ENVIRONMENTAL VALUES, ENVIRONMENTAL ATTITUDES, WORK CLIMATE, ENVIRONMENTAL LEADERSHIP AND PRO-ENVIRONMENTAL WORK BEHAVIOR IN SEAFARERS

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Abstract

Seafarers as active work actors in the shipping sector have an important role in maintaining the sustainability of the marine ecosystem. This study aims to analyse the influence of environmental values, attitudes about the environment, work climate, and environmental leadership on seafarers' pro-environmental work behaviour. The method used in this study is a quantitative survey using a measuring instrument in the form of a psychological scale distributed to 383 seafarers who work in various shipping companies in Indonesia. The results of the analysis show that environmental values and attitudes about the environment have a significant positive influence on pro-environmental work behaviour. In addition, a conducive work climate also contributes to increased pro-environmental behaviour in seafarers. Effective environmental leadership, where leaders are able to inspire and motivate seafarers to participate in environmentally friendly practices, was also shown to strengthen seafarers' pro-environmental work behaviour. The findings indicate that efforts to increase seafarers' pro-environmental awareness and actions should involve positive values, attitudes, work climate and leadership. This research provides recommendations for shipping companies, especially to implement policies through training programmes or work activities that can initiate and increase environmental awareness and encourage more sustainable work practices in the maritime sector.

INTRODUCTION

Indonesia, known as a maritime country with more than 17,000 islands and an ocean area that reaches 70% of the total area, the sustainability of the marine environment is very important to maintain its ecosystem and marine resources. The vastness of Indonesia's oceans means that many activities in people's lives depend on the sea. This includes the utilization of marine resources, marine transport, and other human life activities. Although positively affecting the community's economy, problems such as marine pollution, overfishing, and damage to coral reefs are increasingly threatening marine sustainability as a result of various human activities in marine waters. Marine transport activities as one of the activities that utilize marine areas can make a significant contribution to the national, regional and even international economy. However, in addition to contributing to the economy, increased shipping activities can also cause problems related to the preservation of the marine environment. the negative impacts caused by shipping activities cannot be ignored. Marine pollution from ships is an unwanted but unavoidable event (Husin, 2016). With the tradition of dumping rubbish at sea, work activities on ships have historically been a major source of marine plastic pollution (Culin and Bielic, 2016). The amount of rubbish generated by shipping can also be attributed to shipping activities themselves. In addition, the discharge of oil into the sea is also the most heavily regulated environmental issue as it was the first to be recognized as an environmental problem (Brynolf et al, 2016). Marine pollution due to shipping activities is a serious problem that requires attention. Seafarers as active actors in shipping work activities are at the forefront of protecting the sea. The role of seafarers is critical to creating positive change for the sustainability of the marine ecosystem. As individuals who directly interact with the ocean, seafarers have a great responsibility to ensure that their work activities also contribute to the protection of the marine environment. Seafarers must comply with international and national regulations on waste disposal, such as MARPOL (International Convention for the Prevention of Pollution from Ships), which prohibits the discharge of hazardous waste into the sea. In addition, the Government Regulation of the Republic of Indonesia No. 21/2010 on the Protection of the Maritime Environment also regulates various matters related to the prevention of pollution of the maritime environment resulting from shipping activities. By understanding and implementing proper procedures in waste management, seafarers can help reduce marine pollution and protect marine habitats from hazardous materials. To achieve this, seafarers need to be aware of work behaviour that support the preservation of marine ecosystems. Positive work behaviour towards the marine environment can support efforts to preserve the marine environment. Pro-environmental behaviour is essential to tackle pollution and support sustainable development (Paille and Boiral, 2013), including pro-environmental work behaviour. In the context of work behaviour, pro-environmental behaviour can be defined as a collection of work activities performed by workers in an environmentally friendly and responsible manner

