

HOW QUADRUPLE BOTTOM LINE IMPACT SMES INTENTION TO ADOPT ECO-DESIGN

Ang Swat Lin Lindawati

Accounting Department, School of Accounting, Bina Nusantara University, Jakarta, Indonesia,
11480

Bambang Leo Handoko

Accounting Department, School of Accounting, Bina Nusantara University, Jakarta, Indonesia,
11480

Mazlina Mustapha

School of Business and Economics, Universiti Putra Malaysia, Malaysia, Serdang, Selangor,
43400

Abstract

SMEs are one of the main factors in the Indonesian economy, especially in overcoming the crisis caused by Covid-19. However, SMEs also need a competitive advantage to be able to compete with larger companies. One of the competitive advantages can be obtained through innovation in eco-design. Our study examines the factors which influence SMEs' intention to adopt eco-design. These factors are based on the quadruple bottom line approach. It is evolution of triple bottom line with additional factor of purpose, beside three existing factors: people, planet and profit. In addition, we also examine the factors that influence purpose by using the theoretical approach of planned behavior (TPB) thus social cognitive theory (SCT). This study is a quantitative study using structural equation modeling partial least squares. We use questionnaire to gather primary data. We choose SMEs entrepreneurs as respondents and processing data using assist of software: SMART PLS version 3. The output found variables: attitude and self-efficacy had a significant effect on purpose. People, planet and purpose influence SMEs' intention to adopt eco-design.

Keywords: *quadruple bottom line, SMEs, intention, eco-design, sustainability, purpose*

INTRODUCTION

The ongoing global disaster of the Covid-19 pandemic has succeeded in slowing down the wheels of the Indonesian economy. In fact, various business sectors had to suffer losses, especially during the early days of the pandemic. In fact, many are forced to go out of business. However, there is always an opportunity in trouble. In fact, the wheels of the Indonesian economy can rise, one of which is because of the creativity that gives rise to activity in the micro, small and medium business sector

The revival of the SMEs sector can have an impact and accelerate Indonesia's economic recovery. As is known, small and micro entrepreneur backup the Indonesian economic revival after Covid 19. Based on report from the Minister of Cooperatives and SMEs Office, total amount of SMEs entrepreneurs in Indonesia in 2021 will reach 64.19 million with participation in gross domestic product (GDP) of 61.97 percent or IDR 8.6 trillion (Hartono and Ardini, 2022). The SMEs business sector has a role in improving Indonesia's economy, as seen in capacity to provide 97 percent of working people and raise the investment up to 60.4 percent. There are many SME business people and they are spread out in urban, rural, and remote areas. SMEs must have quality

and creativity in order to open up job opportunities and increase income for SMEs business actors. The fact is that in the field, many SMEs are unable to compete with big entrepreneurs and international importers. SMEs assess that various agreements made by the government, from the ASEAN Economic Community (MEA) to free trade agreements/FTAs plus digital markets through e-commerce have made them unable to compete (Alexandri and Anjani, 2014). Domestic products are dominated by imports, imported goods flood Indonesia with low prices and good quality.

SMEs should able to compete with bigger company with their competitive advantage. One solution to build a competitive advantage is to use eco-design innovative strategy. Eco design count as concept in the world of art and design that prioritizes on usage of used materials thus enhance minimum usage of raw materials to create a friendly and sustainable environment (Vihma and Moora, 2020). Eco design is a concept in the world of art and design that prioritizes the reuse of scrap and the minimize usage of raw material for create a friendly and sustainable environment (Monteiro *et al.*, 2019). Eco-design makes SMEs products innovative, unique and has added value and innovation, so that they can compete with imported products, and SMEs able to survive.

The eco-design concept is pro-nature, pro-life, pro-togetherness, flexible, adaptive, local organic material, and local skill/craftsmanship. Nature is designed regularly without anything wasted. If there is waste, then the waste from nature will be useful for the continuation of the cycle (Zeng and Durif, 2020). However, SMEs awareness about eco-design is still lacking. SMEs do not require specific certification of academic to start. But of course in terms of business knowledge and creativity may be less than those with higher education. The research gap in our research is how to increase the awareness of SMEs to adopt eco-design? We try to examine the factors that make SMEs willing to adopt eco-design through point of view quadruple bottom line. Quadruple bottom line (QBL), which is evolution from triple bottom line (TBL), which consists of: people, planet and profit. Then the three factors are added to the fourth factor, namely purpose. The uniqueness or difference of our research with previous research is that we also examine the factors that drive the purpose. These factors are taken from a combination of theory of planned behavior (Ajzen, 1985) and social cognitive (Bandura, 1991). Based on preliminary research, it is suspected that these factors are what move people to do a good job. Taken from the theory of planned behavior, namely consist of constructs: attitude, subjective norm and perceived behavior control, whereas in social cognitive theory, self-efficacy variables are used.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

SUSTAINABILITY THEORY

Sustainability theory was first put forward by (Meadows *et al.*, 1972) which explains that society's efforts to prioritize social responses to sustainability and economy problems. The development of sustainability is in demand moreover in its application on business (Artiach *et al.*, 2010). (Mustapha, Zulkifli and Awang, 2020) explains the context of corporate sustainability as choice of strategic management which can improve business practices by think ahead of future generation user needs using balance scorecard. This concept emphasizes the interests of stakeholders by balancing the economic, social, and environmental dimensions of company performance.

Sustainability in corporation measured using Triple Bottom Line approach, this theory was

authored by (Jeurissen and Elkington, 2000). There are three elements inside TBL, which is environment, social, and economic. (Alhaddi, 2015) states that companies can move towards sustainable development by integrating TBL in their management strategy. (Hussain, Rigoni and Orij, 2018); (Hammer and Pivo, 2017) proves that TBL-focused organizations can increase a company's competitive advantage

In its development, TBL is felt to be lacking, namely there is no reason or impetus, why humans want to preserve the planet, respect other people in addition to pursuing profit. So to fill this gap, TBL evolved into the Fourth Bottom Line or better known as the Quadruple Bottom Line (QBL) (Sachit and Tulchin, 2014).

