural control measures.

4.4.4 Perceived behavioural control in relation to sustainable fish products

The table below presents findings for 'perceived behavioural control scale'. Respondents were asked questions that measure their ability to purchase sustainable fish products.

Table 6: Summary of perceived behavioural control scale results

Perceived Behavioural Control	Frequency (Percentage)							
Statements/Items	SD	D	N	A	SA	Missing	Mean	Standard Deviation
20. I am confident that I can buy sustainable fish products rather than normal fish products when I want.	12 (6)	23 (11.5)	47 (23.5)	54 (27)	64 (32)	0 (0)	3.68	1.207
21. I see myself as capable of buying sustainable fish products in future.	5 (2.5)	11 (5.5)	32 (16)	70 (35)	82 (41)	0 (0)	4.07	1.008
22. I have resources, time and willingness to buy sustainable fish products.	15 (7.5)	23 (11.5)	55 (27.5)	54 (27)	53 (26.5)	0 (0)	3.54	1.211
23. There are likely to be plenty of opportunities for me to buy sustainable fish products.	14 (7)	24 (12)	59 (29.5)	53 (26.5)	50 (25)	0 (0)	3.51	1.190

Note: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree & SA=Strongly Agree

Perceived behavioural control refers to a condition where individuals perceive behaviour as easy or difficult and this perceived ease or difficulty is influenced by individual's access to resources that are needed to perform the behaviour in question (Chen, 2016, p. 1747). In the case of sustainable fish products individuals' behavioural control might be influenced by things such as availability, affordability and convenience. Perceived behavioural control of South African LinkedIn users was measured on a 5-point Likert scale with 4 items. The highest point in the scale (5) represented 'strongly agree' and the lowest point (1) represented 'strong disagree'.

The results showed that most respondents felt they had control over purchasing sustainable fish products as the composite mean score for the perceived behavioural control variable was found to be 3.7 or high. In response to the statement 'I am confident that I can buy sustainable fish products rather than normal fish products when I want', 59% of the respondents were positive, 27% were neutral and only 17,5% were negative. When respondents were asked if they are capable of buying sustainable fish products in future most of them (76%) were positive, 16% were neutral and a small portion (8%) of them was negative.

Most of the respondents (53.5%) stated that they had time, resources and willingness to buy sustainable fish products. However, 19% of the respondents were negative towards this statement and 27.5% were neutral. In response to the statement 'there are likely to be plenty of opportunities for me to buy sustainable fish products', 51.5% of respondents were positive 29.5% were neutral and 19% were negative.

These findings differ from those of Mkhize and Ellis (2020, p. 5) who reported a lack of perceived behavioural control in their South African sample of organic food consumers. The overall perceived environmental control in the current study was found to be high among South African fish consumers. Although most respondents felt confident that they can purchase sustainable fish products and that they have resources and opportunities to buy these products, only 30% of the respondents mentioned that they specifically look for sustainable fish products when they are eating at the restaurant or shopping for groceries. A large number of consumers amongst these South African respondents consume any fish or fish product that is available to them, either sustainable or not sustainable. This might be because they are either ignorant or they lack adequate knowledge about issues faced by marine resources.

About a quarter to a third of respondents had a neutral score towards perceived behavioural control. This is probably because they weren't sure about things like availability or ability to pay (price) because they don't regularly specifically look for sustainable fish products as only 30% mentioned that they specifically look for sustainable fish products when they buy. According to the literature, price and knowledge of sustainability of seafood are dominant factors that influence sustainable fish products purchasing (Anuar et al., 2020, p. 716; Lawley et al., 2019, p. 2346). More than 50% of generation Y fail to buy sustainable seafood because of price (Anuar et al., 2020, p. 716). In most cases when consumers are making purchases they relate premium or high priced products to

high quality or brand difference (e.g. House brand/Name brand) (Chaniotakis, Lymperopoulos, & Soureli, 2010, p. 328). They don't think about sustainability as another factor that influences the price.

In relation to the current study, knowledge can be linked to being able to identify sustainable fish products through relevant eco-labels and being informed about the benefits of consuming sustainable fish products. Later in this chapter, findings for different types of knowledge (subjective and objective) in relation to the sustainability of fish resources are discussed.

Even though perceived behavioural control towards sustainable fish products among fish consumers in South Africa was found to be reasonably high, further investigation is required since the majority of fish consumers seem to not even consume sustainable fish products, at least not consciously. Hence, the responses might be based on a hunch rather than facts or at least partially informed feelings. The following section presents findings for measures of moral attitude towards sustainable fish products.

4.4.5 Moral attitude in relation to sustainable fish products

Table 7: Summary of moral attitude scale results

The table below presents results for 'moral attitude scale'. Respondents were asked about their moral standpoint in relation to buying sustainable fish products.

Moral attitude	Frequency (Percentage)							
Statements/Items	SD	D	N	A	SA	Missing	Mean	Standard Deviation
Purchasing sustainable fish products instead of unsustainable ones would make me:								
24. Feel like I am personally contributing to something better.	6 (3)	9 (4.5)	30 (15)	61 (30.5)	94 (47)	0 (0)	4.14	1.027
25. Feel like I am doing the morally right thing.	5 (2.5)	11 (5.5)	29 (14.5)	61 (30.5)	94 (47)	0 (0)	4.14	1.023
26. Feel like a better person.	8 (4)	8 (4)	44 (22)	53 (26.5)	87 (43.5)	0 (0)	4.01	1.087

Note: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree & SA=Strongly Agree

Moral attitude refers to the application of ethical reasoning in relation to a specific behaviour (Wang, 2017, p. 1556). In the case of sustainable fish products, one may think about the consequences of purchasing unsustainable fish products and see this behaviour as being immoral since it deprives future generations of an opportunity to experience what the current and past generations have experienced. A 5-point Likert scale with three items was used to measure moral attitude in relation to sustainable fish products among South African LinkedIn users.

Many (77.5%) of the respondents were positive towards the statement *"purchasing sustainable fish products would make me feel like I am personally contributing to something better"*, while only 7.5% were negative and 15% were neutral. In response to the statement *"purchasing sustainable fish products would make me feel like I am doing the morally right thing"*, 77.5% of respondents were positive, 14,5% were neutral and only 8% were negative. The majority of respondents (77.5%) stated that *"purchasing sustainable fish products would make them feel like a better person"*. However, 8% of the respondents did not think that *"buying sustainable fish products would make them feel like a better person "*and 22% were neutral. The relatively higher

mean scores (>4) and low standard deviations for moral attitude items depicts that most respondents believed that buying sustainable fish products was the ethical thing to do and doing it would make them feel positive about themselves.

Generally, the moral attitude among South African LinkedIn fish consumers is very high. In a study by Yadav and Pathak (2016a, p. 126) moral attitude was found to be an important variable in determining consumer intention to purchase organic food products as it had a high explanatory power. Even though respondents thought it is morally right to purchase sustainable fish products, the percentage of those who reported that they buy sustainable fish products is extremely low (30%). This suggests that the high moral attitude level among South African fish consumers doesn't necessarily translate to the consumption of sustainable fish products. Due to the phrasing of items and the topic at hand there's a possibility for social desirability bias. Some of the respondents may have responded in a way that they thought would make them look good, hence the level of moral attitude. Social desirability refers to a situation where respondents present themselves in a manner that is perceived to be acceptable by society (Bergen & Labonté, 2020, p. 783).

The following section presents the environmental concern scale results.

4.4.6 Environmental concern

The below table presents results for 'environmental concern scale'. Respondents were asked about the relationship between human and environmental issues to measure their level of environmental concern.

Table 8: Summary of environmental concern scale results

Environmental Concern	Frequency (Percentage)							
Statements/Items	SD	D	N	A	SA	Missing	Mean	Standard Deviation
27. The balance of nature is very delicate and can be easily upset.	2 (1)	3 (1.5)	28 (14)	66 (33)	101 (50.5)	0 (0)	4.31	.840
28. Human beings are severely abusing the environment.	2 (1)	1 (0.5)	26 (13)	46 (23)	125 (62.5)	0 (0)	4.46	.813
29. Humans must maintain the balance with nature in order to survive.	2 (1)	2 (1)	13 (6.5)	47 (23.5)	136 (68)	0 (0)	4.57	.747
30. Human interferences with nature often produce disastrous consequences.	2 (1)	1 (0.5)	1 (7.5)	60 (30)	122 (61)	0 (0)	4.50	.743

Note: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree & SA=Strongly Agree

Environmental concern refers to personal awareness of the fact that the environment is threatened by several issues such as resource depletion and pollution that came as a result of bad human behaviour (Diekmann & Franzen, 2019, p. 254). A 5-point Likert scale with 4 items was used to measure environmental concern among the South African LinkedIn fish consumers.

Environmental concern among South African LinkedIn fish consumers was found to be extremely high. In response to the statement 'the balance of nature is very delicate and can be easily upset', 83.5% of respondents were positive, 14% were neutral and only 2.5% were negative. When respondents were asked if 'human beings are severely abusing the environment', 85.5% of respondents were positive, 13% were neutral and only 1.5% were negative. Similarly, when

respondents were asked if '*humans must maintain the balance with nature in order to survive'*, 91.5% of respondents were positive, 6.5% were neutral and only 2% were negative. In response to the last statement *'human interferences with nature often produce disastrous consequences'*, 91% of respondents were positive, 7.5% were neutral and only 1.5% were negative. The extremely low standard deviations across items means the sample agreed and the majority were concerned about the environment. With the amount of media coverage on the state of the environment and extreme weather due to climate change, this is not surprising. People are aware of the environmental challenges that the planet is facing. Even though concern and awareness are high, very few people are taking favourable actions towards saving marine resources as only 30% of the sample mentioned that they specifically look for sustainable fish products when buying fish.

The level of environmental concern identified by the current study is higher than what was identified by Anvar and Venter (2014, p. 191) (3.24 mean of responses).The study by Anvar and Venter (2014) was also conducted in South Africa, so this implies two things: it's either the environmental concern among South Africans has grown over the past 7 years or that there is a variation in environmental concern between the two populations (South African LinkedIn users and students aged 18-23). This finding reinforces the existence of the green gap. According to Mkhize and Ellis (2018, p. 121) the green gap exists when the level of sustainable behaviour is lower than the level of environmental concern which is the case for the current study. Mkhize and Ellis (2018, p. 121) also have similar finding (environmental concern > green behaviour) in their study that looked at the existence of green gap in developing markets. Relevant and creative strategies need to be developed and implemented by social and green marketers to close this green gap as it seems to be delaying the adoption of green buying behaviour in developing nations. The following section presents the results for the health consciousness measure.

4.4.7 Health consciousness

The table below shows results for 'health consciousness scale'. Respondents were asked choosing food for health, if they are health conscious and health related issues to measure their level of health consciousness.

Table 9: Summary of Health consciousness scale results

Health Consciousness	Frequency (Percentage)							
Statements/Items	SD	D	N	A	SA	Missing	Mean	Standard Deviation
31. I choose food carefully to ensure good health.	6 (3)	10 (5)	52 (26)	68 (34)	64 (32)	0 (0)	3.87	1.019
32. I consider myself as a health-conscious consumer.	6 (3)	21 (10.5)	67 (33.5)	54 (27)	52 (26)	0 (0)	3.63	1.072
33. I think often about health-related issues.	6 (3)	19 (9.5)	37 (18.5)	79 (39.5)	59 (29.5)	0 (0)	3.83	1.052
34. Fish or fish products are a significant part of a healthy diet.	7 (3.5)	11 (5.5)	26 (13)	79 (39.5)	77 (38.5)	0 (0)	4.04	1.026

Note: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree & SA=Strongly Agree

Health consciousness is when an individual shows preference for healthy food products (Prasad et al., 2008, p. 302). Health consciousness amongst South African fish consumers who use LinkedIn was measured to determine if this variable is connected to fish consumption. Four items were used to measure health consciousness and from these four items one, *Fish or fish products are a significant part of a healthy diet*, was developed by the researcher and three were adapted from Yadav and Pathak (2016a). All items were measured on a 5-point Likert scale.

In response to the statement, *"I choose food carefully to ensure good health"*, 66% of the respondents were positive, 26% were neutral and only 8% were negative. Most (53%) of the respondents indicated that they *"consider themselves as health-conscious consumers"*. A moderate percentage of respondents (21.5%) did not consider themselves as health conscious and 33.5% of consumers were neutral or not sure if they are health conscious or not.

Similarly, in response to the statement "*I think often about health-related issues",* most respondents (69%) were positive, 12% were negative and 18.5% were neutral. A majority of respondents 82.5% believe that "*fish or fish products are a significant part of a healthy diet",* while only 9% disagreed and 13% were neutral.

A health-conscious individual tends to look for healthy food products such as organic food or food that contains important body nutrients (Hoque et al., 2018, p. 3). The majority (78%) of respondents who are fish consumers in the current study thought that fish and fish products are a significant part of a healthy diet. This is in line with multiples studies that suggested that people consume fish or fish products due to health benefits that are provided by fish (e.g. Barange et al., 2015; Domingo, 2016; Pieniak et al., 2008).

Although these consumers believe that fish is healthy, only about half actually consider themselves health conscious and about two thirds think about health issues and choose food for health. This shows that approximately 30% of these fish consumers consume fish just as food not specifically for health reasons. Overall, there is high level of health consciousness among South African fish consumers.

The following section presents subjective knowledge scale findings.

4.4.8 Environmental knowledge

The table below presents results for 'subjective knowledge scale'. Respondents were asked questions related to the depletion of fish stocks, sustainable fish products and eco-labels to measure their levels of subjective environmental knowledge.

Table 10: Summary of subjective knowledge scale results

Subjective Knowledge	Frequency (Percentage)							
Statements/Items	SD	D	N	A	SA	Missing	Mean	Standard Deviation
35. I am knowledgeable about the depletion of fish stocks.	22 (11)	40 (20)	47 (23.5)	49 (24.5)	42 (21)	0 (0)	3.25	1.294
36. I am informed about the local fish stock problems and issues.	38 (19)	49 (24.5)	55 (27.5)	30 (15)	28 (14)	0 (0)	2.81	1.298
37. I am informed about the threats the depletion of fish stocks will have for the global ecosystem.	27 (13.5)	38 (19)	46 (23)	46 (23)	43 (21.5)	0 (0)	3.20	1.338
38. I know more about local fish stocks problems than the average person.	44 (22)	61 (30.5)	52 (26)	23 (11.5)	20 (10)	0 (0)	2.57	1.234
39. I know more about sustainable fish products than the average person.	39 (19.5)	53 (26.5)	60 (30)	28 (14)	20 (10)	0 (0)	2.69	1.222
40. I know how to select fish products that are sustainable.	55 (27)	46 (23)	42 (21)	32 (16)	26 (13)	0 (0)	2.65	1.370
41. I understand the environmental phrases and statements used on sustainable fish products packaging.	40 (20)	45 (22.5)	43 (21.5)	41 (20.5)	31 (15.5)	0 (0)	2.89	1.359
42. I am very knowledgeable about	43 (21.5)	53 (26.5)	49 (24.5)	31 (15.5)	24 (12)	0 (0)	2.70	1.295

	SD	D	N	A	SA		Mean	SD
sustainable fish product eco-labels.								
43. I understand the environmental phrases in eco-labels on sustainable fish/fish product packages.	43 (21.5)	55 (27.5)	42 (21)	35 (17.5)	25 (12.5)	0 (0)	2.72	1.319
44. I understand the meaning of symbols on sustainable fish/fish product packages.	43 (21.5)	54 (27)	44 (22)	39 (19.5)	20 (10)	0 (0)	2.70	1.281
45. I know that buying eco-labeled fish/fish products reduces the pressure that fish stocks are facing.	27 (13.5)	32 (16)	55 (27.5)	53 (26.5)	33 (16.5)	0 (0)	3.17	1.267

Note: SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree & SA=Strongly Agree

Subjective knowledge refers to how much an individual thinks he or she knows about a certain topic (Vigar-Ellis, Pitt, & Caruana, 2015, p. 87). The current study looked at subjective knowledge of sustainable fish products which refers to how much fish consumers think they know about sustainable fish products, the depletion of fish resources and eco-labels. An eleven-item scale was used to measure subjective knowledge of fish resources. Results from the subjective knowledge scale depict that most of the respondents weren't sure about their subjective knowledge (Mean scores in the neutral zone 2.5-3.5).