(Bissing-Olson et al., 2012; Graves et al., 2013). In relation to work behaviour at sea, pro-environmental work behaviour can be defined as work behaviour that is responsible for the sustainability of the marine environment. This behaviour is manifested in actions such as being willing to learn more about the environment, developing and implementing work concepts that reduce environmental impacts, developing environmentally friendly work processes, recycling and reusing items, and being willing to question work activities that could damage the environment (Graves et al., 2013). Psychology has conducted many studies to understand the factors that influence pro- environmental behaviour. These consist of a person's internal and external factors, external factors, and demographics (Steg and Vlek, 2009; Blok et al., 2015). There are three groups of factors that can make a person act positively towards relating to the environment or not. Gifford and Nilsson (2014) also stated that there are personal factors and social factors. also stated that there are personal and social factors that can influence a person's attention and behaviour related to the environment. Blok et al. (2015) discussed variables that influence pro-environmental behaviour in the workplace. These factors are divided into internal and external factors. Internal factors include social factors, which include social norms and personal norms; cognitive factors, which include awareness about the environment, propensity to act, and perceived behavioural control; and affective factors, which include values and attitudes about the environment. While external factors include situational factors, leadership support and supervisor leadership.

When studying pro-environmental behaviour, it is important to focus on variables that precede a particular situation but can help to promote that behaviour across different contexts and situations (Gatersleben et al., 2014). Values and self-identity are presented as two appropriate variables. Values can be defined as concepts or beliefs, about desired end states or behaviours, that transcend specific situations, and guide the selection or evaluation of behaviours and events, and are ordered by relative importance. Some studies suggest that there is a set of basic individual beliefs and values behind the problem of ecological crisis (Erdogan, 2009). Environmental values relate to a person's beliefs about the importance of environmental protection and its impact on human life and other living things (Schultz, 2001). Individuals who have high environmental values tend to behave more pro-environmentally.

Attitudes about the environment have received a lot of attention from researchers because it is an important factor that predicts environmental behaviour. Various studies have shown significant correlations between environmental attitudes and pro-environmental behaviour (Kollmuss and Agyeman 2002; Blok et al, 2015; Prati et al, 2015; Giefer et al, 2019). In general, attitude can be defined as a psychological tendency expressed by evaluating a certain object with a certain level of advantageous or disadvantageous, favorable or unfavorable to that object (Azwar, 2016; Verplanken and Orbell, 2022). Related to attitudes about the environment, Milfont (2007) states that attitudes about the environment are an important concept in environmental psychology, with more than half of all publications related to it. Environmental attitudes are particularly important because they often, although not always, determine actions that improve or degrade environmental quality (Gifford and Sussman, 2012). Research by Moussaoui et al (2020) shows that participants with higher levels of pro-environmental attitudes tend to behave more environmentally friendly than participants with lower levels of pro-environmental attitudes when there is a push to remind them to act. Milfont and Duckitt (2010) explained that attitudes about the environment can be measured using 12 environmental attitude scales. The scales consist of enjoyment of nature, support for interventionist conservation policies, environmental activism movement, conservation motivation by anthropocentric concern, belief in science and technology, environmental fragility, changing nature, personal conservation behaviour, human dominance over nature, human use of nature, ecocentric concern, and support for population growth policies. In addition to being influenced by personal factors, in the context of work organizations, an employee's pro-environmental behaviour in the workplace and non-workplace tends to be higher when one is in an organization with a work climate that supports pro-environmental activities and worker autonomy (Hicklenton et al., 2019). Organizations with a strong pro-environmental work climate report higher levels of employee pro-environmental behaviour. Employees will engage in more pro-environmental behaviour activities when they perceive the organization they work for to be committed to pro-environmental practices and also when they see colleagues engaging in pro-environmental behaviour (Norton et al., 2014). Several previous studies have also shown that pro-environmental work climate influences employees to behave pro-environmentally (Robertson and Barling, 2013; Norton et al., 2015). The concept of environmental work climate was used in the study as it captures employees' perceptions of the organization and individual colleagues towards environmental sustainability (Ng et al. 2019). Work climate can influence pro-environmental behaviour because work climate is learned through interactions among group members (Zientara and Zamojska, 2018). Work climate involves employee perceptions of the organizational environment and its priorities (Hicklenton et al., 2019). In the context of environmental work behaviour, various studies also mention the existence of leadership factors that influence pro-environmental behaviour in organizations. Several studies have shown the influence of transformational leadership on environmental behaviour (Robertson and Carleton, 2017; Saleem et al, 2019; Li et al, 2020; Peng et al, 2021). Graves et al. (2013) explored the role of leadership and employee motivation in driving pro-environmental behaviour. The role of leaders focused on environmental transformational leadership provided by managers directly from employees. The values-based and inspirational nature of transformational leadership can be highly effective in driving change in employees' environmental work