ECO-DESIGN

Eco-design is a design concept with environmental friendly aspects in mind. Currently, environmentally friendly designs are attracting public attention, the reasons range from global warming, rising energy costs, to concerns about our limited water supply (Monteiro *et al.*, 2019). Eco-design is basically not just for savings and trends that are momentary in nature, but the thought of reducing the burden of nature due to human activities or lifestyles. Eco-design is acceptance of nature without the distance to complement each other as well as culture and traditions that coexist with nature (Micheaux and Aggeri, 2021). Eco-design is pro-nature, pro-life, pro-togetherness, flexible, adaptive, local organic and local material skills/craftsmanship. Pro-nature is in harmony with climate, wind direction, water flow direction, and so on. Pro-life is concerned with continuity for togetherness. Flexibility is being ready to change the atmosphere. Meanwhile, adaptive is adjusting to function. Local organic and local skills are using local materials with local skills. Eco-design is also called local wisdom because it is a continuous learning process (Syabana and Park, 2020).

Eco-design is a development of sustainable design which is a broad ideology that considers social, economic, and environmental implications. This concept optimizes design by reducing negative impacts and improving quality of life without depleting natural resources. The main goal of sustainable design is not to build structures, but to build the future (Burch and Di Bella, 2021). The application of Eco Design in the business world also includes product design with degradable material.

THEORY OF PLANNED BEHAVIOR

This theory originally form Theory of Reasoned Action which aims to solve problems which is not completely under the control of someone who is not yet complete in theory reasoned action (Ajzen, 1985). Core of the Theory of Planned Behavior still on behavioral intention element, but determinants of intention are not only subjective attitudes and norms but also aspects of perceived behavior control. However, perceived behavioral control to have implications either directly or indirectly for predict SMEs behavior. The three components, which are attitudes, subjective norms and perceived behavior control interacts and becomes a determinants interest which in turn will determine whether the behavior in question will be carried out or not.

SOCIAL COGNITIVE THEORY

This theory is originally from (Bandura, 1991). The essence of this theory is that humans learn to model through a process of observation and imitation which is then useful in the process of behaving or acting. Humans use their ability to think, symbolize, and anticipate to react (outcome reaction). In explaining this theory, Bandura suggests four important elements, namely:

observational learning (modeling), self-regulation, self-efficacy, and reciprocal determinism.

EFFECT OF ATTITUDE ON PURPOSE

(Stepchenkova and Park, 2021) argues that attitude is a level of affection, both positive and negative in relation to psychological objects, such as: symbols, phrases, slogans, people, institutions, ideals and ideas. (Abulrub, Yin and Williams, 2012), said that successful entrepreneurs in general are those who have competence, namely those who have the knowledge, skills, and individual qualities that include attitudes, motivations, personal values, and behaviors needed to carry out work/ activity. Preliminary research by (Vamvaka *et al.*, 2020) states that affective attitude and perceived self-efficacy are by far the strongest predictors of intention, thus highlighting the role of emotions in the entrepreneurial process. Where entrepreneurs want to try new things to increase innovation, including trying eco-design. Another study from (Sia and Jose, 2019) states that attitude has a significant impact on entrepreneur intention to construct eco-friendly houses. Based on this opinion, we formulate our hypothesis as follows:

H1: Attitude has significant effect on purpose

EFFECT OF SUBJECTIVE NORM ON PURPOSE

Subjective norms are a person's perception or view of the beliefs of others that will influence the intention to perform or not to perform the behavior under consideration. Subjective norms refer to the degree to which the relevant person or individual supports or does not support the performance of a particular behavior. In research, subjective norms are usually measured by asking participants to what extent they think their closest family members, friends, or colleagues would support them in engaging in entrepreneurial activities, including choosing eco-design as an innovation.

Study by (Liñán and Chen, 2009) stated that subjective norm has strong impact on entrepreneurial intention. Another study by (Wan, Qiping and Choi, 2017) found that the subjective norm had a significant impact on people's interest in recycling. Recycling is an important element in sustainability which is also the basis of eco-design. Similar studies also get the same results, namely (White and Hyde, 2012) stating that subjective norms affect recycling behavior. Based on the theory and preliminary research, we formulate our second hypothesis as follows:

H2: Subjective norm has significance effect on purpose

EFFECT OF PERCEIVED BEHAVIOR CONTROL ON PURPOSE

Perceived behavior control is an individual's perception regarding the control that the individual has with respect to certain behaviors. Then the individual towards a behavior can be influenced by information obtained from other people, for example from the experiences of known people such as family, partners and friends. (Sparks, Ajzen and Hall-box, 2002) explains that a person's behavior is not only controlled by himself, but also requires control, for example in the form of availability of resources and opportunities and even certain skills. Perceived behavioral control represents a person's beliefs about how easy it is individual exhibits a behavior. When individuals believe that they lack source or not have the opportunity to exhibit a behavior, (behavior control low) the individual will not have a strong intention to show behavior (van Nes and Cramer, 2005). Research conducted (Simons *et al.*, 2020) by writing how behavior control affects purpose in terms of corporate social responsibility in green office buildings. Another study from (Mbebeb, 2012) found that the purpose of an entrepreneur wanting to become ecological entrepreneurship stems from the entrepreneurial attitudes and actions and behavioral control they have. Research on purpose in life conducted by (Ishida and Okada, 2011) explains that behavior and control

affect purpose. Purpose in life is the fourth factor forming the quadruple bottom line. Interestingly, research from (White and Hyde, 2012) states otherwise that behavioral control has no effect. Based on the theory and differences of opinion from some of these preliminary studies, we formulate our hypothesis as follows:

H3: Perceived behavior control has significance effect on purpose

EFFECT OF SELF-EFFICACY ON PURPOSE

Self-efficacy is one's perception of how well one can function in certain situations. Self-efficacy is also an optimistic feeling about ourselves as capable and effective. In short, self-efficacy is the extent to which we are able to achieve something. Self-efficacy grows from the successes that have been done. Success is also included in the purpose that someone wants to achieve.

Research in (Efendi, 2013) found that self-efficacy has an effect on life goals, which include well-being, get satisfaction and comfort in life. Another research by (Kreitler, Peleg and Ehrenfeld, 2007; Tarhini, Hone and Liu, 2015) found that self-efficacy has impact on quality of work and quality of life. Based on theory and finding from previous study, we formulate our hypothesis as follow:

H4: Self-efficacy has significance effect on purpose

EFFECT OF PEOPLE ON SMES ADOPTION OF ECO-DESIGN

People are suspected to be one of the main factors that make SMEs want to adopt eco-design. As we all know that people are one of the factors in the Triple Bottom Line concept which later evolved into a quadruple bottom line. That's why we need a sustainable design movement, namely the ability to do something continuously so that the existing quality human resources are always available and strive not to be damaged or exhausted.