4.4.8.1 Subjective knowledge of the depletion of fish resources

When respondents were asked if "*they were knowledgeable about the depletion of fish stocks*", 45,5% agreed, 31% disagreed and 23.5% were neutral. This is not a desirable knowledge level as less than 50% of respondents think they are aware of the declining fish stocks. Similarly, in response to the statement *"I am informed about the local fish stock problems and issues"*, 43.5% of the respondents disagreed, 27.5% were neutral and only 29% agreed.

In response to the statement "*I am informed about the threats the depletion of fish stocks will have for the global ecosystem*", 44,5% of the respondents agreed, 23% were neutral and 32.5% disagreed. However, when respondents were asked if they know more about local fish stock problems than the average person, most of the respondents disagreed (52.5%), 26% were neutral and only 21.5% agreed.

Overall, these findings show that less than 50% of the respondents think they are knowledgeable on issues related to the declining fish stocks. Due to limited information that is shared around this topic in South Africa, this level of subjective knowledge is understandable. There's a lack of information that specifically focuses on the issues faced by fish resources. Even though consumers are aware of environmental issues in general and environmental concern is high, they still believe they lack knowledge related to specific environmental issues such as the depletion of fish resources in this case.

4.4.8.2 Subjective knowledge of sustainable fish products

When respondents were asked if they "*know more about sustainable fish products than the average person",* only 24% of the respondents agreed while 46% disagreed and 30% were neutral. In response to the statement, *"I know how to select fish products that are sustainable",* 29% of the respondents agreed, 21% were neutral and 50% of the respondents disagreed. This makes sense as there is only 30% of fish consumers who specifically look for sustainable fish products when they are buying fish products. Consumers cannot purchase sustainable fish products unless they know how to identify and select them.

In response to the statement "*I understand the environmental phrases and statements used on sustainable fish products packaging",* 36% of the respondents agreed, 21.5% were neutral and 42.5% disagreed. Overall, these findings show that most fish consumers are not sure if they have knowledge related to sustainable fish products. Generally, subjective knowledge of sustainable fish products is low. These consumers probably don't even know what sustainable fish products are, hence, they were not able to say if they know about them or not.

4.4.8.3 Subjective knowledge of sustainable fish eco-labels

Similarly, when respondents were asked if they are very knowledgeable about sustainable fish product eco-labels, most of them (48%) disagreed, 24.5% were neutral and 27% agreed. When respondents were asked if they understand the environmental phrases in eco-labels on sustainable fish/fish products packages, 30% of the respondents agreed, 21% were neutral and 49% disagreed.

In response to the statement, *"I understand the meaning of symbols on sustainable fish/fish product packages",* 29.5% agreed, 22% were neutral and 48.5% disagreed When respondents were asked if they know that buying eco-labeled fish/fish products reduces the pressure that fish stocks are

facing, 43% of the respondents agreed, 27.5% were neutral and 29.5% were disagreed. Overall, these results show a moderate level of subjective knowledge about sustainable fish eco-labels. This reinforces the fact that there's a high level of fish consumers who don't know how to select sustainable fish products since eco-labels are a distinguishing factor between sustainable and non-sustainable fish products. Lack of knowledge about eco-labels means a lack of knowledge on how to select sustainable fish products. However, this doesn't mean all fish products that are not eco-labeled are not sustainable. Some fish products may comply with environmental standards but lack certification due to complexity and high costs of acquiring it especially in developing countries (Carlson & Palmer, 2016, p. 131).

Relative to other constructs, the means for subjective knowledge items were lower. The overall mean score for subjective knowledge was also found to be moderate (2.6). The relatively high standard deviations however indicate that there were some in the sample who considered themselves knowledgeable. Overall, although environmental concern in this sample was high, the respondents acknowledge that they lacked detailed knowledge.

The following section presents the results for objective knowledge measures. To measure objective knowledge of sustainable fish/fish products, a dichotomous scale (true/false) was use. Objective knowledge is knowledge that a person really has and is able to show or answer questions related to the topic at hand (Vigar-Ellis et al., 2015, p. 87). The current study looked at knowledge that fish consumers truly possess in relation to sustainable fish products, the depletion of fish resources and eco-labels.

The table below presents results for the 'objective knowledge scale'. Respondents were asked questions related to the depletion of fish stocks, sustainable fish products and eco-labels to measure their level of objective environmental knowledge.

Table 11: Summary of objective environmental knowledge scale results

Objective Knowledge	Frequency (Percentage)			
Statements/Items	True	False	Missing	Correct Answer
46. Overfishing is the main cause of the depletion of fish resources.	173 (86.5)	27 (13.5)	0 (0)	True
47. All fish stocks are within their sustainable levels.	45 (22.5)	155 (77.5)	0 (0)	False
48. Fish resources will never be depleted.	31 (15.5)	169 (84.5)	0 (0)	False
49. Buying sustainable fish products is good for the environment.	195 (97.5)	5 (2.5)	0 (0)	True
50. Sustainable fish products are not available in South Africa.	39 (19.5)	159 (79.5)	2 (1)	False
51. Sustainable fish products are made from fish species that are within their sustainable level.	155 (77.5)	45 (22.5)	0 (0)	True
52. 'Eco-friendly' means the same as 'environmentally consciousness'.	168 (84)	32 (16)	0 (0)	False
53. Eco-labels indicate that the product meets environmental standards.	180 (90)	20 (10)	0 (0)	True
54. The picture below represents an eco-label for sustainable fish/fish products used in South Africa.	187 (93.5)	13 (6.5)	0 (0)	True

The overall responses toward objective knowledge depict that most respondents are actually knowledgeable. The respondents demonstrated a higher level of objective knowledge (78%) as compared to subjective knowledge. However, most questions were quite easy to guess which may have led to an elevated objective knowledge score. The respondents seem to know less about sustainability or environmental concepts. However, the respondents seemed to know a lot about the other environmental aspects that the scale was measuring. This is probably because some of the questions were a bit easy to guess.

4.4.8.4 Objective knowledge of the depletion of fish resources

The objective knowledge of the depletion of fish stocks was found to be very high amongst these South African fish consumers as an average of 82.8% correct response rate was achieved. Even though the correct response rate is high, the results show that some fish respondents don't have sufficient information regarding issues related to fish resources. These consumers don't know that some fish species are below their sustainable levels and that if unsustainable fishing and consumption persists at the current rate, fish resources will be erased from existence. Consumers who lack this kind of knowledge are highly likely to consume fish without considering the sustainability elements as they don't recognize any challenges that their consumption patterns are likely to create or solve. Although the results show high objective knowledge of the depletion of fish resources, there is a possibility that the respondents were able to guess some of the answers based on their general environmental knowledge. So further exploration would be of great benefit. This applies to the other two knowledge factors as well.

4.4.8.5 Objective knowledge of sustainable fish products

Findings also show a very high objective knowledge of sustainable fish products (84,8%). This shows that these South African fish consumers know what sustainable fish products are, their benefits and that these products are available in the market. With this high level of sustainable fish products knowledge, consumption of these products is also expected to be high. However, this is not the case as only 30% of these South African fish consumers look for sustainable options when they are buying fish.

4.4.8.6 Objective knowledge of sustainable fish eco-labels

Objective knowledge of sustainable fish eco-labels was found to be moderately high (66.5%) amongst these South African fish consumers. The last two objective knowledge of fish eco-labels items got a correct response score above 90%. However, most (84%) of the respondents did not know that the statement *Eco-friendly' means the same as 'environmentally consciousness* is false. Hence, the overall correct response rate dropped to 66.5%. The ability of fish consumers to identify one of the eco-labels used is sustainable fish products in South Africa shows that even though they claim that they don't specifically look for sustainable fish products when buying fish products they might be purchasing these products unconsciously or unintentionally. So, the 30% rate of fish consumers who specifically look for sustainable options may not be a true reflection of sustainable fish consumption. In this case, the unintentional desired behaviour needs to be made intentional so that it will be maintained and increased.

The above sections have presented the sample profile of the study and the univariate analysis for each variable that is present in the study. The following section tests the validity and reliability of the instruments used in the study for use in multivariate analysis. This helps in laying a solid foundation for model testing and making accurate hypotheses related conclusions.

4.5 CONVERGENT AND DIVERGENT VALIDITY

To assess validity of the instruments, the 41 items making up the variables were subjected to Principal Component Analysis (PCA) method (with Varimax rotation) using SPSS.

Table 12: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.907
Bartlett's Test of Sphericity	Approx. Chi-Square	7567.189
	Df	820
	Sig.	.000

Before running PCA, the appropriateness of data for factor analysis was investigated. The KMO in the above output table is 0.9, exceeding the recommended minimum score of 0.6 (Deshmukh & Sunnapwar, 2013, p. 1619). According to Deshmukh and Sunnapwar (2013, p. 1619), the Bartlett's

Test of Sphericity should be significant (p<0.05) for factor analysis to be deemed appropriate. The data used in the current study provided a significant level of Bartlett's Test of Sphericity (.000). The analysis of KMO shows that all measures meet the required minimum standard, and that data are appropriate for factor analysis. The Bartlett's Test the sample is adequate for factor analysis (p<0.05).

Most items for different constructs load separately and distinctively onto 7 factors that corresponded with the 7 variables in the study. These items were for the following variables: intention to purchase sustainable fish products, attitude towards sustainable fish products, perceived behavioural control, moral attitude, and environmental concern. Two items for the subjective norm variable, one item for the health consciousness and five items for the subjective knowledge of sustainable products variables cross loaded and were therefore excluded from further analysis. The last items for PI did not load sufficiently, so it was also excluded. The items for attitude towards sustainable fish products and moral attitude loaded together onto factor two. The reason for this is likely that all the items measure the same variable which is attitude. However, the items were treated separately for the purpose of the analysis for moral attitude and attitude towards sustainable fish products as supported by literature.

The findings following the removal of items that cross loaded provide support for convergent and discriminant validity because the items that should load together do so and those that belong to separate constructs also load together but separately. These results provided adequate evidence to confirm that the measures were indeed capturing distinct and separate constructs as intended by the study.

4.6 RELIABILITY AND VALIDITY ANALYSIS

Table 13: Cronbach's Alpha for reliability assessment

Scale	Cronbach's Alpha	N of Items
Purchase intention	.893	4
Attitude towards sustainable fish products	.941	4
Subjective norm	.906	4
Perceived behavioural control	.867	4
Moral attitude	.935	3
Environmental concern	.837	4
Health consciousness	.887	3
Subjective knowledge	.955	6

Calculation of Cronbach's Alpha from SPSS was used to assess the reliability of the instruments used. According to Hair et al. (2009, p. 353), Cronbach's Alpha needs to be above 0.6 for a scale to be considered reliable. The closer the Cronbach's alpha is to 1, the greater the internal consistency of the instrument or scale (Gliem & Gliem, 2003, p. 87). According to George and Mallery (2003, p. 232), a Cronbach's alpha or 0.8 is good, 0.9 is excellent. Given that Cronbach's Alphas for all variables are above 0.8, internal consistency is assumed. The Cronbach's Alpha score for objective knowledge couldn't be calculated since a single score that is composed of questions that have absolute true or false answers was used for this variable. The Cronbach's Alphas presented on the table above are based on the revised scale or items that remained after eliminating those that were not adequate.

Taken together with the convergent and divergent validity, these results provide support for the psychometric properties of the measures used and that the respondent's scores on the items making up these scales separately could be averaged to produce overall scores so that their causal effect

could be investigated. In summary, the eight constructs investigated in this study consisted of purchase intention, attitude towards sustainable fish products, subjective norm, moral attitude, environmental concern, perceived behavioural control, health consciousness, and subjective environmental knowledge and exhibited robust psychometric properties making analysis of the relationships between them possible. Therefore, an acceptable level of construct and convergent validity can be claimed. *Refer to Appendix three for factor loadings on adjusted constructs table.*

4.7 COMPOSITE SCORES

Table 14: Composite score for each variable

Variables	Composite score
Intention to purchase sustainable fish products	4
Attitude towards sustainable fish products	4.34
Subjective norm	3.12
Perceive behavioural control	3.7
Moral attitude	4.1
Environmental Concern	4.46
Health Consciousness	3.8
Subjective knowledge	2.8
Objective knowledge	78%

To find composite scores for each variable, an average mean score for all the items per variable was calculated.

4.8 MULTIVARIATE ANALYSIS

This section measures and report findings on the relationships between independent and dependent variables.

4.8.1 Multiple regression Analysis

The PCA without the excluded items revealed the presence of seven components with eigen values exceeding 1, explaining 16.3%, 15.4%, 10.4%, 9.8%, 9.1%, 9% and 7.7% of variance respectively. The seven factors cumulatively explained 77.9% of the variance. *Please refer to Appendix four.* Multiple regression and correlation analysis was conducted to determine and measure relationships between the dependent and independent variables. In this study, the independent variables were attitude, subjective norm, perceived behavioural control, environmental concern, health consciousness, moral attitude, subjective and objective knowledge, and dependent variable was intention to purchase sustainable fish products.

Multiple regression analysis allows researchers to objectively investigate the level and character of the hypothesized relationships and has been used successfully in multiple business studies (Sekaran & Bougie, 2016, p. 314), hence, it was deemed a suitable method for testing and drawing conclusions on the hypothesized relationships.

There are six assumptions that need to be met for the analysis to be valid and reliable. Assumption one states that the relationship between the independent variables and dependent variable should be linear (Pallant, 2011, p. 149). A scatterplot of each relationship tested in this section was produced to check if the hypothesised relationships were linear or not. The scatterplots (see Appendix 5) show that all hypothesised relationships were linear as they could be modeled by a straight line (Pallant, 2011, p. 149).

The second assumption states that there should be no multicollinearity in data which means that the independent variables should not be highly correlated with each other (Pallant, 2011, p. 149). According to Nyremo and Widerberg (2020, p. 47), the Variance Inflation Factor (VIF) should be below 3.0 and the tolerance index should be above 0.25. The highest VIF in the current study was 2.470 and the lowest tolerance index was 0.4. Therefore, multicollinearity was not a problem in this study. Refer to Appendix 5 for VIF and tolerance indices.

The third assumption states that the residual values should be independent (Pallant, 2011, p. 149). This assumption was tested through the Durbin-Watson statistic which is in the model summary in Appendix 5. The Durbin-Watson value needs to be close to 2 for this assumption to be met (Tay, 2014, p. 407). In this study, the value is 1.952 meaning that the assumption was met.

The fourth assumption states that the variance of the residuals should be fairly constant across the linear model and this is referred to as homoscedasticity (Pallant, 2011, p. 149). To test this, a whole model scatterplot was produced. The last graph in Appendix 5 which looks like a random display of dots concentrated along the zero point shows that this assumption was met (Pallant, 2011, p. 156).

The fifth assumption states that the values of residuals should be normally distributed (Pallant, 2011, p. 149). To test this assumption, a P-P plot of the model needs to be produced and the points need to be closer to the diagonal line for the assumption to be true (Pallant, 2011, p. 156). In this case, most of the dots don't touch the diagonal line but they are close, so it can be concluded that the assumption was met. Refer to the normal P-P Plot of the regression in Appendix 5.