behaviour (Graves et al., 2011). Leadership has been identified as a significant antecedent in predicting pro-environmental behaviour in employees. (Robertson and Carleton, 2018). Employees are more likely to take responsibility for environmental sustainability practices if they have sufficient support from above, and environmental leadership in organizations is helpful to support environmental sustainability, as these leaders inspire cultural change and are recognized by employees (Young et al., 2015). Environmental transformational leadership can be manifested in the behaviour of leaders who are able to communicate clear and appropriate environmental vision of their responsibilities can act as an example by sharing environmental values by discussing the importance of sustainability and demonstrating commitment to addressing environmental issues. Leaders with environmental transformational leadership can also motivate subordinates by providing a future picture of more environmentally friendly work activities, can encourage subordinates to question environmental problems and consider new and diverse ideas to solve environmental problems, and can develop subordinates' capacity to address environmental problems by assessing development needs and providing appropriate learning opportunities individually (Graves et al, 2013). Ajzen and Fishbein (2000) state that intention to act is the strongest factor that shows actual behaviour to understand a behaviour. Three types of beliefs as intentions that regulate human action are behavioural beliefs which are beliefs about the consequences of behaviour, normative beliefs which are beliefs about the normative expectations of others, and control beliefs in the form of beliefs about the existence of factors that may encourage or discourage behaviour. Research conducted by Blok et al. (2015) shows that the theory of planned behaviour can help explain the behaviour exhibited in pro-environmental workplaces. Intention to behave is a direct and important driver for actual pro-environmental behaviour. Based on the explanation above, this study aims to explore the influence of environmental values, attitudes towards the environment, work climate, and environmental leadership on the pro-environmental work behaviour of seafarers in Indonesia. The findings of this study are expected to provide recommendations for shipping companies and related institutions to develop policies and programmes that can increase awareness and pro-environmental actions in the maritime sector, support the sustainability of marine ecosystems, and provide benefits to the wider community.

CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESIS

Based on the research objectives, the conceptual framework of the model and hypothesis in this study is presented in Figure 1 below:
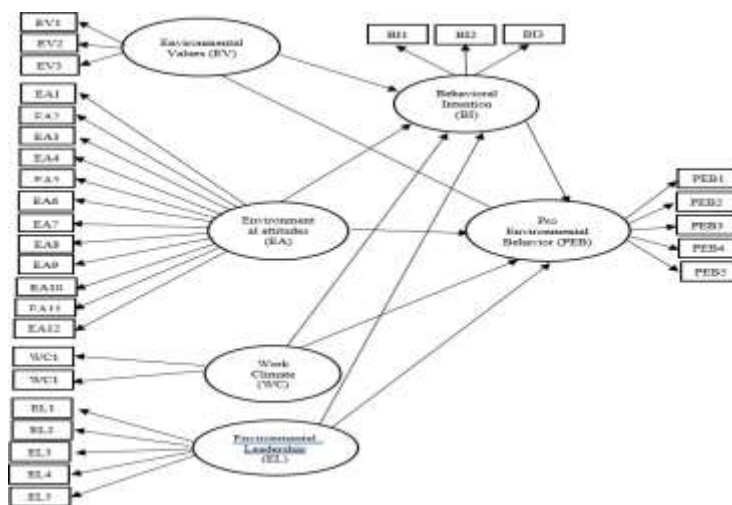

Figure 1. Research conceptual framework

While the hypothesis in the study is stated as follows:

Hypothesis 1.   Environmental values influence the pro-environmental behaviour of seafarers
Hypothesis 2.   Environmental attitudes influence the pro-environmental behaviour of seafarers
Hypothesis 3.   Work climate influences the pro-environmental behaviour of seafarers
Hypothesis 4.   Environmental leadership influences the pro-environmental behaviour of seafarers
Hypothesis 5.   Behavioural intention influences the pro-environmental behaviour of seafarers
Hypothesis 6.   Environmental values influence the pro-environmental behaviour of seafarers with the mediation of behavioural intention.
Hypothesis 7.   Environmental attitudes influence the pro-environmental behaviour of seafarers with the mediation of behavioural intention
Hypothesis 8.   Work climate influences the pro-environmental behaviour of seafarers with the mediation of behavioural intention

Hypothesis 9. Environmental leadership influences the pro-environmental behaviour of seafarerswith the mediation of behavioural intention

RESEARCH METHODS
Samples and Sampling Techniques

This study involved 383 Indonesian civil seafarers who were willing to be respondents. The determination of civil seafarers in this study refers to the definition of crew as stated in the Law of the Republic of Indonesia no 17 of 2008 concerning Shipping in article 1 paragraph 40 which explains thatcrew is a person who works or is employed on board a ship by the owner or operator of the ship to perform duties on board in accordance with his position. The sampling technique is carried out by accidental sampling technique.