Research conducted by (Roy, Caird and Potter, 2007) found that eco-design must be people-centered. They conduct research on people and sustainability in relation to eco-design. Similar result found in (Zeng and Durif, 2019), successful transformation of eco-design depends on people's response. Research by (Sarkar *et al.*, 2019) stated that human naturally has a lot of need and wants which they will do something to fulfill it thus create product demand. Products should have values added for people or societies. Means that sustainable product should add values and fulfill people demand. Based on above theory and previous study, we formulate our hypothesis as follow:

H5: People has significance effect on SMEs intention to adopt of eco-design

EFFECT OF PLANET ON SMES ADOPTION OF ECO-DESIGN

Planet refers to the environment. We know that the major environmental issues facing the world, namely: climate change, depletion of the ozone layer, pollution of land and water surfaces, pollution and air quality degradation, waste management (garbage, waste), urban issues, declining groundwater resources, coastal zones and seawater, risk management (both human-caused and disaster), and reduced soil surface quality and biodiversity (Carroll, Brown and Buchholtz, 2018).

Previous study from (Padmalalitha and Rajeswari, 2020) said that Adoption of green practices in the organization arises due to environmental drivers, this opinion is strengthened by (Swami and Shah, 2011) which states that The corporate environmental drivers surge coercive, mimetic and normative pressures that necessitate firms to adopt green practices in the organization. A similar related study by (Padmalalitha and Rajeswari, 2020) examines environmental drivers for green supply chain practice. Another study by (Saumi and Zolkepli, 2017) found that this factor able to

create value added for customer in tourism business. Based on above theory and previous study, we formulate our hypothesis as follow:

H6: Planet has significance effect on SMEs intention to adopt of eco-design

EFFECT OF PROFIT ON SMES ADOPTION OF ECO-DESIGN

Eco-design is a definition of green design, sustainable, eco-friendly and so on (Choi and Hwang, 2015). The results of research by (Green *et al.*, 2012) show significant causal effect among the application of sustainability management thus increased environmental as well as financial profits. The technique of using eco-design is very useful in accordance with the research of (Choi and Hwang, 2015) which states that eco design is recognized as a cutting-edge tool to increase company profits and performance. The innovations contained in eco-design are not only able to improve the image or good name of the company, but also lead to the development of greater sales (Choi and Hwang, 2015).

There are several advantages of eco-design which are indirectly related to lower production costs (Choi and Hwang, 2015). According from outcome of previous research, found an influence between eco design on profit and company performance, so that we formed hypothesis:

H7: Profit has a significance effect on SMEs intention to adopt of eco-design

EFFECT OF PURPOSE ON SMES ADOPTION OF ECO-DESIGN

Purpose is a new element added to the quadruple bottom line. Previously, in the triple bottom line, there were three elements, namely: people, planet and profit. Life purpose is very important to find because it is the main motivation in doing something well to achieve our goals. In addition, life purpose can guide us to make life decisions, influencing behavior and even creating meaning in life, work and in business. Previous research from (Bovea and Gallardo, 2006) stated that goal and scope definition are the determining factors that drive eco-design. Goal and scope are part of the purpose. Similarly, research (Navajas, Uriarte and Gandía, 2017) also talks about the importance of goal and scope definition plus objectives. Based on the understanding and opinion of previous study, then formed our hypothesis as follows:

H8: Purpose has significance effect on SMEs intention to adopt of eco-design

RESEARCH METHODOLOGY

RESEARCH TYPE AND SAMPLE SIZE

Researchers used quantitative methods. According to (Creswell, 2014) quantitative research requires researchers to explain how one variable affects other variables, this type of research method is an experimental research type. According to (Roscoe, 1975) giving advice on sample size in conducting a multivariate study, the minimum sample is multiple by ten of total variables. We have 9 (nine) meaning at least 90 samples are needed. In this research, the researcher used a sample of 200 respondents. When viewed from the criteria above, this study has met one of the categories of sample size suggestions expressed by (Roscoe, 1975).

DATA TYPE SCALE AND SAMPLING TECHNIQUES

Sources of our research using primary data from respondents. While collecting answer through research questionnaire which will later be distributed to respondents. The process of distributing is direct online using link from e-form and shared the link to SMEs entrepreneur.

In sampling, the method applied in our research is to use non probability simple random technique with several criteria, such as: SMEs that has been permanent, SMEs that have a business license, at least a proprietorship company. In our research, researchers arranged questionnaire with interval scale (Likert). Likert's score is 1 up to 5, start from strongly disagree until strongly agree.

OPERATION OF VARIABLES

Our research uses latent variables, with purpose of variables measure, so author make operationalization variables. Table 1 consist of variable operationalization:

Table 1 Operation of Variables

Variable	Indicators	Reference
SMEs intention to adopt eco-design	<ol style="list-style-type: none"> 1. Significant decrease total operation cost 2. Significant decrease time for loading 3. Significant increase quality of production 4. Support business to create competitive product 5. Significant decrease waste along production activity 	(Melynk, Sroufe and Calantone, 2003)
Attitude	<ol style="list-style-type: none"> 1. Confidence 2. Consequence evaluation 	(Kuo <i>et al.</i> , 2018)
Subjective Norm	<ol style="list-style-type: none"> 1. Normative belief 2. Motivation 	(Kuo <i>et al.</i> , 2018)
Perceived Behavior Control	<ol style="list-style-type: none"> 1. Control belief over an action 2. Perceived ease of an attribute 	(Kuo <i>et al.</i> , 2018)
Self-efficacy	<ol style="list-style-type: none"> 1. Mastery experience 2. Observational 3. Invitational 4. Psychology condition 	(Bacanli, 2006)
People	<ol style="list-style-type: none"> 1. Increase in total stakeholder wealth or improvement 2. Better in society healthiness and safeties 3. Decrease in negative effect of environment public society risk 4. Better condition for employee in safety and health 5. Better maintain and protect for human rights of communities people 	(Paulraj, 2011)
Planet	<ol style="list-style-type: none"> 1. Decrease of air pollution 2. Decrease of wasted 3. Minimize the usage of dangerous materials 4. Minimize occurrence of environment accidents 5. Energy saving for conservational and cost efficient 	(Paulraj, 2011)
Profit	<ol style="list-style-type: none"> 1. Minimize material purchase cot 2. Minimize consume of energies 	(Paulraj, 2011)

	<ol style="list-style-type: none"> 3. Minimize waste disposal cost 4. Better return on asset 5. Better rate of return for shareholder 	
Purpose	<ol style="list-style-type: none"> 1. Value creation 2. Cultural continuity and development of cultural well-being 3. Spiritual life 4. Faith and relationship with God 	(Pizzirani <i>et al.</i> , 2018), (Budsaratragoon and Jitmaneroj, 2019)