The last assumption states that there must be no influential cases biasing the model (Pallant, 2011, p. 149). This can be tested by checking the Cook's distance values for each participant created in SPSS (Pallant, 2011, p. 158). All Cook's distance values are below 1, showing that the individual cases were not biasing the model (Pallant, 2011, p. 158).

Table 15: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
			Model Summary	
1	.691[a]	.478	.456	.66066
a. Predictors: (constant), subjective knowledge, attitude, objective knowledge, environmental concern, health consciousness, subjective norm, perceived behavioural control, moral attitude				

Table 16: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	76.390	8	9.549	21.877	.000[b]
	Residual	83.365	191	.436		
	Total	159.755	199			
a. Dependent Variable: Purchase Intention						
b. Predictors: (Constant), Subjective Knowledge, Attitude, Objective Knowledge, Environmental Concern, Health Consciousness, Subjective Norm, Perceived behavioural control, Moral Attitude						

To investigate the effects of attitude, subjective norm, perceived behavioural control, moral attitude, objective knowledge, subjective knowledge, environmental concern and health consciousness on intention to purchase sustainable fish products, a regression was used where the measures for attitude, subjective norm, perceive behavioural control, moral attitude, objective knowledge, subjective knowledge, environmental concern and health consciousness were treated as independent variables while intention to purchase sustainable fish products was treated as a dependent variable. Results provide a significant adjusted R^2 of 45.6% (F = 21.9; p < .001). Thus together, the independent variables explain almost 50% of the variance in the dependent variable.

4.8.1.1 Hypothesis Testing

Table 17: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.264	.408		.647	.518		
	Attitude	.574	.092	.512	6.236	.000	.405	2.470
	Perceived behavioural control	.085	.066	.093	1.296	.196	.532	1.880
	Moral Attitude	.042	.073	.046	.572	.568	.428	2.335
	Environmental Concern	.105	.089	.076	1.181	.239	.663	1.508
	Objective Knowledge	.052	.356	.008	.146	.884	.874	1.144
	Subjective Norm	.054	.051	.069	1.044	.298	.622	1.607
	Health Consciousness	.063	.060	.066	1.043	.298	.679	1.473
	Subjective Knowledge	-.020	.049	-.026	-.408	.684	.656	1.525
a. Dependent Variable: Purchase Intention								

Coefficients for all the linear relationships were measured at a 95% interval level. This means that 95% of the time the study outcomes will be correct and there is only 5% chance of being incorrect which offers a significant level of 0.05 (P=0,05) (Sekaran & Bougie, 2016, p. 21). The dependent variable (Intention to purchase sustainable fish products) was regressed on independent variables, to test H_1, H_2, H_3, H_4, H_6, H_8, H_{10} and H_{12}.

H_1: Attitude towards sustainable fish products predicts the intention to buy these products.

H_2: Subjective norm predicts the intention to buy sustainable fish products.

H_3: Perceived behavioural control towards sustainable fish products predicts the intention to buy these products.

H_4: Moral attitude towards sustainable fish products predicts the intention to buy these products.

H_6: Environmental concern predicts the intention to purchase sustainable fish products.

H₈: Health consciousness predicts the intention to buy sustainable fish products.

H₁₀: Subjective environmental knowledge predicts the intention to buy sustainable fish products.

H₁₂: Objective environmental knowledge predicts the intention to buy sustainable fish products.

Attitude significantly predicted purchase intention (std B = 0.512; P = 0.000), which shows that attitude towards sustainable fish products plays a significant role in shaping intention to purchase these products. This suggests that as attitude towards sustainable fish products increase, intention to buy these products also increases and vice versa. However, support for H_2 (std B = 0.069; P = 0.298), H_3 (std B = 0.093; P = 0.196), H_4 (std B = 0.046; P = 0.568), H_6 (std B = 0.076; P = 0.239), H_8 (std B = 0.066; P = 0.298), H_{10} (std B = -0.026; P = 0.684) and H_{12} (std B = -0.008; P = 0.884), was not found. These results show that no variable on its own was found to be a significant predictor of intention to purchase sustainable fish products other than attitude towards sustainable fish products. This shows that other than attitude towards sustainable fish products, marketers cannot focus on one specific variable to increase sustainable fish consumption. All variables need to be addressed to achieve the desired behaviour of sustainable fish consumption as they have sufficient predictive power when working together.

These findings differ from several studies that also used the TPB in the context of EPP. A study conducted by Wang et al. (2016, p. 134) found attitude, subjective norm and perceived behavioural control were all found to be effective predictors of intention to adopt electric vehicles. Another study which was conducted in a South African population aged 18-73, found perceived behavioural control, environmental concern and environmental knowledge positively affect the intention to purchase green products (Koloba, 2020, p. 46). Moral attitude was also found to have a significant positive effect on intention to purchase organic food products (Yadav & Pathak, 2016a, p. 125). The current study is the first study to find almost all the variables of the TPB ineffective in predicting green behaviour when applied independently and suggest the application of the whole model in order to achieve the desired behaviour of purchasing sustainable fish products. Purchasing sustainable or organic food products is not a 'normal' behaviour in developing nations. Achieving behaviour change to buying organic food products might be easier than achieving behaviour change to buying sustainable fish products specifically because there are health benefits that are linked to organic food products whilst the benefit

of consuming sustainable fish products might not be as widely known. So, it makes sense for this kind of behaviour change to require extra effort from marketers and other relevant stakeholders.

4.8.2 Mediation analysis

This section presents findings for the mediated relationships. Baron and Kenny's (1986) method was used to measured mediated relationships. The following relationships that are mediated by attitude were tested and results are presented and discussed in this section:

- The relationship between environmental concern and intention to purchase sustainable fish products.
- The relationship between health consciousness and intention to purchase sustainable fish products.
- The relationship between subjective knowledge and intention to purchase sustainable fish products.
- The relationship between objective knowledge and intention to purchase sustainable fish products.

According to Baron and Kenny (1986, p. 1177) three regression equations should be estimated in order to test for mediation. These equations are: "A, regressing the mediator on the independent variable; B, regressing the dependent variable on the independent variable; and C, regressing the dependent variable on both the independent and on the mediator" (Baron & Kenny, 1986, p. 1177). Once the three equations have been tested, mediation is then established. However, three conditions must be true for mediation to be assumed, namely: the independent variable must affect the mediator in the first equation, the independent variable must be shown to affect the dependent variable in the second equation, and the mediator must affect the dependent variable in the third equation (Baron & Kenny, 1986, p. 1177).

To establish that the mediator completely mediates the relationship between the independent and dependent variable the effect of the independent variable on dependent variable in the third equation must be zero (Baron & Kenny, 1986, p. 1177). If the independent variable has significant impact on the dependent variable but reduced in absolute size, this is partial mediation (Baron & Kenny, 1986, p. 1177). Below are the findings for all mediated relationships:

H$_5$: Environmental concern predicts the attitude towards sustainable fish products.

H₆: Environmental concern predicts the intention to purchase sustainable fish products.
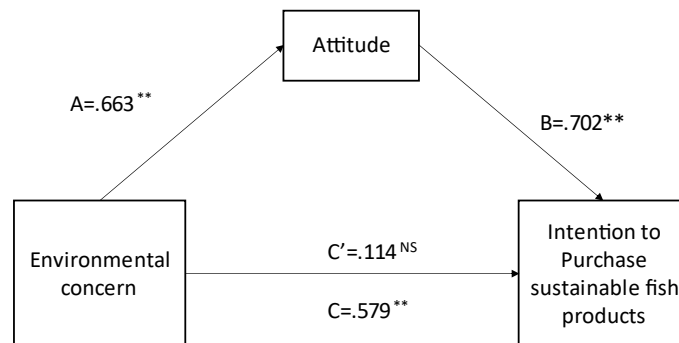
Figure 6: The mediating effect of attitude on the relationship between environmental concern and intention to purchase sustainable fish products

Note: * = significant at $p<0.05$, **= significant at $p<0.001$, ^{NS} = not significant

Findings from mediation analysis shows that environmental concern (IV) has a positive (b=.663) and significant (p=.000) effect on attitude towards sustainable fish products (M). Intention to purchase sustainable fish products (DV) was regressed on environmental concern (IV) and was found to have a positive (b=.579) and significant effect (p=.000) on Intention to purchase sustainable fish products. Lastly, the DV was regressed on the M and IV, and a positive (b.=702) and significant (p=.000) relationship between M and DV was found. However, on equation three the relationship between the IV and DV was still positive (b.114) but smaller than on equation two and statistically insignificant (p=.191). This shows that when Paths A and B are controlled, a previously significant relationship between the independent and dependent variables become insignificant. Environmental concern only affects Intention through its effect on attitude. Thus, environmental concern is still an important factor influencing intention to purchase sustainable fish products but not because it directly affects intention but because it affects attitudes which in turn affect intention. In this case full mediation can be assumed, but only H₅ is accepted. H₆ is not accepted.

These findings are in line with what Yadav and Pathak (2016a) discovered in their study. Yadav and Pathak (2016a, p. 126) found environmental concern to have no significant effect on intention to buy organic food. The current study also discovered that environmental concern lacks significant influence on intention to purchase sustainable fish products. However, this contradicts with the findings of Koloba (2020). Koloba (2020, p. 45) studied the intention to buy eco-friendly products in South Africa using the TPB and discovered that environmental concern positively and significantly affects the intention to purchase sustainable products.

H7: Health consciousness predicts the attitude towards sustainable fish products.

H8: Health consciousness predicts the intention to buy sustainable fish products.

Figure 7: Mediation effect of attitude on the relationship between health consciousness and intention to purchase sustainable fish products

Note: * = significant at $p<0.05$, ** = significant at $p<0.001$, [NS] = not significant

Mediation analysis results show that health consciousness (IV) has a positive (b=.210) and significant (p=.000) effect on attitude towards sustainable fish products (M). Intention to purchase sustainable fish products (DV) was regressed on health consciousness (IV) and the IV was found to have a positive (b=.255) and significant effect (p=.000) on the DV. Lastly, the DV was regressed on the M and IV, and a positive (b.=720) and significant (p=.000) relationship between M and DV

was found. However, in equation three the relationship between IV and DV was still positive (b=.103) and statistically significant (p=.045) but smaller than in equation two. This shows that B does not reduce C to be insignificant, even though it reduces b. Health consciousness therefore affects intention to purchase sustainable fish products, however it is partially mediated by attitude. In this case partial mediation can be assumed. H_7 and H_8 are accepted.

These findings suggest that there is a significant and positive direct and indirect relationship between health consciousness and intention to buy sustainable fish products. This mean that as health consciousness increases among fish consumers, intention to purchase these products also increase significantly, and vice versa. This also means that the results for H_8 are mixed. The regression analysis does not accept H_8, but the mediation does. The effects are very small in both cases b=0.066^{NS} in the regression analysis and b=0.255** reduced to b=0.103** in the mediation analysis. Thus, although these results indicate a significant effect of health consciousness on intention to purchase sustainable fish products, the effect sizes are extremely small.

These findings are in line with Yadav and Pathak (2016a, p. 126) who found health consciousness to be a significant predictor of intention to buy organic food products. However, the effect of health consciousness found by Yadav and Pathak (2016a, p. 125) is reasonably high (b= .532) as compared to that emerged in the current study. Hence, further exploration would be a great benefit. No other studies that looked at the mediation we found.

H₉: Subjective environmental knowledge predicts the attitude towards sustainable fish products.
**H₁₀:** Subjective environmental knowledge predicts the intention to buy sustainable fish products.
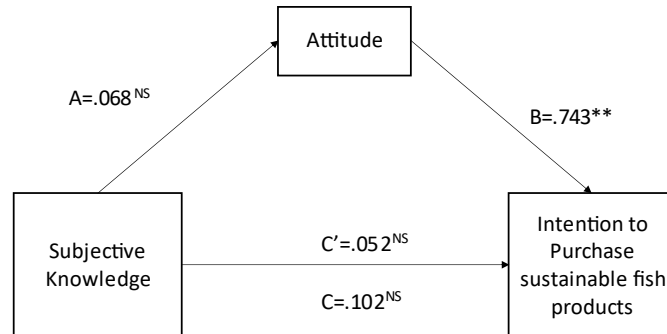
Figure 8: Mediation effect of attitude on the relationship between subjective knowledge and intention to purchase sustainable fish products

Note: * = significant at p<0.05, **= significant at p<0.001, NS = not significant

Mediation analysis results show that subjective environmental knowledge (IV) has a positive (b=.068) but insignificant (p=.157) effect on attitude towards sustainable fish products (M). Intention to purchase sustainable fish products (DV) was regressed on subjective environmental knowledge (IV) and the IV was found to have a positive (b=.102) but insignificant effect (p=.055) on the DV. Lastly, the DV was regressed on the M and IV, a positive (b=743) and significant (p=.000) relationship between M and DV was found. However, in equation three the relationship between the IV and DV although still positive (b.052) was statistically insignificant (p=.193) and smaller than in equation two. This shows that there is neither a direct nor mediated effect between subjective knowledge and intention to purchase sustainable fish products. Subjective knowledge doesn't affect either attitude or intention to purchase sustainable fish products, so both H_9 and H_{10} are rejected.

H_{11}: Objective environmental knowledge predicts the attitude towards sustainable fish products.
H_{12}: Objective environmental knowledge predicts the intention to buy sustainable fish products.
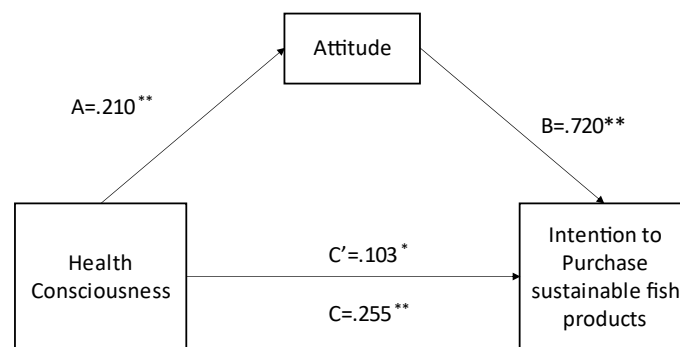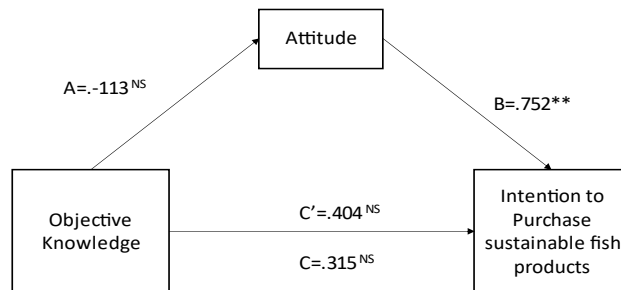
Figure 9: Mediation effect of attitude on the relationship between objective knowledge and intention to purchase sustainable fish products

Note: * = significant at p<0.05, **= significant at p<0.001, [NS] = not significant

Mediation analysis results show that objective environmental knowledge (IV) has a negative (b=-.113) and insignificant (p=.779) effect on attitude towards sustainable fish products (M). Intention to purchase sustainable fish products (DV) was regressed on objective environmental knowledge (IV) and the IV was found to have a positive (b=.315) but insignificant effect (p=.482) on the DV. Lastly, the DV was regressed on the M and IV, and as expected, a positive (b.=752) and significant (p=.000) relationship between the M and DV was found. However, in equation three the relationship between the IV and DV was still positive (b.404) but statistically insignificant (p=.230). These results show that attitude does not mediate the relationship between objective environmental knowledge and intention to purchase sustainable fish products and neither a direct nor indirect effect exists between these two variables. Both H_{11} and H_{12} are rejected.