This research uses a quantitative approach with a survey method and uses psychological scales as adata collection tool. This study aims to produce a pro-environmental behaviour model build from environmental value, attitudes about the environment, work climate and leadership as exogenous variables with behavioural intention as a mediating variable. The psychological scale used as a data collection tool and was sent through a Google Form link with the consideration that it can reach most seafarer respondents who tend to be difficult to meet in person.

Research Measurement Tools

In this study, pro-environmental behaviour, environmental values, environmental attitudes, workclimate, leadership and pro-environmental behavioural intention are operationalized in accordance with the research objectives. Psychological scales are designed as research measurement tools for data collection based on their operational definitions. There are 6 psychological scales used, namely the scale of environmental values, attitudes about the environment, work climate, leadership, pro-environmentalbehaviour, and behavioural intention. The scales is developed using a Likert scale model with five answer options for each item of the statement. Pro-environmental behaviour is operationally defined as a series of actions taken by seafarers during their sailing duties with the aim of playing a role and reducing the negative impacts caused by shipping activities on the sustainability of the marine environment or to minimize harm to the marine environment and as much as possible provide significant benefits to the marine environment through which they travel. This variable is measured through fifteen statements scored from almost never (score 1) to almost always (score 5). Environmental value is operationally defined as a concept or beliefabout a seafarer's desired end state or action that guides the selection or evaluation of behaviours and events related to the sustainability of the marine environment. This variable is measured through nine statements scored from strongly disagree (score 1) to strongly agree (score 5). Operationally, environmental attitude is defined as a seafarer's psychological predisposition towards his or her environment as demonstrated by rating the marine environment according to the degree of liking or disliking as a belief that influences his or her behaviour in relation to the marine environment. This variable is measured using five scales for 34 statement items. Scores for each response ranged from strongly disagree (score 1) to strongly agree (score 5).

Work climate is operationally defined as seafarers' assessment of the policies, practices and procedures that guide seafarers' behaviour by indicating the company's organizational priorities in relation to the environment. This variable is measured through eight statements scored from strongly disagree (score 1) to strongly agree (score 5). Environmental leadership is operationally defined as seafarers' assessment of leadership from direct supervisors that can encourage seafarers' behaviour related to marine environmental conservation efforts. This leadership variable is measured through 15 statements using 5 scales with a range of answer options from strongly disagree (score 1) to strongly agree (score 5). Meanwhile, pro-environmental behavioural intention is operationally defined as the strength of seafarers' self-intention to act pro-environmentally while sailing. This pro-environmental behavioural intention variable is measured through 9 statements by providing 5 ranges of answer options ranging from strongly disagree (score 1) to strongly agree (score 5).

Data Analysis

To meet the objectives of developing a model of pro-environmental behaviour based onenvironmental values, environmental attitudes, work climate and environmental leadership, the data analysis used is Structural Equation Modelling (SEM). Structural Equation Modelling (SEM) allows researchers to be able to test and estimate simultaneously the relationship between multiple exogenous variables and endogenous variables with many indicators (Latan, 2013). The SEM approach used in this study is Covariance-based SEM *(*CB-SEM*)*. The form of data in this study is interval data and in a large sample size situation, the CB-SEM estimation results tend to be more accurate (Sholihin and Ratmono, 2021). The data testing and complete model analysis were carried out using the AMOS programme. Structural Equation Modelling (SEM) can be used to explain the relationship between research variables. SEM analysis is conducted in six steps. The step starts from determining individual constructs, determining measurement models, assessing the validity and reliability of measurement models, determining structural models, assessing the validity of structural models and then arriving at conclusions and recommendations. The stages of analysis carried out are measurement model evaluation, goodness of fit and