RESEARCH RESULT AND ANALYSIS

IDENTITY OF RESPONDENTS

Based on the results of the answers from 200 respondents who have filled out the questionnaire using the Google form media. The following is information about the distribution of respondents in our study. Our respondent data is attached in table 2

Table 2 Identity of Respondents

Gender:	Amount:	Experience:	
Male	84	Under 5 years	56
Female	116	5 – 10 years	66
		11-15 years	31
		More than 15 years	47
Industry:		Education:	
Service	55	High School	92
Trading	113	Diploma	41
Manufacture	32	Bachelor/Master	67

Based on table 2, it can be concluded that the majority of our respondents are female, with slightly more numbers than males. The SMEs business field is in the trading field, with 5-10 years of experience, and has a high school education. It can be said that SMEs that are the object of research are SMEs with sufficient experience

CONVERGENT VALIDITY

Convergent validity is used to measure whether the indicators of each variable can properly represent the variable under study. Measuring it is commonly used by the PLS algorithm, one of which will produce the value of outer loading and Average Variance Extracted (AVE). The high outer loadings on the construct show the related indicators have a lot in common, which is captured by the construct (Ghozali and Hengky, 2015). At a minimum, the outer loadings of all indicators should be statistically significant. A general rule of thumb is that the default outer loadings should be 0.7 or higher. For the AVE value, an AVE of 0.50 > or higher indicates that, on average, the construct explains more than half of the indicator variance. In contrast, an AVE of less than 0.50 indicates that, on average, more variance remains in the item error than in the variance described by the construct.

Table 3 Outer Loading

Indicat or	Outer Loading	Indicat or	Outer Loading	Indicator	Outer Loading
ATT.1	0.995	PE.3	0.949	PR.5	0.944

ATT.2	0.993	PE.4	0.896	PU.1	0.845
SN.1	0.997	PE.5	0.812	PU.2	0.930
SN.2	0.997	PL.1	0.813	PU.3	0.950
PBC.1	0.960	PL.2	0.834	PU.4	0.845
PBC.2	0.970	PL.3	0.890	INT.1	0.868
SE.1	0.823	PL.4	0.865	INT.2	0.951
SE.2	0.919	PL.5	0.856	INT.3	0.949
SE.3	0.928	PR.1	0.980	INT.4	0.896
SE.4	0.864	PR.2	0.988	INT.5	0.812
PE.1	0.868	PR.3	0.990		
PE.2	0.951	PR.4	0.980		

Based on the data presented in table 3, it can be concluded that all indicators of each variable have a value above 0.7, which means that all of them have passed the convergent validity test. In addition to using outer loading, we also use the AVE value. Our AVE value is presented in table 4

Table 4 Average Variance Extracted

Variable	AVE
Attitude	0.988
Subjective Norm	0.994
Perceived Behavior Control	0.932
Self-efficacy	0.783
People	0.813
Planet	0.726
Profit	0.954
Purpose	0.821
SMEs Intention to Adopt Eco-design	0.804

Based on table 4, it can be seen that all variables in this study have an AVE value above 0.5, so it can be stated that all variables have passed the convergent validity test.

DISCRIMINANT VALIDITY

The next validity test is discriminant validity using the Fornell-Larcker Criterion which shows variable validity when a variable has a greater correlation than with correlations between different variables (Ghozali and Hengky, 2015). In table 5 we visualized the result of discriminant validity.

Table 5 Fornell-Larcker Criterion

	ATT	PE	PBC	PL	PR	PU	INT	SE	
ATT	0.994								
PE	0.327	0.901							

PBC	0.895	0.297	0.965						
PL	0.480	0.683	0.442	0.852					
PR	0.504	0.250	0.498	0.268	0.977				
PU	0.220	0.312	0.263	0.218	0.682	0.906			
INT	0.091	0.445	0.082	0.326	0.400	0.610	0.897		
SE	0.504	0.551	0.628	0.406	0.353	0.534	0.199	0.885	
SN	0.984	0.320	0.902	0.479	0.500	0.211	0.083	0.499	0.997

Fornell-Larcker Criterion output presented in Table 5. Concluded correlation association construct higher to other constructs, resulted this research model has good discriminant validity.

RELIABILITY TEST

Reliability according to (Ghozali and Hengky, 2015) measurement stability. Reliability is basically used to test whether the same research instrument is used or tested on the same research object several times, the results will still be the same. A question continuously stable and constant. Likewise in this study, which also expects the consistency of the dimensions and research variables so that they can be continued to the next test stage. Data reliability can be declared reliable if the composite reliability (CR) minimum 0.7 thus Cronbach's Alpha > 0.6. If it is below this value, it is considered poor (Sekaran and Bougie, 2016). In Table 6 we present the reliability test.

Table 6 Cronbach’s Alpha and Composite Reliability

Variable	Cronbach’s Alpha	Composite Reliability
Attitude	0.988	0.994
People	0.941	0.956
Perceived Behavior Control	0.927	0.965
Planet	0.907	0.930
Profit	0.988	0.990
Purpose	0.928	0.948
SMEs Intention to Adopt Eco-design	0.941	0.953
Self-efficacy	0.907	0.935
Subjective Norm	0.994	0.997

Based on table 6 shows that each variable has CR > 0.7 and also Cronbach's Alpha > 0.6. We concluded all variables used considered pass reliability test.

PREDICTIVE RELEVANT TEST

Test of predictive relevance is aspect that can be measured alongside structural equation. Predictive relevance is a test that is carried out to show how good the observed value is by using the blindfolding procedure by looking at the value of Q². If the value of Q² > 0 then it can be said to have a good observation value, whereas if the value of Q² < 0 then it can be stated that the observation value is not good (Hair *et al.*, 2014). We present the result of predictive relevance test in table 7.

Table 7 Predictive Relevance Test

Endogenous Variable	Q ²
Purpose	0.226
SMEs Intention to Adopt Eco-design	0.305

According to output in Table 7, concluded this Q² result all variables has predictive relevance with the Q² value of Purpose of 0.226 and Q² of the SMEs Intention to Adopt Eco-design variable of 0.305. Thus, these results have met the test requirements that exceed the measurement limit above 0.

COEFFICIENT OF DETERMINATION

In a multivariate model like this, there are two coefficients of determination. That is the percentage of ATT, SN, PBC, SE towards Purpose. While the second coefficient of determination is how much People, Planet, Profit and Purpose affect SMEs Intention to Adopt Eco-design. Coefficient determination result is presented in table 8.