Overall, the results imply that even if fish consumers have high environmental knowledge, neither attitude nor intention to purchase sustainable fish products will increase. Environmental knowledge seems to have no role in influencing intention to purchase sustainable fish products. The only time environmental knowledge is able to impact intention to purchase sustainable fish is when it is working together with all the other variables. The findings of the current study contradict with literature that suggests that environmental knowledge has a direct and mediated effect on intention to buy sustainable products (Suki, 2016, p. 2903). In the case of sustainable fish products

neither a direct nor mediated effect was found. With regard to specific knowledge type (knowledge of eco-labels), Nyremo and Widerberg (2020, p. 48) discovered that there is neither a direct nor indirect relationship between the knowledge of eco-labels and the intention to buy eco-labeled food products.

The figure below indicates the accepted hypotheses from the conceptual model.

Note: * = significant at p<0.05, **= significant at p<0.001,   NS = not significant
red= regression score
black= mediation score
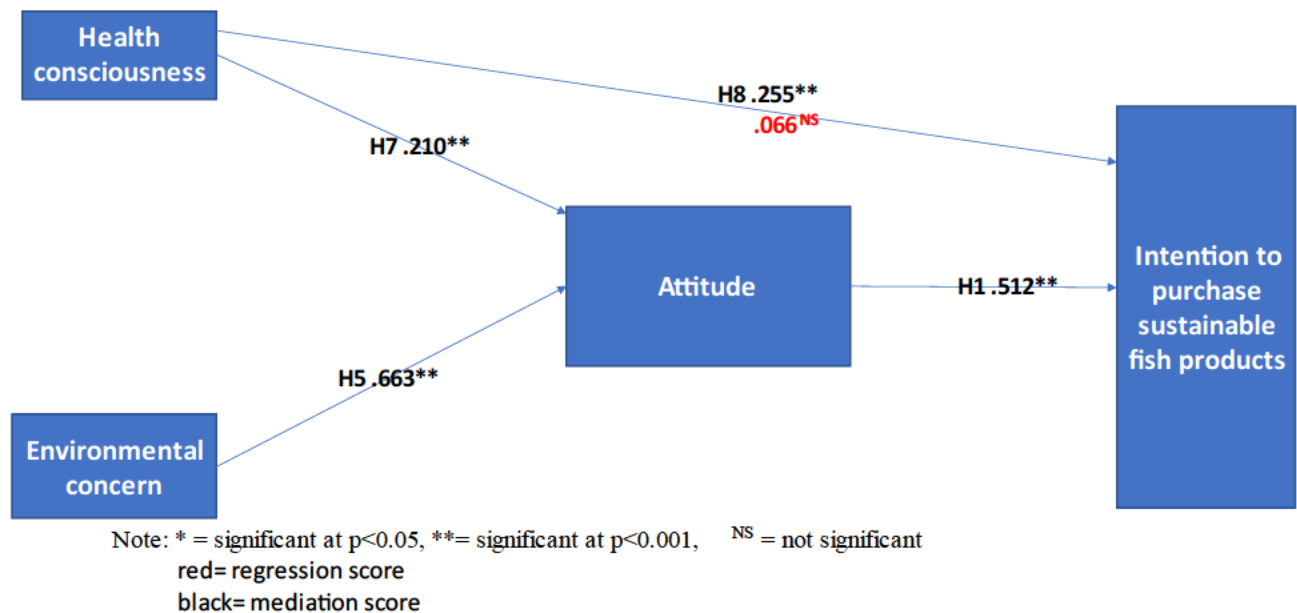
Figure 10: Model summary (Significant paths)

4.9 CONCLUSION

The composite score for each of the variable included in the study are as follows: Intention to buy sustainable fish products (4 = high), Attitude (4.34 = high), Subjective norm (3.12 = average), Perceived behavioural control (3.7 = average), Moral attitude (4.1 = high), Environmental concern (4.46 = high), Health consciousness (3.8 = high), Subjective knowledge (2.8 = average) and Objective knowledge (78% = high). The variables together explain just less than 50% of the variance in intention to buy. When looking at individual predictors of intention to purchase it was found that attitude positively affects the intention to purchase sustainable fish products. Environmental concern was found not to affect intention to purchase sustainable fish products

directly but influences attitude positively. Mediation analysis suggested that health consciousness is directly and indirectly related to intention to purchase sustainable fish products while regression analysis suggested that there is no direct relation between health consciousness and intention to buy sustainable fish products. So, results for H_8 are mixed as stated previously. Mediation also discovered that health consciousness significantly affect attitude.

Attitude is the only variable that was found to have a significant impact on intention to buy sustainable fish products in regression analysis. However, the overall model was found to be fit or significant. So, all the variables can play a role in achieving the desired behaviour of purchasing sustainable fish products if working together. Green and social marketers need to look at the whole model as a solution that can help increase the sales of sustainable fish products and create loyal customers of sustainable options in the seafood space.

CHAPTER 5: CONCLUSIONS, RECOMENDATIONS AND LIMITATIONS

5.1 INTRODUCTION

According to Antonides (2017, p. 1), the solution for all environmental sustainability issues depends on product innovation. If all consumer products and services can be eco-friendly, sustainability issues would be a thing of the past (Antonides, 2017, p. 1). Albeit it is only companies or firms who are responsible for the innovation of product and services, this solution needs collaboration amongst various stakeholders especially between producers and consumers. Green behaviour requires huge investments, support from government, acceptance and willingness to pay by consumers (Antonides, 2017, p. 1).

"The consumer represents a central point of reference in stakeholder debates on sustainable production and consumption" (Ehgartner, 2018, p. 155). Consumer sustainable behaviour is crucial for environmental sustainability (Khan, Saengon, Alganad, Chongcharoen, & Farrukh, 2020, p. 1177). According to Ehgartner (2018, p. 155), change can be reached through a collective of independent buyers who practice responsible purchasing. Life below water is one of the areas that needs to be rescued as it faces harsh sustainability challenges. According to the WWF (2020a, para 1), 67% of global fish stocks are either depleted or overfished. This threatens biodiversity conservation, food security, human health and livelihoods (Cabral et al., 2020, p. 28134).

The purpose of this study was to investigate individual behaviour towards sustainable fish products using the extended TPB as a theoretical framework. The study focused on assessing factors that influence buying intention in relation to sustainable fish products among South African LinkedIn users who consume fish. The research aim was to generate creative and innovative solutions on how the consumption of sustainable fish products can be encouraged, and therefore be able to save marine resources and bring back fish stocks to their sustainable levels. The current chapter presents the conclusions in relation to the study objectives, recommendations and study limitations.

5.2 CONCLUSIONS TO OBJECTIVES

Intention is a good surrogate measure for behaviour and it is often used in research. Maichum et al. (2016); Verma and Chandra (2018a); and Yadav and Pathak (2016a) are some of the researchers that have used intention as an indicator measure successfully. Hence, the current study also utilized intention as a measure for sustainable fish products purchases. This section covers critical conclusions on each research objective.

5.2.1 The influence of attitude towards sustainable fish products on intention to purchase these products

There was a high positive attitude towards sustainable fish products among these South African fish consumers. Most of these fish consumers supported and liked the idea of buying sustainable fish products. This doesn't end there, there was also a moderately high intention to buy sustainable fish products among these South African fish consumers. However, the respondents may not actually be buying even though intention is moderately high because they don't specifically look for sustainable fish products. These key findings are in line with what was discovered by Bray et al. (2011, p. 4) which suggest that high intention to practice EPP doesn't necessarily result in high purchases of eco-friendly products. The findings also show that there is a green attitude behaviour gap since the actual purchase of sustainable fish products is very low when compared to attitude towards these products. This gap was also found in (Mkhize & Ellis, 2018, p. 121). The gap was between environmental concern and attitude, and behaviour (Mkhize & Ellis, 2018, p. 121).

A positive and significant relationship was found between attitude towards sustainable fish products and intention to buy these products. So, when the attitude towards sustainable fish products increases, the intention to purchase sustainable fish products also increases significantly and vice versa. This is in line with what was discovered by De Freitas (2018, p. 122) which suggest that South African consumer attitude influences their intention to select eco-friendly hotels. The current study findings indicate that attitude is also important in another category of EPP, sustainable fish products.

5.2.2 The influence of subjective norms in relation to sustainable fish products on intention to purchase these products

While there was a portion of people who feel social pressure in relation to purchasing sustainable fish products, most respondents were either not sure if they had experienced any social pressure or had not felt any pressure at all. Subjective norm among fish consumers was not at a desirable level and it did not have influence on intention to buy sustainable fish products as the relationship was found to be insignificant. According to De Maya et al. (2011, p. 1173) people are often influenced by the perceptions of those who are close to them, however, this influence is not really visible in the current study. The results of the current study are in support of Yadav and Pathak (2016a, p. 126) who discovered that subjective norm has no influence on intention to buy organic products. Even though the overall univariate result for subjective norm showed indecisiveness, fish consumers see value in buying and eating sustainable fish products. This is supported by the differences in item scores of social pressure versus believing that eating sustainable fish products is the right thing to do. The former was moderate while the latter was high.

5.2.3 The influence of perceived behavioural control in relation to sustainable fish products on intention to purchase these products

About 66% to 75% of respondents perceive they are in control or believe that they have everything that is needed to be able to buy sustainable fish products. This contradicts findings from a study conducted by Mkhize and Ellis (2020, p. 5) which discovered a lack of perceived behavioural control among South African consumers. Even though the current study identified a fairly high level of perceived behavioural control in relation to sustainable fish products, 25% to 33% of people were not sure if they had accessibility and other resources required to purchase sustainable fish products. The item "I see myself capable of buying sustainable fish products in future" stood out from the other three items. The mean score for this item was higher compared to the other items of perceived behavioural control. This shows that South African fish consumers see themselves as more capable of buying sustainable fish products in future as compared to now.

Perceived behavioural control was found to have no significant influence on intention to buy sustainable fish products. This is against Joshi and Rahman's (2015) study where a positive relationship between perceived behavioural control and intention to buy green products was discovered. Yadav and Pathak (2016a, p. 126) also discovered a positive relationship between

perceived behavioural control and intention to buy organic food products. In the current study, although the majority of respondents perceived that they had control over, and thus were able to buy, sustainable fish products this did not significantly affect their intentions to purchase these products.

5.2.4 The influence of moral attitude towards sustainable fish products on intention to purchase these products

There was a high level of moral attitude towards sustainable fish products among South African fish consumers. Most people believed that they have a moral obligation to save life below water and to preserve fish resources for future consumption. Even though people believed that they are morally obligated to save fish resources, very few are actually taking actions or consciously buying sustainable fish products. Despite a high level of moral attitude towards sustainable fish products, moral attitude alone was found to have no significant influence on intention to buy sustainable fish products. This contradicts with a study by Yadav and Pathak (2016a) where moral attitude was used as an additional construct and found to have a significant impact in determining consumer intention to buy organic food products (Yadav & Pathak, 2016a, p. 126).

5.2.5 The influence of environmental concern on intention to purchase these products

The level of environmental concern among these South African fish consumers was very high. Although there was a high level of environmental concern, very few people consciously took favourable actions towards fish resources. Due to lack of actual behaviour, which is buying sustainable fish products, it can be concluded that there is an existence of green behaviour gap. The level of consumers that are consciously buying sustainable fish products is lower than environmental concern. This green behaviour gap was also discovered by (Mkhize & Ellis, 2018, p. 121).

Despite the high level of environmental concern, no direct influence of environmental concern on intention to buy sustainable fish products was found. This is in line with findings of Yadav and Pathak (2016a) who discovered that environmental concern doesn't have a direct influence on intention to buy organic food products among young consumers. However, in the current study environmental concern was found to significantly influence intention to purchase sustainable fish

products through attitude. Thus, the relationship between environmental concern and intention to buy sustainable fish products is mediated by attitude, similar to prior research by Çabuk, Tanrikulu, and Gelibolu (2014, p. 342).

5.2.6 The influence of health consciousness in relation to sustainable fish products on intention to purchase these products

The level of health consciousness in relation to sustainable fish products among these South African fish consumers was found to be fairly high. However, no direct relationship was discovered between health consciousness and intention to purchase sustainable fish products. Health consciousness only influenced intention to buy sustainable fish products through attitude. Attitude partially mediates the relationship between health consciousness and intention to purchase sustainable fish products. This is partially in line with what was discovered by Yadav and Pathak (2016a), that health consciousness positively impacts both attitude towards organic products and intention to buy these products. Çabuk et al. (2014, p. 342) also discovered that the relationship between health consciousness and intention to buy organic food is mediated by attitude.

5.2.7 The influence of environmental knowledge on consumer intention to purchase sustainable fish products

5.2.7.1 Subjective environmental knowledge

According to Johnson and Bestian (2007) cited in Pucci et al. (2019, p. 278) subjective knowledge refers to how much a person thinks he/she knows. Three types of knowledge were assessed under subjective environmental knowledge: subjective knowledge of the depletion of fish resources, subjective knowledge of sustainable fish products and subjective knowledge of sustainable fish eco-labels. Across all three knowledge types, fish consumers understanding was found to be low. These South African fish consumers did not believe they knew much about the rate at which fish resources are declining, sustainable fish products and sustainable fish certification. There was also a large portion of these fish consumers who were not sure if they had knowledge across all three knowledge types. However, this lack of confidence in their knowledge had no direct nor indirect relationship with intention to buy sustainable fish products.

5.2.7.2 Objective environmental knowledge

According to Johnson and Bestian (2007) cited in Pucci et al. (2019, p. 278) objective knowledge is what consumers really know. Objective environmental knowledge was also assessed in terms of the three sustainable fish-related topics: objective knowledge of the depletion of fish resources, of sustainable fish products and of sustainable fish eco-labels. Objective knowledge of sustainable fish eco-labels had the lowest correct response rate of 66.5% while the other two knowledge types had a correct response rate which was above 80%. Overall, the correct response rate for objective environmental knowledge was 78% which is very high when compared to subjective environmental knowledge. The researcher acknowledges that most questions for the objective environmental knowledge variable were easy to guess and this might have led to higher objective knowledge score. Despite objective environmental knowledge being high among these South African fish consumers, this variable was found to have an insignificant effect on intention to buy sustainable fish products.

The current study failed to support Yadav and Pathak's (2016b, p. 737) findings which suggested that environmental knowledge was a strongest influencer of intention to buy eco-friendly products. Maichum, Parichatnon, and Peng (2017, p. 303) found that environmental knowledge has a direct and a mediated relationship with intention to buy green products. The relationship was mediated by environmental attitude (Maichum et al., 2017, p. 333).

5.2.8 The combined predictive capacity of the factors in purchase intention of sustainable fish products

The overall model was found to be statistically significant. This means that when all the variables are together they have a significant predictive power, or they are able to positively influence intention to purchase sustainable fish products. Other than attitude towards sustainable fish products, no variable on its own was found to be a significant predictor of intention to purchase sustainable fish products. This shows that marketers cannot focus on one specific variable, other than attitude, to increase sustainable fish consumption. Therefore, it is recommended that social and green marketers address all variables in order to achieve the desired behaviour of sustainable fish consumption. Detailed recommendations on how this can be done are provided in the section below.

5.3 RECOMMENDATIONS

This section covers recommendations for marketers, producers, governments, policy makers and future research.

5.3.1 Attitude

Green and social marketers need to focus more on fish consumer's attitude since it has a significant role in influencing consumer intention to buy sustainable fish products and is the only variable that affects intention on its own. According to Yadav and Pathak (2017, p. 119), attitude can be increased by creating awareness in communities which in return will create a positive image about eco-friendly products between people. In the case of sustainable fish products, social marketers should initiate awareness campaigns within different societies in South Africa. These campaigns can focus on making consumers aware of the issues faced by marine resources and introduce the purchasing of sustainable fish products as a solution so that consumers develop a positive attitude towards these products. Green marketers can also play a part. They should tell consumers how the sustainable fish products that they are selling will address the challenge that is faced by life below water and what consumers will gain from purchasing these products. Communication is a very crucial tool for the success of environmentally sustainable products (Danciu, 2015, p. 53). Effectively communicating the benefits of sustainable fish products will also help reduce the attitude-behaviour gap (Mkhize & Ellis 2020, p. 5).

Yadav and Pathak (2016b, p. 737) state that labeling sustainable fish products may also have a positive influence on consumer attitude and intention towards sustainable fish products A lot can be done to create a trade environment where the buying of sustainable fish products outweighs that of unsustainable fish products. This can start by discouraging unsustainable fishing. To discourage unsustainable fishing and trading of these products, the South African government and policy makers need to create policies that force fish traders to obtain sustainable fishing certification and subsidize the costs of obtaining them. Subsidizing the costs will help ensure that the price is not pushed up. Ultimately this will reduce the market for unsustainable fish products as people will no longer have an excuse for not buying sustainable fish products since they will be affordable. When the market for unsustainable fish products declines, all producers will be forced to operate according to environmental standards and obtain certification. The certification may then give

consumers confidence and develop a positive attitude towards these products thus further enhancing intention to buy.

5.3.2 Subjective norm

Subjective norm among fish consumers in South Africa is not at a desirable level; it needs to be improved. To increase subjective norm, producers and retailers need to work together. They can commit themselves to donating a certain amount of money to a charity every time a member of the community buys sustainable fish products. Even R1.00 per purchase can go a long way. In this way all members of the communities will advocate for the purchase of sustainable fish products since it will benefit the disadvantaged community members. Alternatively, retailers can offer discount to shoppers who show continuous purchase of sustainable fish products. The retailers who already have discount systems in place such as Shoprite Checkers and Pick n Pay can easily implement this through their smart shopper cards. This will not only increase social pressure, but it will also boost sales for sustainable fish products leading to higher market share and share of shelf for the producers of these products. Once sustainable fish products have started to dominate the market, the producers of unsustainable fish products will be forced to act within environmental standards in order to stay competitive. According to Esmaeilpour and Bahmiary (2017, p. 311), social pressure can also be enhanced by providing green products in a manner that creates a positive view of them in communities by showing all their important characteristics such as price and identification labels (eco-labels). Influencers can play a huge role in communicating these characteristics and creating a positive image around sustainable fish products. Social marketers should work with popular celebrities and community leaders to create a positivity and engagement around sustainable fish products. These influencers can act as advocates for sustainable fishing and products.

5.3.3 Perceived behavioural control

According to Joshi and Rahman (2015, p. 134), unavailability and inconvenience in buying products creates a barrier and increases the green attitude behaviour gap. A study by Hjelmar (2011, p. 340), which investigated the purchase of organic food products discovered that the availability of green products and convenience is crucial. Consumers prefer buying at a close supermarket or shop and if this shop does not have a wide range of organic or green products, they will end up purchasing conventional products (Hjelmar, 2011, p. 340). Therefore, it is crucial that

green marketers ensure that sustainable fish products are distributed in a way that they are available in every corner where consumers make their purchases. Environmentally friendly products should be widely distributed so that purchasing is convenient for buyers (Yadav & Pathak, 2016b, p. 737). Retailers also need to play a role in ensuring that the placement of sustainable fish products in shelves makes it very difficult for consumers not to see these products. One of the participants in Hjelmar's (2011, p. 338) study stated that "the more you see organic products, the more natural it becomes for you in your everyday life".

Seventy percent of the current study's South African fish consumers reported that they don't look for sustainable fish products when they are buying fish, but most of these consumers know that sustainable fish products are available in South Africa (79.5% of the sample). Therefore, it is possible that these South African fish consumers are not buying sustainable fish products because either they feel like these products are expensive or they don't know how to select or look for these products, so they accidentally buy these products and sometimes buy unsustainable options. Sustainable products are often associated with high prices (Danciu, 2015, p. 260) and consumers are not well educated in terms of how to identify sustainable products and where to get these products (Bernardes, Ferreira, Marques, & Nogueira, 2018, p. 5). Not all sustainable fish products are expensive and some of the fish consumers are already consuming sustainable fish products without knowing. Therefore, green marketers need to teach consumers about eco-labels so that these consumers see that these products are available to them and that they have been consuming them all along. This will not only create loyal consumers, but it will also increase the penetration rate because people will know where these products are and how to identify them.

5.3.4 Moral attitude

Moral attitude is already high among these fish consumers, but there is an opportunity to increase it further. Individuals who are concerned with ethical issues tend to think about the welfare of other people (Verma & Chandra, 2018b, p. 1159). Social marketers can play a role in increasing moral attitude. They can share messages that show the consequences of consuming unsustainable fish products (i.e., unavailability of these resources to be experienced by future generations) in the hope that these messages will appeal to fish consumers so that they see the immorality of depriving the future generations of the same experience they had.

5.3.5 Environmental concern

Due to the positive effect of environmental concern on attitude which in turn affects intention to purchase sustainable fish products, the high level of environmental concern needs to be maintained and strengthened. One way to maintain environmental concern and ensure that it leads to purchasing sustainable fish is to stress that buying sustainable fish can assist in saving fish resources. South African fish consumers who already have a high concern for the environment will then see purchasing sustainable fish products instead of unsustainable fish products as an opportunity to save environmental resources and mitigate the environmental crisis facing the earth's fish stocks.

5.3.6 Health consciousness

It's clear that health consciousness has a crucial role on influencing intention to buy sustainable fish products, even though this is through attitude. Hence, health consciousness needs to be increased so that its role can be maximized. This can be done through targeting consumers with messages that tell them about the importance of taking care of their bodies and how healthy eating, including sustainable fish products, can improve their lifestyles. These messages can be carried out by digital marketers through their always-on digital campaigns since most consumers are now on digital or social media (Statista, 2017, para 1). Social marketers can also play a part by visiting relevant places and sharing similar information. The messages can include the health benefits of eating fish. In this way fish consumers will see a reason to only consume sustainable fish products as they stand to lose an important part of their healthy diet, should fish species get depleted. Because there is a relationship between health consciousness, attitude and intention to buy sustainable fish products, green marketers should treat health-conscious consumers as a main target market for sustainable fish products since these consumers can easily be converted to loyal customers. However, increasing health consciousness should still remain a priority as mentioned above.

5.3.7 Environmental knowledge

Social and green marketers can establish or improve environmental knowledge by offering detailed information on sustainable fish products. This information should include the state of fish resources and the benefits of purchasing sustainable fish products. In this way, social and green

marketers will be able to appeal to communities, create word-of-mouth and social influence in relations to sustainable fish products. To boost environmental knowledge, information regarding marine resources should be communicated through social media channels such as Facebook and Instagram because that is where the majority of people are, and if possible, the messages should be boosted or sponsored so that they reach as many people as possible. Digital platforms such as Twitter and Instagram have created an environment where people can share stories regarding their local environment and it connects people with broader environmental topics (Dosemagen, 2016, para 7). According to Statista (2017, para 1), social media users are expected to grow from 30 million to 40 million in 2026 in South Africa. Mass media such as television and radio can also be utilized.

Most fish consumers were able to identify the eco-label that is used to mark sustainable fish products in South Africa. This shows that these consumers might be purchasing sustainable fish products unconsciously since they claim that they don't specifically look for these products when buying fish. This shows that there is an opportunity to change unintentional behaviour to intentional so that it can be increased and maintained. To do this, retailers and restaurants need to make consumers aware that they have been buying these products and then communicate the benefits of buying sustainable fish products and how consumers can ensure that they always choose these products regardless of where they are buying.

5.4 RESEARCH LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Even though the author of this research study believes that the results of the current study have merit, there are some limitations that need to be addressed in future research studies.

This research was limited to factors that drive intention to purchase sustainable fish products. It did not look beyond intention or at the actual buying behaviour. In future, the researchers should investigate the actual buying behaviour of sustainable fish products instead of self-reported behaviour. This can be done through observation studies and focus groups with retail store or restaurant managers. Retail and restaurant managers work with first line employees who interact with fish consumers on a daily basis. Thus, talking to these people can help getting more understanding of fish consumers.

The study was also limited in terms of the sample. The sample consisted of more professional people as data were collected from LinkedIn (Carmack & Heiss, 2018, p. 146). The general population, which could have also provided valuable information, was not included. This meant that the study was limited to insights gained from individuals who are educated or at least studying towards their professional qualifications and there was no representation of the general public like cashiers, security officers, cleaners and so forth. Some of these individuals are fish consumers and it would be interesting to understand their thinking and perceptions in relation to sustainable fish products. This could be done through focus groups.

Apart from not representing all social groups, the study also investigated only consumers. The producers and distributors of sustainable fish products were not assessed. Conducting a situation analysis on a few sustainable fish products providers in South Africa could be of great benefit. Understanding things such as price influencers and policies surrounding fishing may help make fully informed recommendations on current marketing strategies and possibly help drive the market from unsustainable fish products to sustainable fish products.

Questions for objective knowledge scale were a bit easy to guess, and this might have given a false reflection of the level of objective environmental knowledge in relation to sustainable fish products among fish consumers. Subjective knowledge is a better reflection of knowledge level in the current study and could be a better reflection in future studies.

Moral attitude items might have created some level of social desirability bias. Hence, the results might not be a true reflection of the moral attitude level among these fish consumers. Social desirability bias is a research issue that arises when respondents provide socially desirable answers due to wording of the questions (Sekaran & Bougie, 2016, p. 148). The respondents of the current study might have felt some pressure to provide a positive answer because the society would see them as bad people if they provide a negative answer.

The attitude towards sustainable fish products is high but the fact that less than a third of people consciously look for these products when buying fish mean that there is something wrong. In future studies, researchers need to look at the barriers to sustainable fish products purchasing. This will help understanding why the high level of positive attitude and intention to purchase sustainable fish products does not translate into actual or conscious purchases.

The extended TPB was very useful in explaining the intention to buy sustainable fish products in the context of the developing world, specifically South Africa. The findings also supported the inclusion of environmental knowledge since together the independent variables explain 45.5% of the variance in the dependent variables while in Yadav and Pathak (2016a, p. 125) where environmental knowledge was not included the independent variables only explained 31.8% of the variance in dependent variable which was intention to buy organic food. Hence, researchers should consider including this variable in future studies.

LinkedIn was also useful as a data collection source, even though the desired sample size was not reached. The Covid 19 situation forced the researcher to opt for an online data collection method as it doesn't involve human contact and it is safe. However, using an online questionnaire and collecting data through LinkedIn came with its own disadvantages. The data collection process which was supposed to take at least one month at most ended up taking more than two months as people were not responding to messages that were sent to them on LinkedIn. Online data collection takes time and the response rate is often low as compared to traditional data collection. So, researchers should be prepared to spend more time on the data collection process if their research method involves collecting data from the online community.

5.5 FINAL CONCLUSION

The need for environmental protection, especially the preservation of resources, will keep on growing as the world is expecting a very high population rate increase in the coming years. An increase in population translates to an increase in food consumption. Therefore, there is a need for sustainable consumption of food resources. In the current study, factors that influence EPP of sustainable fish products were investigated.

Unsustainable fishing and purchasing of unsustainable fish products continue to be an issue that is facing the whole world. Something needs to be done before it is too late. Fish resources are already under threat as most species are below their sustainable levels due to overfishing. Hence, the current study has provided creative and innovative solutions on how fish consumers can be encouraged to join the fight of saving life below water through purchasing and consuming sustainable fish products. This study makes two main crucial contributions: firstly, it proves the effectiveness of LinkedIn as sampling and data collection tool; secondly, it offers strategies on how producers of sustainable fish products or retailers can improve their green marketing techniques towards these products and save fish resources; lastly, it offers ways in which governments can contribute to saving life below water and increasing the consumption of sustainable fish products. It is hoped that producers, green marketers, social marketers, retailers, restaurants, government and policy makers will consider and act on these ideas to help save the fish resources for future generations.

All research objectives were met as hypotheses were tested. Perceived behavioural control, subjective norms, moral attitude and environmental knowledge (Subjective & objective) do not have an influence on intention to purchase sustainable fish products when each variable is alone. However, environmental concern and health consciousness were found to have an indirect effect on intention to buy sustainable fish products when they are mediated by attitude. The TPB has been useful in studying different behaviours across different fields, however, this study is the first one that used the TPB to investigate intention to buy sustainable fish products. Even though no variable on its own, except attitude, was found to directly influence intention to buy sustainable fish products, the total model which is the extended TPB was found to be effective in making the prediction. Only attitude can be effective alone in influencing intention to buy sustainable fish products. To achieve the desired behaviour, all factors of the TPB need to be taken into consideration since they all play a very crucial role in predicting the intention to buy sustainable

fish products when they are together. Therefore, other than improving attitudes towards sustainable fish products, marketers cannot focus on one specific variable to increase sustainable fish consumption. All variables need to be addressed to achieve the desired behaviour of sustainable fish consumption. The study has also proved the effectiveness of the extended TPB in predicting intention to buy sustainable fish products in the context developing nation.

The main objective of the study which was to investigate people's behaviours towards sustainable fish products and provide solutions for achieving the desired behaviour of purchasing sustainable fish products, have been realised by this study. There is a need for cross stakeholder intervention. Government, policy makers, marketers, producers and producers need to act in order to save fish resources.

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APPENDIXES

APPENDIX 1: QUESTIONNAIRE

Questionnaire:

1. Do you eat fish?	**Yes**		**No**	

If yes, please proceed to the following questions.

If no, thank you for being willing to participate but the study is specifically interested in fish / fish product consumers.

2. Frequency of Fish consumption per Month	1-2 times		3-4 times		5-7 times		+8 times

3. Do you specifically look for sustainable fish when you are buying fish/fish products?	**Yes**		**No**	
4. Do you specifically look for sustainable fish when eating fish/fish product in a restaurant?	**Yes**		**No**	

Please mark with X the extent to which you agree or disagree with the following statements.