Table 8 Coefficient of Determination

Endogenous Variable	R Square	R Square Adjusted
Purpose	0.296	0.282
SMEs Intention to Adopt Eco-design	0.447	0.435

Table 8 presented values of R Square Adjusted. Because our model is multivariate, we prefer to use the Adjusted R Square value. So it can be concluded that attitude, perceived behavior control, subjective norm and self-efficacy affect purpose by 28.2%, while people, planet, profit and purpose can influence SMEs intention to adopt eco-design by 43.5%, the remaining 56.5% is effected other variables outside this study, such as other factors outside the quadruple bottom line. These factors include: knowledge of entrepreneurs, availability of capital, government support and others

STRUCTURAL MODEL AND HYPOTHESIS TESTING RESULT

The statistical t-test in this study was conducted to test hypothesis accepted or not. The criteria in the t-test are rejected, while t arithmetic above table value 1.98 then it can be said to have a significant relationship or the hypothesis is accepted. The statistic is if the t-statistic is less than 1.98 then it does not have a significant relationship or is rejected while if the t-statistic is more than 1.98 then it can be said to have a significant relationship or the hypothesis is accepted. Table 9 contain the Hypothesis testing result.

Table 9 Hypothesis Testing

Hypothesis	Path Coefficient	T	Sig (p-value)	Conclusion
Attitude → Purpose	0.212	2.815	0.005	Accepted
Subjective Norm → Purpose	-0.120	0.337	0.736	Rejected
Perceived Behavior Control → Purpose	-0.206	1.463	0.144	Rejected
Self-efficacy → Purpose	0.616	7.954	0.000	Accepted
People → SMEs Intention to adopt eco-design	0.252	2.928	0.004	Accepted

Planet → SMEs Intention to adopt eco-design	0.047	2.368	0.022	Accepted
Profit → SMEs Intention to adopt eco-design	-0.059	0.887	0.376	Rejected
Purpose → SMEs Intention to adopt eco-design	0.561	7.960	0.000	Accepted

According to table 9, concluded there were five hypotheses that have a significant effect, namely: the influence of attitude towards purpose, self-efficacy towards purpose, people towards SMEs intention to adopt eco-design, planet towards SMEs intention to adopt eco-design, and purpose to SMEs intention to adopt eco-design. While the other three hypotheses, namely the effect of subjective norms on purpose, perceived behavior control on purpose and profit on SMEs intention to adopt eco-design, have no significant effect. In figure 1 we present the structural model and path coefficient result.

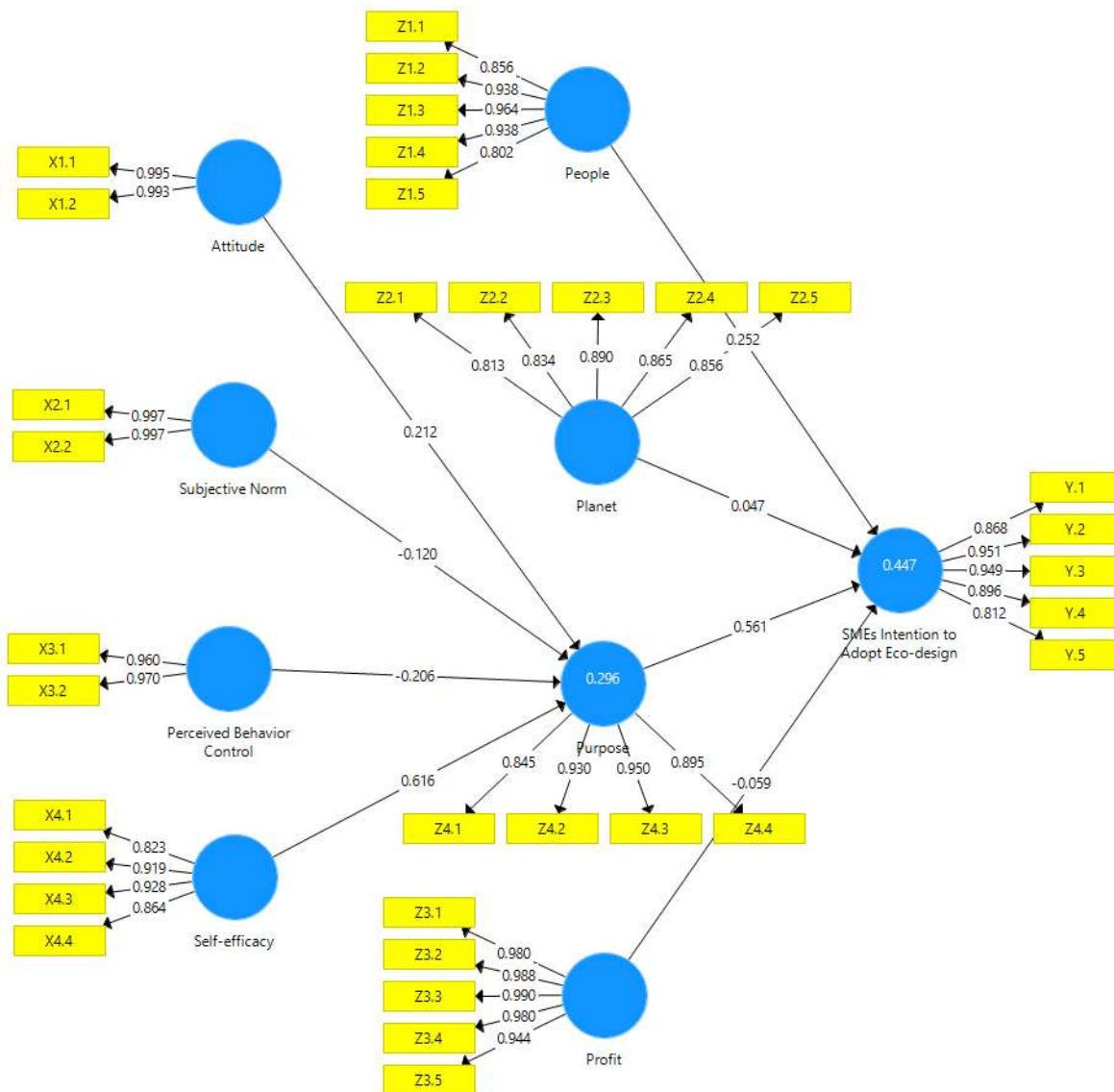


Figure 1 Structural Model

DISCUSSION

According to table 9, it concludes attitude has an effect on purpose, this is because attitude is an affective aspect that determines a person's actions, because the willingness or willingness to act determines someone to act according to the character of the attitude he has. Confidence and the consequences of an action create a person's purpose for doing something. This is in line with research (Xue, Bradley and Liang, 2011).