Purchase Intention items

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
5. I would like to buy sustainable fish products.	1	2	3	4	5
6. I would switch my choice of fish products to sustainable fish products due environmental reasons.	1	2	3	4	5
7. I would prefer buying sustainable fish products to conventional fish products because doing so won't harm the environment.	1	2	3	4	5

8. I would buy sustainable fish products because it is environmentally friendly.	1	2	3	4	5
9. I would not consider buying fish products if they cause damage to the environment.	1	2	3	4	5

Attitude towards sustainable fish products items

	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
10. I like the idea of sustainable fish products.	1	2	3	4	5
11. Buying sustainable fish products is a good idea.	1	2	3	4	5
12. Buying sustainable fish products is a wise choice.	1	2	3	4	5
13. Buying sustainable fish products would be pleasant.	1	2	3	4	5

Subjective Norm items

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
14. Most people who are important to me think I should buy sustainable fish products when going grocery shopping / eating out at a restaurant.	1	2	3	4	5
15. Most people who are important to me would want me to buy sustainable fish products when grocery shopping.	1	2	3	4	5
16. Most people whose opinions I value would prefer that I buy sustainable fish products.	1	2	3	4	5

17. Eating sustainable fish products is a right thing to do.	1	2	3	4	5
18. My family think buying sustainable fish products is a right thing to do.	1	2	3	4	5
19. Buying sustainable fish products sets a good example.	1	2	3	4	5

Perceived Behavioural control Items

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
20. I am confident that I can buy sustainable fish products rather than normal fish products when I want.	1	2	3	4	5
21. I see myself as capable of buying sustainable fish products in future.	1	2	3	4	5
22. I have resources, time and willingness to buy sustainable fish products.	1	2	3	4	5
23. There are likely to be plenty of opportunities for me to buy sustainable fish products.	1	2	3	4	5

Moral Attitude Items

	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
Purchasing sustainable fish products instead of unsustainable ones would make me:					
24. Feel like I am personally contributing to something better.	1	2	3	4	5

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
25. Feel like doing the morally right thing.	1	2	3	4	5
26. Feel like a better person.	1	2	3	4	5

Environmental concern items

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
27. The balance of nature is very delicate and can be easily upset.	1	2	3	4	5
28. Human beings are severely abusing the environment.	1	2	3	4	5
29. Humans must maintain the balance with nature in order to survive.	1	2	3	4	5
30. Human interferences with nature often produce disastrous consequences.	1	2	3	4	5

Health consciousness items

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
31. I choose food carefully to ensure good health.	1	2	3	4	5
32. I consider myself as a health-conscious consumer.	1	2	3	4	5
33. I think often about health-related issues.	1	2	3	4	5
34. Fish or fish products are a significant part of a healthy diet.	1	2	3	4	5

Knowledge items

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
35. I am knowledgeable about the depletion of fish stocks.	1	2	3	4	5
36. I am informed about the local fish stock problems and issues.	1	2	3	4	5
37. I am informed about the threats the depletion of fish stocks will have for the global ecosystem	1	2	3	4	5
38. I know more about local fish stocks problems than the average person.	1	2	3	4	5

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
39. I know more about sustainable fish products than an average person.	1	2	3	4	5
40. I know how to select fish products that are sustainable.	1	2	3	4	5
41. I understand the environmental phrases on sustainable fish products.	1	2	3	4	5

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
42. I am very knowledgeable about sustainable fish product eco-labels.	1	2	3	4	5
43. I understand the environmental phrases in eco-labels on sustainable fish/fish product packages.	1	2	3	4	5
44. I understand the meaning of symbols on sustainable fish/fish product packages.	1	2	3	4	5
45. I know that buying eco-labeled fish/fish products reduces the pressure that fish stocks are facing.	1	2	3	4	5

	True	False
46. Overfishing is the main cause of the depletion of fish resources.		
47. All fish stocks are within their sustainable level.		

	True	False
48. Buying sustainable fish products is good for the environment.		
49. Sustainable fish products are not available in South Africa.		
50. Sustainable fish products are made from fish species that are within their sustainable level.		

	True	False
51. 'Eco-friendly' means the same as 'environmentally consciousness'.		
52. Eco-labels indicate that the product meets environmental standards.		
53. The picture below represents an eco-label for sustainable fish/fish products used in South Africa.		

For the section that follows, please mark the relevant answer with an X.

Gender	Male		Female							
Age (please specify)										
Race	African		Indian		Colored		White		Other	
Which country are you a resident of?										

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY QUESTIONNAIRE. WE TRULY VALUE THE INFORMATION YOU HAVE PROVIDED.

APPENDIX 2: ETHICAL CLEARANCE

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

15 February 2021

Mr Simphiwe Lincon Hlophe (216031275)
School Of Man Info Tech & Gov
Pietermaritzburg Campus

Dear Mr Hlophe,

Protocol reference number: HSSREC/00002265/2020
Project title: Factors affecting environmentally preferable purchasing of sustainable fish products: A theory of planned behaviour perspective
Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 26 November 2020 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid until 15 February 2022.
To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

All research conducted during the COVID-19 period must adhere to the national and UKZN guidelines.

HSSREC is registered with the South African National Research Ethics Council (REC-040414-040).

Yours sincerely,

Professor Dipane Hlalele (Chair)

/dd

Humanities and Social Sciences Research Ethics Committee
Postal Address: Private Bag X54001, Durban, 4000, South Africa
Telephone: +27 (0)31 260 8350/4557/3587 Email: hsrec@ukzn.ac.za Website: http://research.ukzn.ac.za/Research-Ethics

Founding Campuses: ■ Edgewood   ■ Howard College   ■ Medical School   ■ Pietermaritzburg   ■ Westville

INSPIRING GREATNESS

APPENDIX 3: FACTOR LOADINGS

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
I would like to buy sustainable fish products.	-.004	.194	**.782**	.143	.063	.035	.095
I would switch my choice of fish products to sustainable fish products due to environmental reasons.	.023	.208	**.808**	.122	.115	.206	.012
I would prefer buying sustainable fish products to conventional fish products because doing so won't harm the environment.	.049	.400	**.777**	.070	.176	.150	.109
I would buy sustainable fish products because it is environmentally friendly.	.103	.314	**.735**	.045	.237	.209	.100
I like the idea of sustainable fish products.	-.001	**.710**	.459	.128	.198	.045	.022
Buying sustainable fish products is a good idea.	-.065	**.696**	.395	.154	.319	.149	.049
Buying sustainable fish products is a wise choice.	.012	**.742**	.366	.175	.246	.133	.025
Buying sustainable fish products would be pleasant.	.031	**.746**	.320	.233	.203	.046	.072
Most people who are important to me think I should buy sustainable fish products when going grocery shopping / eating out at a restaurant.	.220	.075	.056	**.860**	-.035	.145	.147

Most people who are important to me would want me to buy sustainable fish products when grocery shopping.	.164	.064	.073	**.894**	-.031	.228	.159
Most people whose opinions I value would prefer that I buy sustainable fish products.	.131	.191	.196	**.840**	.015	.160	.009
My family think buying sustainable fish products is the right thing to do.	.368	.248	.134	**.632**	.090	.206	-.059
I am confident that I can buy sustainable fish products rather than normal fish products when I want.	.120	.215	.153	.250	.063	**.760**	.086
I see myself as capable of buying sustainable fish products in future.	.095	.386	.204	.129	.196	**.636**	-.089
I have resources, time and willingness to buy sustainable fish products.	.155	.230	.193	.224	-.003	**.727**	.254
There are likely to be plenty of opportunities for me to buy sustainable fish products.	.127	.219	.092	.186	.013	**.800**	.111
Feel I ke I am personally contributing to something better.	.103	**.779**	.113	.078	.203	.285	.190
Feel I ke I am doing the morally right thing.	.093	**.783**	.077	.008	.165	.373	.091
Feel I ke a better person.	.141	**.755**	.134	.056	.139	.300	.124
The balance of nature is very delicate and can be easily upset.	.089	.237	.188	-.051	**.667**	.170	.058

Human beings are severely abusing the environment.	.078	.098	.125	-.023	**.838**	-.032	-.026
Humans must maintain the balance with nature in order to survive.	-.009	.362	.132	.081	**.761**	.025	.120
Human interferences with nature often produce disastrous consequences	.013	.241	.075	.006	**.803**	.059	.139
I choose food carefully to ensure good health.	.211	.093	.083	.147	.167	.195	**.818**
I consider myself as a health-conscious consumer.	.306	.095	.082	.101	.029	.091	**.860**
I think often about health-related issues.	.334	.166	.103	.013	.084	.029	**.786**
I know how to select fish products that are sustainable.	**.798**	.038	-.025	.188	.092	.190	.223
I understand the environmental phrases and statements used on sustainable fish product packaging.	**.896**	.038	-.018	.131	.080	.132	.144
I am very knowledgeable about sustainable fish product eco-labels.	**.911**	.004	.020	.129	.047	.110	.178
I understand the environmental phrases in eco-labels on sustainable fish/fish product packages.	**.914**	.021	.048	.142	-.068	.034	.165
I understand the meaning of symbols on sustainable fish/fish product packages.	**.912**	.031	.050	.146	-.034	.053	.175

| I know that buying eco-labeled fish/fish products reduces the pressure that fish stocks are facing. | **.811** | .108 | .057 | .047 | .089 | .007 | .029 |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.
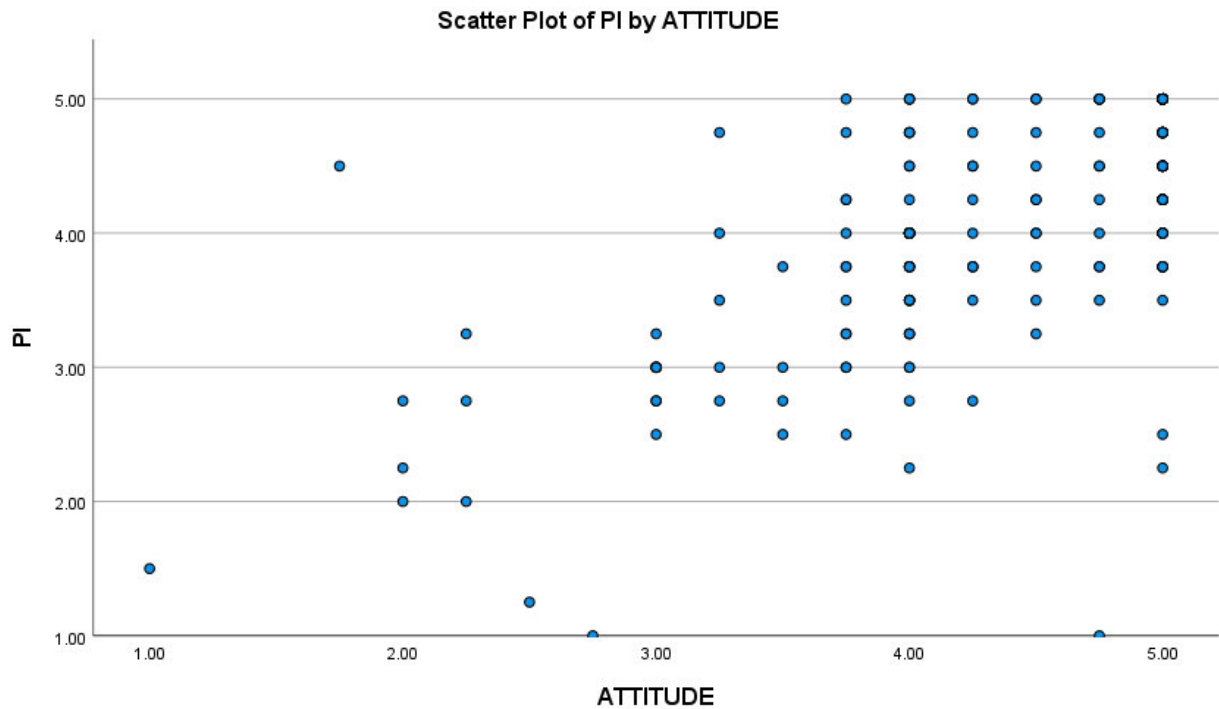
APPENDIX 4: TOTAL VARIANCE EXPLAINED

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.235	35.110	35.110	5.207	16.272	16.272
2	5.280	16.499	51.609	4.943	15.448	31.721
3	2.617	8.179	59.788	3.332	10.414	42.134
4	1.659	5.185	64.973	3.139	9.808	51.942
5	1.561	4.880	69.853	2.926	9.144	61.086
6	1.469	4.590	74.442	2.907	9.084	70.170
7	1.099	3.435	77.878	2.466	7.707	77.878
8	.840	2.624	80.501			
9	.629	1.966	82.468			
10	.545	1.703	84.170			
11	.466	1.455	85.625			
12	.425	1.328	86.954			
13	.407	1.271	88.225			
14	.389	1.215	89.440			
15	.364	1.136	90.576			
16	.336	1.050	91.626			
17	.324	1.013	92.638			
18	.285	.892	93.530			
19	.268	.839	94.369			
20	.221	.691	95.061			
21	.216	.676	95.737			

22	.193	.605	96.341			
23	.188	.587	96.928			
24	.158	.493	97.421			
25	.143	.446	97.867			
26	.138	.433	98.300			
27	.121	.378	98.677			
28	.109	.341	99.018			
29	.098	.306	99.324			
30	.086	.268	99.592			
31	.072	.225	99.817			
32	.059	.183	100.000			

Extraction Method: Principal Component Analysis.

APPENDIX 5: REGRESSION ASSUMPTIONS

Note: PI=Purchase intention, PBC=Perceived behavioural control, MA=Moral attitude, EC=Environmental concern, OK=Objective environmental knowledge, SN=Subjective norm, HC=Health consciousness. SK=Subjective environmental knowledge