Subjective norm and perceived behavior control each not significantly effects purpose, it is suspected because purpose is not a normative belief, but purpose is specific. It is contrary with the result from (Lewandowska and Matuszak-flejszman, 2015). In addition, the purpose is clearly controllable so that it is no longer perceived but a certainty. This is contradict previous finding in (White and Hyde, 2012), (Chiou, 1998).

Self-efficacy has an effect on purpose, because with self-efficacy, especially from past experience, a person can better prepare future goal settings. This is in line with research (Neuville, Frenay and Bourgeois, 2007), (Hastings and West, 2011) and (Ritchie, Cervone and Sharpe, 2021) which are stated in goals and self-efficacy beliefs.

People significantly effects eco-design adoption. Similar in results obtained by (Macdonald and She, 2015), and also (Beard and Hartmann, 1997) which stated that the larger the amount of people involve will produce more various ideas. This is because the concept of eco-design is also made to pay attention to and prosper people. For example in a small company, but still pay attention to the welfare of its employees. Continue to provide benefits such as health benefits, holiday allowances and so on.

Planet significantly effects eco-design adoption. This is support the results obtained by previous researchers (Vallet and Eynard, 2012), (Knight and Jenkins, 2009). Planet is influential because the concept of eco-design is closely related to recycling, which aims to reduce pollution and preserve the environment. So that SMEs entrepreneur who cares about the environment will be easier to accept and adopt the concept of eco-design than those who don't care about the environment.

Profit in our study has no significant effects eco-design adoption. This is contrary to the previous preliminary research by (Pazoki and Samarghandi, 2020) and (Dace *et al.*, 2014). This is because SMEs entrepreneurs in our research are not profit-oriented but who try to use the eco-design concept to create added value and unique selling points for their business. There are also SMEs who think that it is difficult to profit from eco-design, this is similar to research findings (Paulson and Sundin, 2015).

Purpose significantly effect SMEs intention to adopt eco-design. Purpose in this study comes from spiritual values, beliefs, culture, and relationship with God. These factors are proven to be able to increase the interest of SMEs to adopt eco-design. SMEs entrepreneurs who have strong spiritual values, culture and beliefs are able to increase their desire to adopt eco-design. Similar with (Karamova *et al.*, 2019) and (Chun, 2012).

CONCLUSION AND SUGGESTION

Attitude and self-efficacy affect purpose. Based on these findings, we can imply that if small and medium-sized businesses are invited to develop eco-designs, it is necessary to improve their attitude and self-efficacy. Attitude can be increased with awareness, namely by providing counseling and guidance on the importance of eco-design. Meanwhile, self-efficacy can be increased by using experience. So it is necessary to involve these small and medium-sized

entrepreneurs in activities related to eco-design. Either through activities initiated by the government, educational institutions or by other institutions.

People, planet and purpose have significant influence on SMEs intention to adopt eco-design. The implication is that we should increase the awareness of SMEs entrepreneurs regarding their concern for the surrounding community, mutual prosperity between employees and business owners. Then concern about the preservation of nature, and also strengthen their spiritual life to increase the purpose of life.

Our suggestion for further research in the future is that the next researcher can conduct research on similar topics, using different samples, with different conditions. For example regarding the phenomenon of eco-design in other countries such as in Europe and the US.

REFERENCES

- Abulrub, A.-H. G., Yin, Y. and Williams, M. A. (2012) 'Acceptance and Management of Innovation in SMEs: Immersive 3D visualisation', *Procedia - Social and Behavioral Sciences*, 41, pp. 304–314. doi: 10.1016/j.sbspro.2012.04.035.
- Ajzen, I. (1985) 'From Intentions to Actions: A Theory of Planned Behavior', *Action Control*, pp. 11–39. doi: 10.1007/978-3-642-69746-3_2.
- Alexandri, M. B. and Anjani, W. K. (2014) 'Income Smoothing: Impact Factors, Evidence in Indonesia', *International Journal of Small Business and Entrepreneurship Research*.
- Alhaddi, H. (2015) 'Triple Bottom Line and Sustainability: A Literature Review', *Business and Management Studies*. doi: 10.11114/bms.v1i2.752.
- Artiach, T. et al. (2010) 'The determinants of corporate sustainability performance', *Accounting and Finance*, 50(1), pp. 31–51. doi: 10.1111/j.1467-629X.2009.00315.x.
- Bacanli, F. (2006) 'Personality Characteristics as Predictors of Personal Indecisiveness', *Journal of Career Development*, 32(4), pp. 320–332. doi: 10.1177/0894845305282941.
- Bandura, A. (1991) 'Social cognitive theory of self-regulation', *Organizational Behavior and Human Decision Processes*, 50(2), pp. 248–287. doi: 10.1016/0749-5978(91)90022-L.
- Beard, C. and Hartmann, R. (1997) 'Naturally Enterprising Eco-design, Creative Thinking and the Greening of Business Products', *European Business Review*, 97(5), pp. 237–243.
- Bovea, M. D. and Gallardo, A. (2006) 'The influence of impact assessment methods on materials selection for eco-design', *Materials and Design*, 27(3), pp. 209–215. doi: 10.1016/j.matdes.2004.10.015.
- Budsaratagoon, P. and Jitmaneroj, B. (2019) 'Measuring causal relations and identifying critical drivers for corporate sustainability: the quadruple bottom line approach', *Measuring Business Excellence*, 23(3), pp. 292–316. doi: 10.1108/MBE-10-2017-0080.
- Burch, S. and Di Bella, J. (2021) 'Business models for the Anthropocene: accelerating sustainability transformations in the private sector', *Sustainability Science*, 16(6), pp. 1963–1976. doi: 10.1007/s11625-021-01037-3.
- Carroll, A. B., Brown, J. and Buchholtz, A. K. (2018) *Business & Society: Ethics, Sustainability & Stakeholder Management*. 10th edn. Cengage Learning.
- Chiou, J. S. (1998) 'The Effects of Attitude, Subjective Norm, and Perceived Behavioral Control on Consumers' Purchase Intentions: The Moderating Effects of Product Knowledge and Attention to Social Comparison Information', 9(2), pp. 298–308.
- Choi, D. and Hwang, T. (2015) 'The impact of green supply chain management practices on firm performance: the role of collaborative capability', *Operations Management Research*, 8(3–4), pp.

69–83. doi: 10.1007/s12063-015-0100-x.

Chun, H. J. (2012) 'A Study on Example of Eco Design Approach: Focused on Taller Flora', *International Journal of Costume and Fashion*, 12(1), pp. 83–95.