Scatter Plot of PI by ATTITUDE

Scatter Plot of PI by PBC

Scatter Plot of PI by MA

Scatter Plot of PI by EC

Scatter Plot of PI by OK

Scatter Plot of PI by SN

Scatter Plot of PI by HC

Scatter Plot of PI by SK
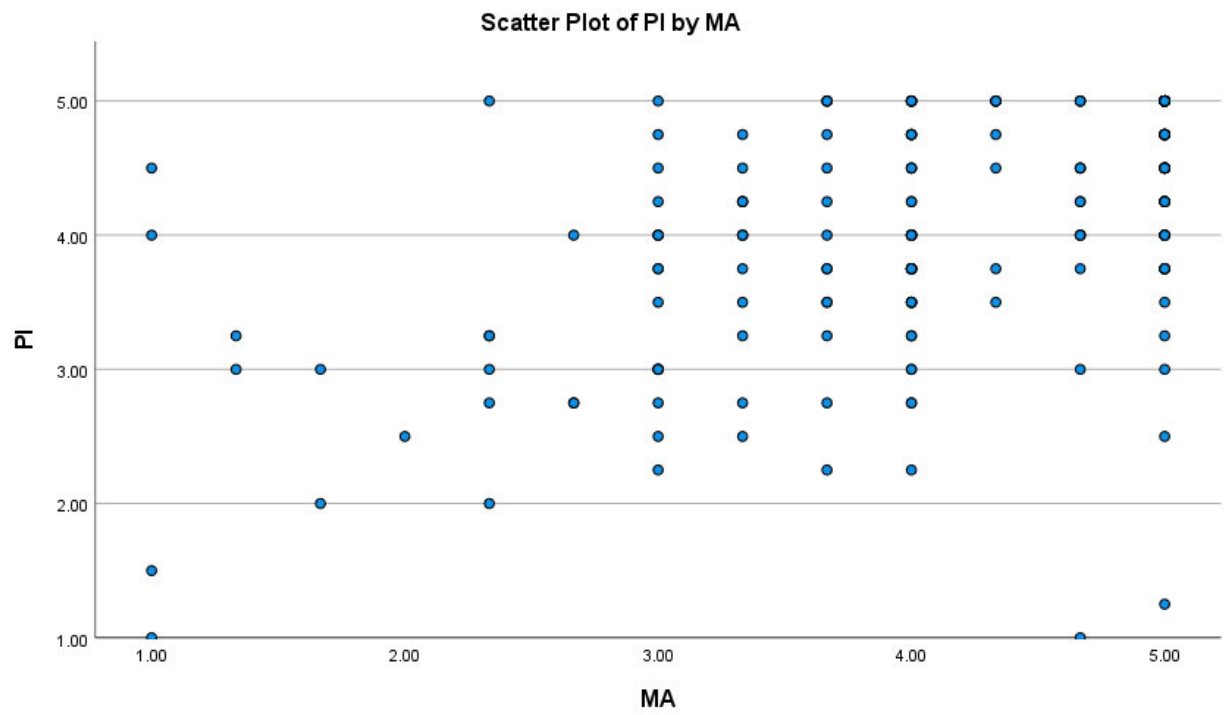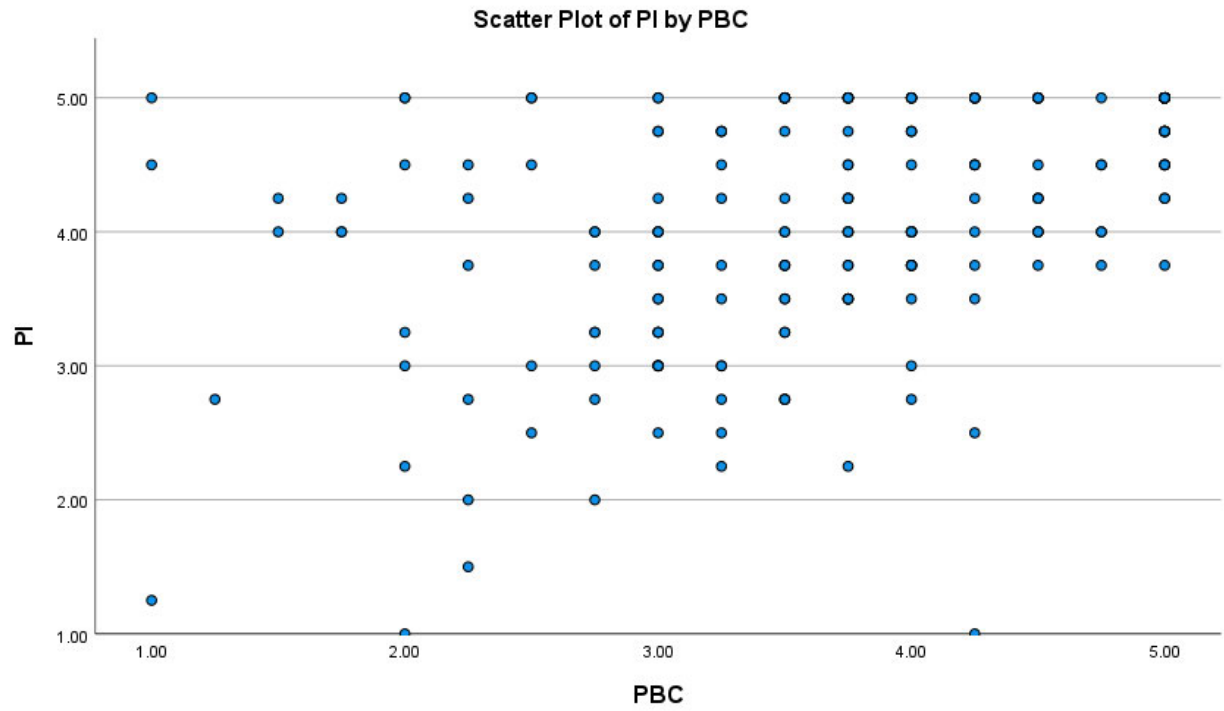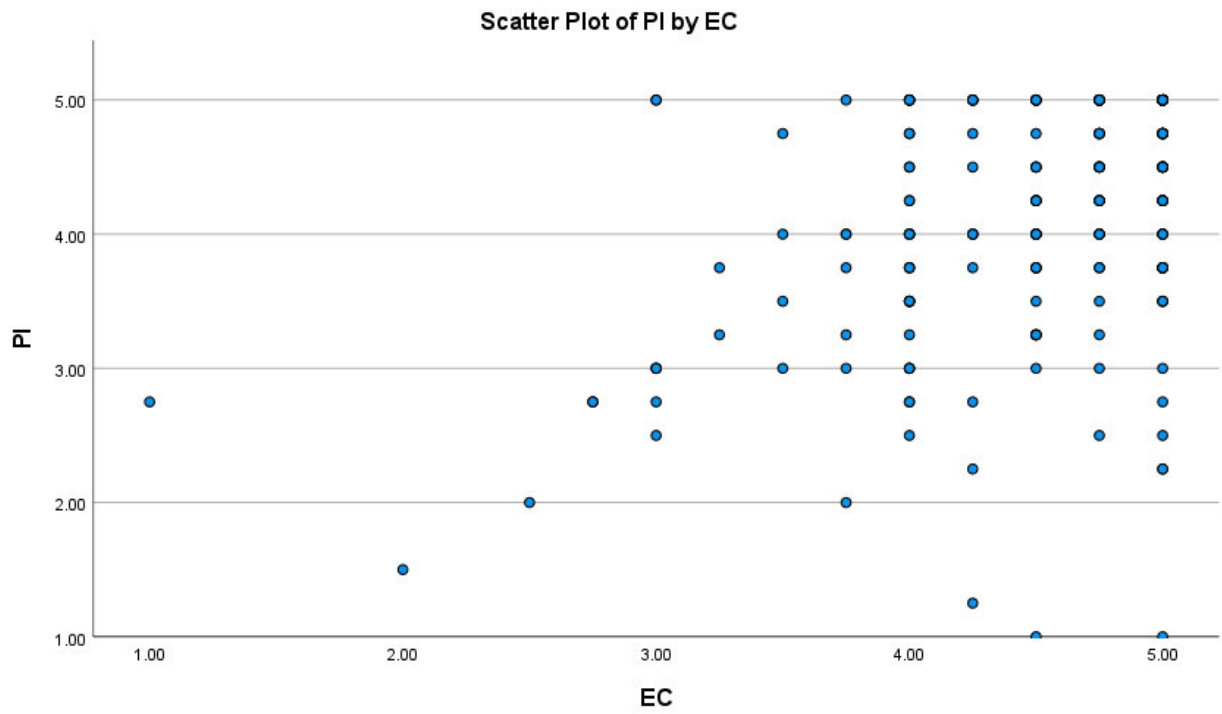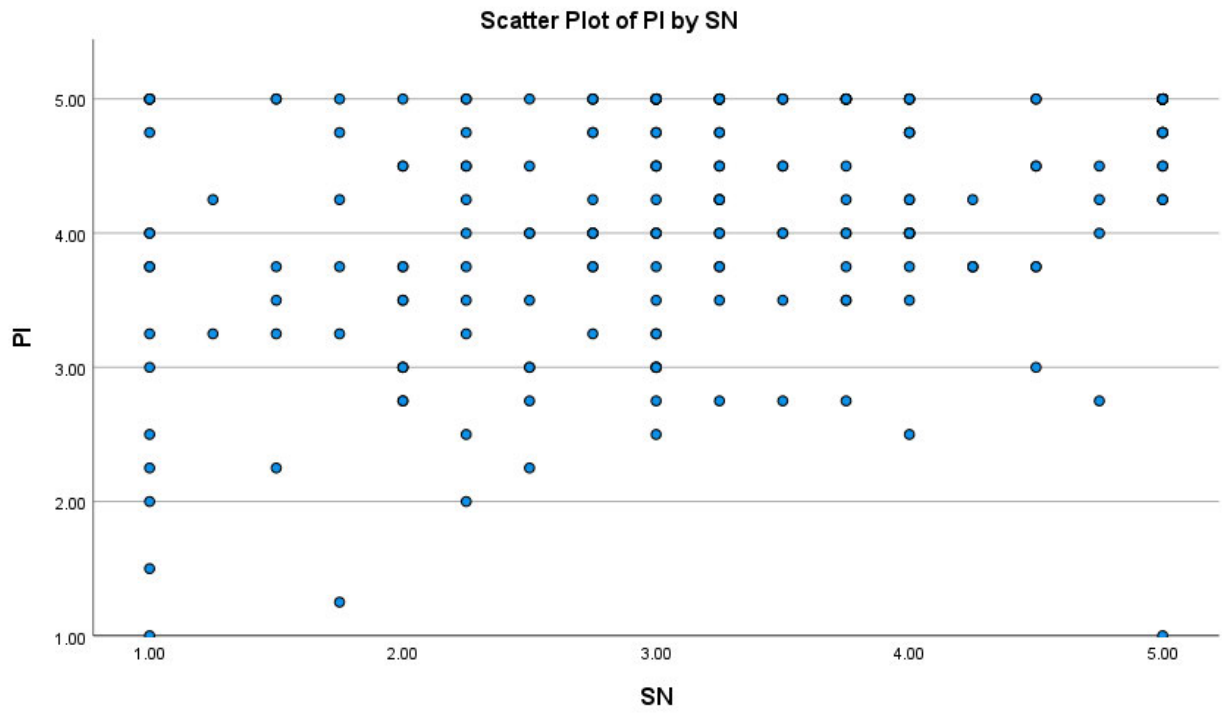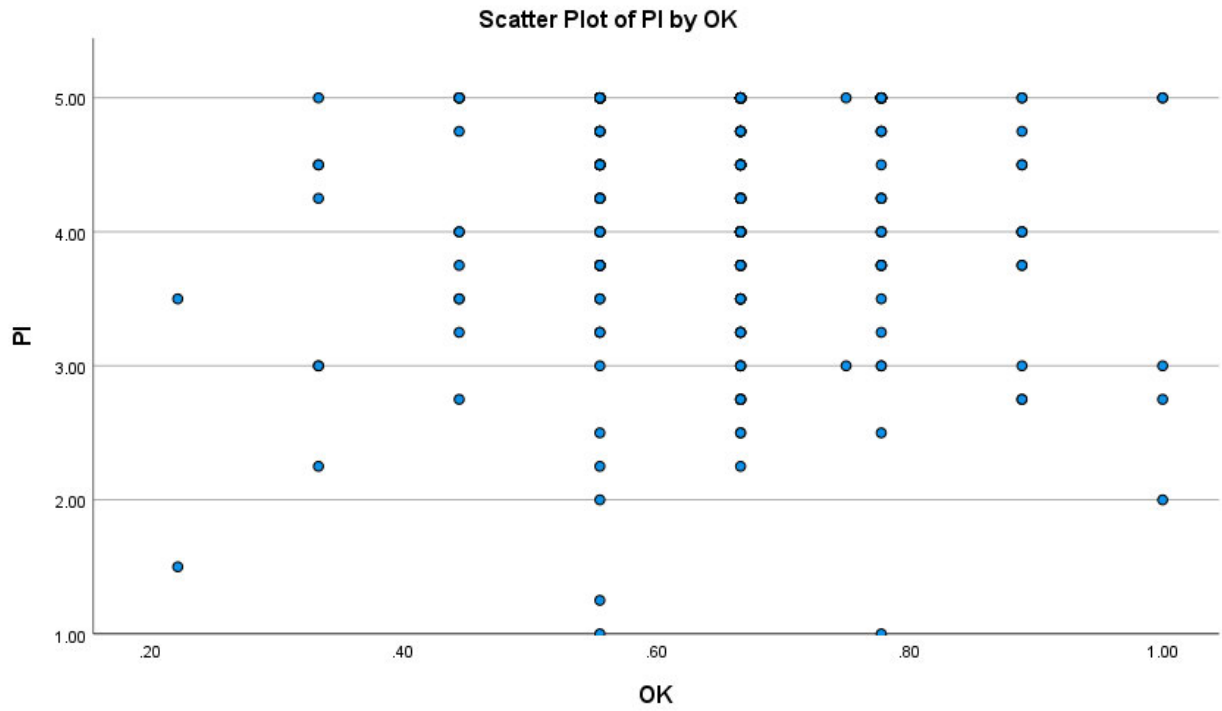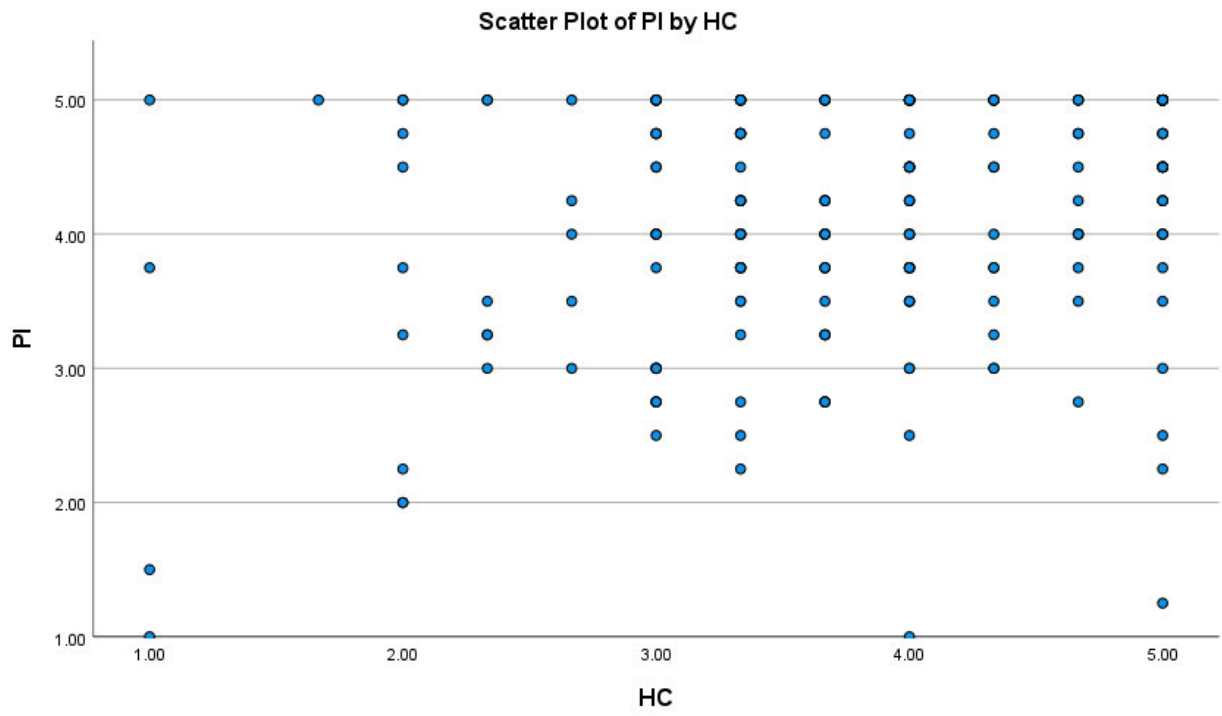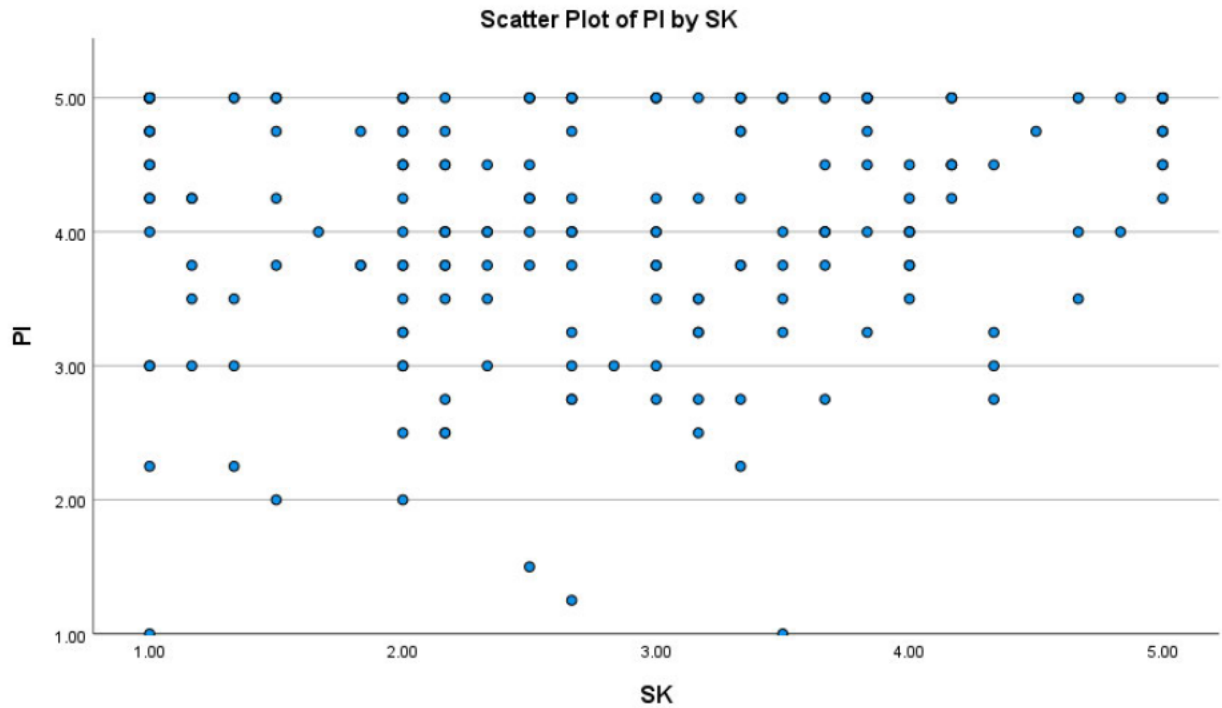
Regression