Creswell, J. W. (2014) *Research Design*, SAGE.

Dace, E. *et al.* (2014) 'Resources , Conservation and Recycling System dynamics model for analyzing effects of eco-design policy on packaging waste management system', *Resources, Conservation & Recycling*, 87, pp. 175–190. doi: 10.1016/j.resconrec.2014.04.004.

Efendi, R. (2013) 'Self Efficacy: Study Indigenous on Java Tribe Teacher', *Journal of Social and Industrial Psychology*, 2(2), pp. 61–67.

Ghozali, I. and Hengky, L. (2015) *Concept, Technique and Appliaction to Use Program of Smart PLS 3.0*, Universitas Diponegoro. Semarang.

Green, K. W. *et al.* (2012) 'Green supply chain management practices: Impact on performance', *Supply Chain Management*, 17(3), pp. 290–305. doi: 10.1108/13598541211227126.

Hair, J. F. *et al.* (2014) 'Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research', *European Business Review*, 26(2), pp. 106–121. doi: 10.1108/EBR-10-2013-0128.

Hammer, J. and Pivo, G. (2017) 'The Triple Bottom Line and Sustainable Economic Development Theory and Practice', *Economic Development Quarterly*. doi: 10.1177/0891242416674808.

Hartono, H. and Ardini, R. (2022) 'The Effect of Opportunity Recognition and Organization Capability on SME Performance in Indonesia Moderated by Business Model Innovation', *The Winners*, 23(1), pp. 35–41. doi: 10.21512/tw.v23i1.6932.

Hastings, E. C. and West, R. L. (2011) 'Goal orientation and self-efficacy in relation to memory in adulthood', *Aging, Neuropsychology, and Cognition*, 18(4), pp. 471–493. doi: 10.1080/13825585.2011.575926.

Hussain, N., Rigoni, U. and Orij, R. P. (2018) 'Corporate Governance and Sustainability Performance: Analysis of Triple Bottom Line Performance', *Journal of Business Ethics*. doi: 10.1007/s10551-016-3099-5.

Ishida, R. and Okada, M. (2011) 'Factors Influencing the Development of " Purpose in Life " and Its Relationship to Coping with Mental Stress', *Psychology*, 2(1), pp. 29–34. doi: 10.4236/psych.2011.21005.

Jeurissen, R. and Elkington, J. (2000) 'Cannibals With Forks: The Triple Bottom Line of 21st Century Business', *Journal of Business Ethics*, 23(2), pp. 229–231. doi: 10.1023/A:1006129603978.

Karamova, K. H. *et al.* (2019) 'Role of the " Green " Philosophy and Bionics on the Development of Eco- Design Clothing', 9(4), pp. 5204–5207. doi: 10.29042/2019-5204-5207.

Knight, P. and Jenkins, J. O. (2009) 'Adopting and applying eco-design techniques: a practitioners perspective', *Journal of Cleaner Production*, 17(5), pp. 549–558. doi: 10.1016/j.jclepro.2008.10.002.

Kreitler, S., Peleg, D. and Ehrenfeld, M. (2007) 'Stress , self-efficacy and quality of life in cancer patients', 341(August 2006), pp. 329–341. doi: 10.1002/pon.

Kuo, T.-C. *et al.* (2018) 'Identifying Sustainable Behavior of Energy Consumers as a Driver of Design Solutions: The Missing Link in Eco-design', *Journal of Cleaner Production*. doi: 10.1016/j.jclepro.2018.04.250.

- Lewandowska, A. and Matuszak-flejszman, A. (2015) 'Eco-design as a normative element of Environmental Management Systems — the context of the revised ISO 14001 : 2015', *Int J Life Cycle Assess*, 19(2014), pp. 1794–1798. doi: 10.1007/s11367-014-0787-1.
- Liñán, F. and Chen, Y. (2009) 'Development and Cross-Cultural Application of a Specific Instrument to Measure Entrepreneurial Intentions', *Entrepreneurship Theory and Practice*, pp. 593–617.
- Macdonald, E. F. and She, J. (2015) 'Seven Cognitive Concepts for Successful Eco-design', *Journal of Cleaner Production*. doi: 10.1016/j.jclepro.2014.12.096.
- Mbebeb, F. E. (2012) 'Building Ecological Entrepreneurship: Creating Environmental Solutions Based on the Cultural Realities and Needs of Local People', *Journal of Environmental Investing*, 3(2), pp. 43–62.
- Meadows, D. H. *et al.* (1972) *Limits to growth*, Universe Books. New York. doi: 10.1016/B978-0-444-63768-0.00630-2.
- Melynk, S. A., Sroufe, R. P. and Calantone, R. (2003) 'Assessing the Impact of Environmental Management Systems on Corporate and Environmental Performance', *Journal of Operations Management*, 21, pp. 329–351. Available at: <http://www.telegraph.co.uk/news/12067812/RSPCA-warns-rise-of-fad-pets-inspired-by-popular-films-is-leading-to-widespread-neglect-of-exotic-animals.html>.
- Micheaux, H. and Aggeri, F. (2021) 'Eco-modulation as a driver for eco-design: A dynamic view of the French collective EPR scheme', *Journal of Cleaner Production*, 289, p. 125714. doi: 10.1016/j.jclepro.2020.125714.
- Monteiro, J. *et al.* (2019) 'Eco-design and sustainability in packaging: A survey', *Procedia Manufacturing*, 38(2019), pp. 1741–1749. doi: 10.1016/j.promfg.2020.01.097.
- Mustapha, M., Zulkifli, F. Z. and Awang, K. W. (2020) 'ENHANCING SUSTAINABILITY THROUGH IMPLEMENTATION OF BALANCED SCORECARD: A CASE STUDY OF BEACH RESORTS', *Journal of Sustainability Science and Management*, 15(1), pp. 136–147.
- Navajas, A., Uriarte, L. and Gandía, L. M. (2017) 'Application of eco-design and life cycle assessment standards for environmental impact reduction of an industrial product', *Sustainability (Switzerland)*, 9(10). doi: 10.3390/su9101724.
- van Nes, N. and Cramer, J. (2005) 'Influencing product lifetime through product design', *Business Strategy and the Environment*, 14(5), pp. 286–299. doi: 10.1002/bse.491.
- Neuville, S., Frenay, M. and Bourgeois, E. (2007) 'Task value , self-efficacy and goal orientations : performance among university students', *Psychologica Belgica*, 47(1/2), pp. 95–117.
- Padmalalitha, T. V and Rajeswari, T. (2020) 'Environmental Drivers on Green Supply Chain Practices', *International Research Journal of Business Studies*, 13(3), pp. 269–283. doi: 10.21632/irjbs.13.3.269-283.
- Paulraj, A. (2011) 'Understanding the relationships between internal resources and capabilities, sustainable supply management and organizational sustainability', *Journal of Supply Chain Management*, 47(1), pp. 19–37. doi: 10.1111/j.1745-493X.2010.03212.x.
- Paulson, F. and Sundin, E. (2015) 'Challenges and trends within eco-design', in *Proceedings of EcoDesign 2015 International Symposium*.
- Pazoki, M. and Samarghandi, H. (2020) 'International Journal of Production Economics Take-back regulation : Remanufacturing or Eco-design?', *International Journal of Production*