Descriptive Statistics

	Mean	Std. Deviation	N
PI	4.0900	.89598	200
ATTITUDE	4.3350	.79904	200
PBC	3.6950	.97814	200
MA	4.0983	.98384	200
EC	4.4550	.64522	200
OK	.6525	.14065	200
SN	3.1225	1.15696	200
HC	3.7750	.94632	200
SK	2.8033	1.18910	200

Correlations

		PI	ATTITUDE	PBC	MA	EC	OK	SN	HC	SK
Pearson Correlation	PI	1.000	.670	.451	.525	.417	.050	.332	269	.136
	ATTITUDE	.670	1.000	.510	.683	535	-.020	.354	249	.101
	PBC	.451	.510	1.000	.576	259	.173	.505	346	.305
	MA	.525	.683	.576	1.000	.471	.155	.329	333	.221
	EC	.417	.535	.259	.471	1 000	.058	.112	246	.125
	OK	.050	-.020	.173	.155	058	1.000	.230	206	.191
	SN	.332	.354	.505	.329	.112	.230	1.000	295	.412
	HC	.269	.249	.346	.333	246	.206	.295	1 000	.493
	SK	.136	.101	.305	.221	.125	.191	.412	.493	1.000
Sig. (1-tailed)	PI	.	.000	.000	.000	000	.241	.000	000	.028
	ATTITUDE	.000	.	.000	.000	000	.389	.000	000	.078
	PBC	.000	.000	.	.000	000	.007	.000	000	.000
	MA	.000	.000	.000	.	000	.014	.000	000	.001
	EC	.000	.000	.000	.000	.	.206	.057	000	.038
	OK	.241	.389	.007	.014	206	.	.001	002	.003
	SN	.000	.000	.000	.000	057	.001	.	000	.000
	HC	.000	.000	.000	.000	000	.002	.000	.	.000
	SK	.028	.078	.000	.001	038	.003	.000	000	.
N	PI	200	200	200	200	200	200	200	200	200
	ATTITUDE	200	200	200	200	200	200	200	200	200
	PBC	200	200	200	200	200	200	200	200	200

	MA	200	200	200	200	200	200	200	200	200
	EC	200	200	200	200	200	200	200	200	200
	OK	200	200	200	200	200	200	200	200	200
	SN	200	200	200	200	200	200	200	200	200
	HC	200	200	200	200	200	200	200	200	200
	SK	200	200	200	200	200	200	200	200	200

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	SK, ATTITUDE, OK, EC, HC, SN, PBC, MA[b]	.	Enter

a. Dependent Variable: PI

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.691[a]	.478	.456	.66066	1.952

a. Predictors: (Constant), SK, ATTITUDE, OK, EC, HC, SN, PBC, MA

b. Dependent Variable: PI

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76.390	8	9.549	21.877	.000[b]
	Residual	83.365	191	.436		
	Total	159.755	199			

a. Dependent Variable: PI

b. Predictors: (Constant), SK, ATTITUDE, OK, EC, HC, SN, PBC, MA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.264	.408		.647	.518		
	ATTITUDE	.574	.092	.512	6.236	.000	.405	2.470
	PBC	.085	.066	.093	1.296	.196	.532	1.880
	MA	.042	.073	.046	.572	.568	.428	2.335
	EC	.105	.089	.076	1.181	.239	.663	1.508
	OK	.052	.356	.008	.146	.884	.874	1.144
	SN	.054	.051	.069	1.044	.298	.622	1.607
	HC	.063	.060	.066	1.043	.298	.679	1.473
	SK	-.020	.049	-.026	-.408	.684	.656	1.525

a. Dependent Variable: PI

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index		Variance Proportions							
				(Constant)	ATTITUDE	PBC	MA	EC	OK	SN	HC	SK
1	1	8.629	1.000	.00	.00	.00	.00	.00	.00	.00	.00	.00
	2	.130	8.148	.00	.01	.00	.01	.01	.01	.05	.00	.51
	3	.083	10.185	.01	.00	.03	.00	.01	.01	.58	.04	.14
	4	.053	12.758	.01	.02	.07	.07	.00	.38	.10	.00	.04
	5	.034	15.983	.00	.00	.01	.02	.00	.06	.04	.92	.27
	6	.032	16.528	.02	.04	.52	.00	.06	.17	.15	.02	.02
	7	.022	19.968	.09	.00	.34	.54	.03	.12	.01	.02	.00
	8	.009	30.515	.00	.87	.01	.17	.42	.08	.07	.00	.03
	9	.009	31.861	.86	.07	.01	.18	.46	.16	.00	.00	.00

a.   Dependent Variable: PI

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.3600	4.8304	4.0900	.61957	200
Residual	-3.55247	2.22637	.00000	.64724	200
Std. Predicted Value	-4.406	1.195	.000	1.000	200
Std. Residual	-5.377	3.370	.000	.980	200

a. Dependent Variable: PI

Charts

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: PI

Scatterplot
Dependent Variable: PI
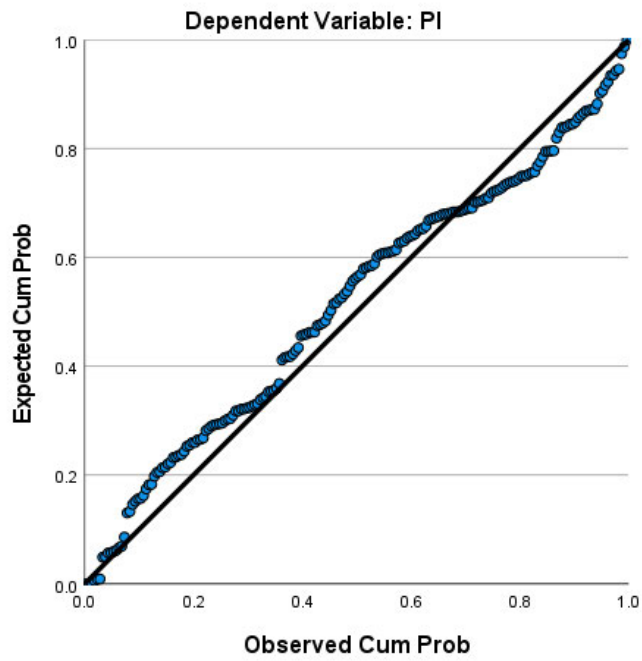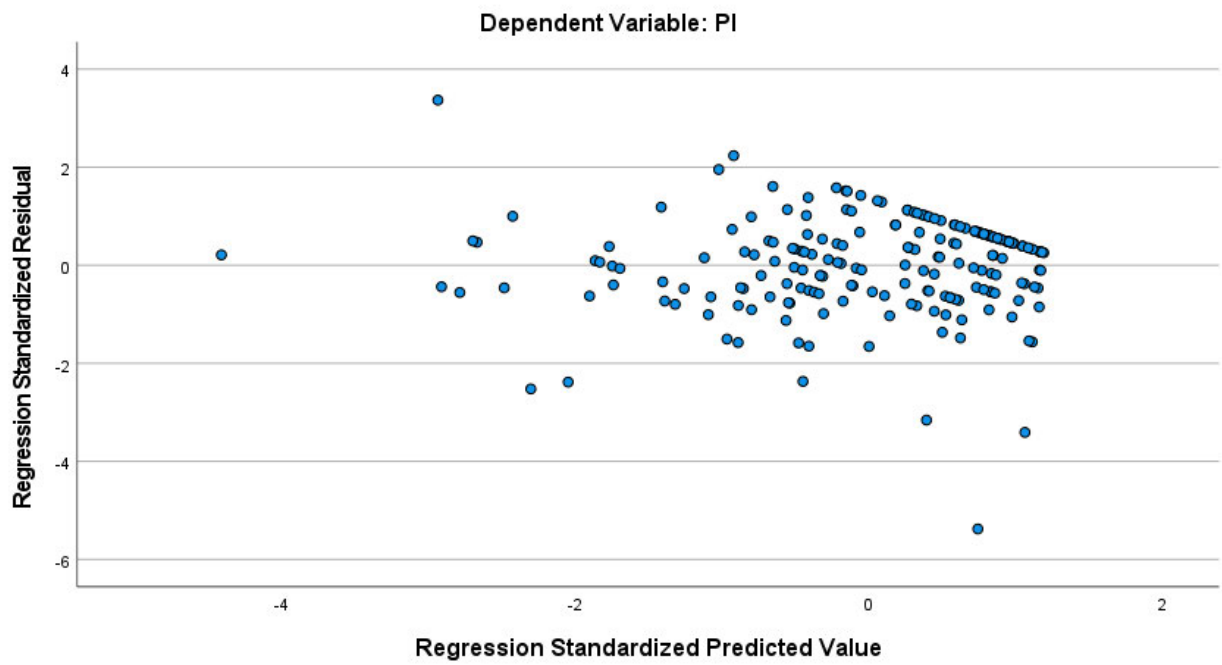
APPENDIX 6: LINKEDIN POST
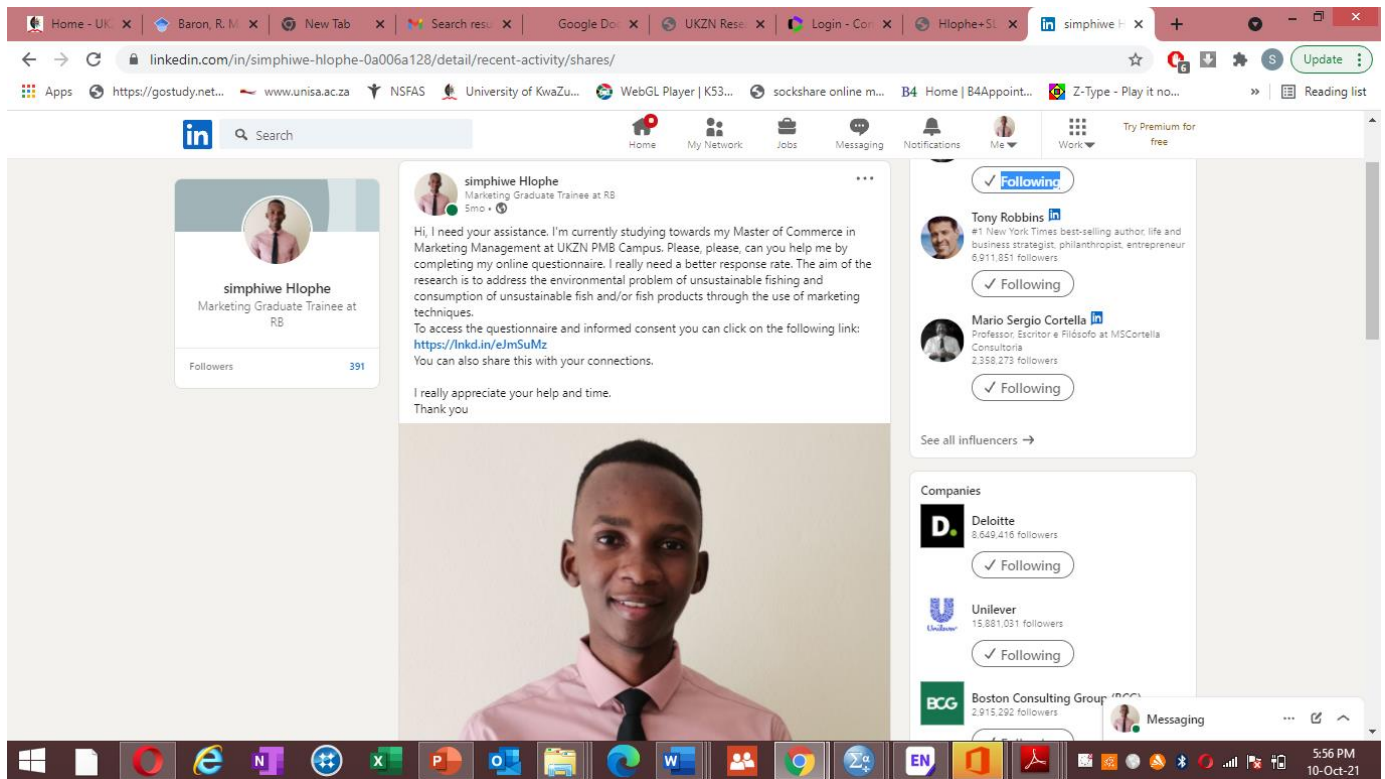
APPENDIX 7: INFORMED CONSENT

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL

For research with human participants

Information Sheet and Consent to Participate in Research

Date:

Greetings,

My name is **Simphiwe Hlophe** a Masters student from College of Law and Management at the University of Kwazulu Natal, Pietermaritzburg campus.

Contact numbers: 078 880 2226

: 064 867 2128

Email address: Lubanzi56@gamail.com

You are being invited to consider participating in a study that involves investigating factors that influence the purchases of sustainable fish and/or fish products. The aim and purpose of this research is to address the environmental problem of unsustainable fishing and consumption of unsustainable fish and/or fish products through the use of Marketing techniques. The study is expected to include 280 participants. It will involve the following procedure: To encourage other individuals who share similar characteristics (go for grocery and visit restaurants regularly) with them to participate in the study and give them a link to online questionnaire if they're willing to participate. The duration of your participation if you choose to participate and remain in the study is expected to be 10 to 15 minutes.

There are no known risks and discomfort associated with this research. We hope that the study will create the following benefits (describe if relevant; otherwise state that the study will provide no direct benefits to participants.

This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number_____).

In the event of any problems or concerns/questions you may contact the researcher at 078 088 02226 or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001
Durban 4000   KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557- Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

Your participation in the study is voluntary and by participating, you are granting the researcher permission to use your responses. You may refuse to participate or withdraw from the study at any time with no negative consequence. Your anonymity will be maintained by the researcher and the School of Management, I.T. & Governance and your responses will not be used for any purposes outside of this study.

All data, both electronic and hard copy, will be securely stored during the study and archived for 5 years. After this time, all data will be destroyed.

If you have any questions or concerns about participating in the study, please contact me or my research supervisor at the numbers listed above.

Sincerely

Simphiwe Lincon Hlophe

CONSENT TO PARTICIPATE

I (Name) have been informed about the study entitled: **Factors affecting environmentally preferable purchasing of sustainable fish products: A theory of planned behaviour perspective** by **Simphiwe Lincon Hlophe**.

I understand the purpose of the study which is to address the environmental problem of unsustainable fishing and consumption of unsustainable fish and/or fish products through the use of Marketing techniques, and the procedure which involves completing the online questionnaire and encouraging others which you share same characteristics with to participate and give them a link to a questionnaire if they are willing.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at 078 880 2226 or send an email at Lubanzi56@gmail.com

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001
Durban
4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557 - Fax: 27 31 2604609

_____   _____

Signature of Participant   **Date**

_____   _____

Signature of Witness   **Date**

(Where applicable)

_____   _____

Signature of Translator   **Date**

(Where applicable)