- Economics*, 227(August 2019), p. 107674. doi: 10.1016/j.ijpe.2020.107674.
- Pizzirani, S. *et al.* (2018) 'The distinctive recognition of culture within LCSA: realising the quadruple bottom line', *The International Journal of Life Cycle Assessment*, 23(3), pp. 663–682. doi: 10.1007/s11367-016-1193-7.
- Ritchie, L., Cervone, D. and Sharpe, B. T. (2021) 'Goals and Self-Efficacy Beliefs During the Initial COVID-19 Lockdown: A Mixed Methods Analysis', *Frontiers in Psychology*, 11(January). doi: 10.3389/fpsyg.2020.559114.
- Roscoe, J. T. (1975) 'Fundamental research statistics for the behavioural sciences (2nd Edition)', *Holt Rinehart & Winston, New York*.
- Roy, R., Caird, S. and Potter, S. (2007) *People Centred Eco-design: Consumer Adoption of Low and Zero Carbon Products and Systems*. In: *Murphy, Joseph ed. Governing Technology for Sustainability*. London, UK: Earthscan.
- Sachit, S. and Tulchin, D. (2014) 'Quadruple bottom line', *Social Enterprise Associates*, p. 2. Available at: <http://upspringassociates.com/wp-content/uploads/2014/09/TipSheet13QBL.pdf>.
- Sarkar, P. *et al.* (2019) 'A Measure of Product Sustainability Based on Triple Bottom Line', in *Proceedings of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE 2009*.
- Saumi, M. F. and Zolkepli, I. A. (2017) 'Kelestarian kualiti perkhidmatan ekopelancongan: Aplikasi model analisa "gap" bagi memahami kepuasan pelancong zoo Malaysia', *Jurnal Pengurusan*, 49, pp. 141–154. doi: 10.17576/pengurusan-2017-49-12.
- Sekaran, U. and Bougie, R. (2016) *Research Methods For Business : A Skill Building Approach*. 7th, abrigat edn. John Wiley & Sons, 2016.
- Sia, S. K. and Jose, A. (2019) 'Attitude and subjective norm as personal moral obligation mediated predictors of intention to build eco-friendly house', *Management of Environmental Quality: An International Journal*, 30(4), pp. 678–694. doi: 10.1108/MEQ-02-2019-0038.
- Simons, R. A. *et al.* (2020) 'The Quadruple Bottom Line: Tenant Views of Corporate Responsibility in Green Office Buildings', *Journal of Sustainable Real Estate*, 9(1), pp. 153–171. doi: 10.1080/10835547.2017.12091896.
- Sparks, P., Ajzen, I. and Hall-box, T. (2002) 'Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior', *Journal of Applied Social Psychology*, 32(4), pp. 665–683.
- Stepchenkova, S. O. and Park, H. (2021) 'Authenticity orientation as an attitude: Scale construction and validation', *Tourism Management*, 83, p. 104249.
- Swami, S. and Shah, J. (2011) 'Channel Coordination in Green Supply Chain Management: The Case of Package Size and Shelf-Space Allocation', *Technology Operation Management*, 2(1), pp. 50–59. doi: 10.1007/s13727-012-0005-y.
- Syabana, Y. M. K. and Park, G. B. (2020) 'A study on the applicability of batik for public transportation design in Indonesia', *Journal of Mechatronics, Electrical Power, and Vehicular Technology*, 11(2), pp. 75–85. doi: 10.14203/j.mev.2020.v11.75-85.
- Tarhini, A., Hone, K. and Liu, X. (2015) 'A cross-cultural examination of the impact of social, organisational and individual factors on educational technology acceptance between British and Lebanese university students', *British Journal of Educational Technology*, 46(4), pp. 739–755. doi: 10.1111/bjet.12169.
- Vallet, F. and Eynard, B. (2012) 'Using eco-design tools: An overview of experts' practices',

Design Studies, 34(3), pp. 345–377. doi: 10.1016/j.destud.2012.10.001.

Vamvaka, V. *et al.* (2020) ‘Attitude toward entrepreneurship, perceived behavioral control, and entrepreneurial intention: dimensionality, structural relationships, and gender differences’, *Journal of Innovation and Entrepreneurship*, 9(1). doi: 10.1186/s13731-020-0112-0.

Vihma, M. and Moora, H. (2020) ‘Potential of Circular Design in Estonian SMEs and their Capacity to Push it’, *Environmental and Climate Technologies*, 24(3), pp. 94–103. doi: 10.2478/rtuect-2020-0088.

Wan, C., Qiping, G. and Choi, S. (2017) ‘Experiential and instrumental attitudes : Interaction effect of attitude and subjective norm on recycling intention’, *Journal of Environmental Psychology*, 50, pp. 69–79. doi: 10.1016/j.jenvp.2017.02.006.

White, K. M. and Hyde, M. K. (2012) ‘The Role of in the Prediction of Household Recycling Behavior in Australia’, *Environment and Behavior*, 44, pp. 785–799. doi: 10.1177/0013916511408069.

Xue, Y., Bradley, J. and Liang, H. (2011) ‘Journal of Knowledge Management Team climate, empowering leadership, and knowledge sharing’, *Journal of Knowledge Management Andreas Riege Journal of Knowledge Management Iss Journal of Knowledge Management Iss Journal of Knowledge Management*.

Zeng, T. and Durif, F. (2019) ‘The Influence of Consumers ’ Perceived Risks towards Eco-Design Packaging upon the Purchasing Decision Process : An Exploratory Study’, *Sustainability*, 12, pp. 10–13.

Zeng, T. and Durif, F. (2020) ‘The Impact of Eco-Design Packaging on Food Waste Avoidance : A Conceptual Framework The Impact of Eco-Design Packaging on Food Waste’, *Journal of Promotion Management*, 0(0), pp. 1–23. doi: 10.1080/10496491.2020.1729320.