structural model evaluation. Evaluation of the measurement model, namely convergent validity, is used to determine the correlation between each indicator and its latent variable. Convergent validity is declared valid if the standardized loading factor (λ) value is greater than 0.5, while discriminant validity is seen from the Average Variance Extracted (AVE) root value which is greater than 0.5. Composite-Reliability (C-R) is a block of indicators that measure a construct and can be evaluated by internal consistency measures. Composite reliability is acceptable if the latentvariable coefficient is greater than 0.7. After testing the validity and reliability of each latent variable, some prerequisites that must be met in structural modelling are normal multivariate assumptions, assumptions of the absence of multicollinearity or singularity and outliers. The next step is to make conclusions based on the results of hypothesis testing on structural coefficients and model fit.

RESEARCH RESULTS

The validity and reliability of each indicator and latent variable in detail are shown in table 1 below:

Table 1. Validity and Reliability Testing of Each Research Variable

Latent Variables	Indicators	p variance error	Loading (λ)	λ^2	$1 - \lambda^2$	C-R (AVE) [squared root of AVE]
Environmental Values (EV)	Egoistic Values (EV1)	0.000	0.654	0.428	0.572	0.779 (0.546) [0.739]
	Altruistic Values (EV2)	0.000	0.896	0.803	0.197	
	Biospheric Values (EV3)	0.000	0.639	0.408	0.592	
Environmental Attitudes (EA)	Enjoyment of nature and willing to protect marine ecosystem (EA1)	0.000	0.692	0.479	0.521	0.913 (0.471) [0.687]
	Support for conservation policies to protect marine environment (EA2)	0.000	0.723	0.523	0.477	
	Support and engage in Environmental activism to protect marine environment (EA3)	0.000	0.766	0.587	0.413	
	Anthropocentric concern to protect marine ecosystem (EA4)	0.000	0.827	0.684	0.316	
	Belief in science that can protect marine environment now and in thefuture (EA5)	0.000	0.508	0.258	0.742	
	Feel the need to protect the marine ecosystem (EA6)	0.000	0.725	0.526	0.474	
	Belief to change and improve the marine environment (EA7)	0.000	0.643	0.413	0.587	
	Belief in participating to preserve and protect the marine environment (EA8)	0.000	0.830	0.689	0.311	
	Dominance over nature not to use the sea arbitrarily (EA9)	0.000	0.647	0.419	0.581	
	Utilization of nature associated with protecting the marine environment (EA10)	0.000	0.671	0.450	0.550	
	Willingness to pay attention to protect marine ecosystems (EA11)	0.000	0.559	0.312	0.688	
	Support for population growth (EA12)	0.000	0.563	0.317	0.683	
Work Climate (WC)	Pro environmental climate (WC1)	0.000	0.810	0.656	0.344	0.816 (0.689) [0.830]
	Autonomy Support (WC2)	0.000	0.850	0.722	0.278	
Environmental Leadership (EL)	Communicate responsibility (EL1)	0.000	0.871	0.759	0.241	0.922 (0.703) [0.838]
	Act as a role model for subordinates (EL2)	0.000	0.826	0.682	0.318	
	Trusting in the abilities of subordinates (EL3)	0.000	0.822	0.676	0.324	
	Encourage subordinates to solve problems (EL4)	0.000	0.808	0.653	0.347	
	Develop the capacity of subordinates to learn (EL5)	0.000	0.862	0.743	0.257	
Behavioral Intention (BI)	Behavioral beliefs (BI1)	0.000	0.817	0.667	0.333	0.844 (0.645) [0.803]
	Normative beliefs (BI2)	0.000	0.861	0.741	0.259	
	Control beliefs (BI3)	0.000	0.725	0.526	0.474	
Pro Environmental Behavior (PEB)	Learning more about the environment (PEB1)	0.000	0.720	0.518	0.482	0.830 (0.502) [0.708]
	Developing and implementing ideas to reduce environmental impacts (PEB2)	0.000	0.785	0.616	0.384	
	Developing environmentally friendly work processes (PEB3)	0.000	0.547	0.299	0.701	
	Recycling and reusing goods (PEB4)	0.000	0.590	0.348	0.652	
	Questioning activities that can damage the environment (PEB5)	0.000	0.852	0.726	0.274	

Table 1 shows that the latent variables Environmental values (EV), Environmental Attitudes (AE), Work Climate (WC), Environmental Leadership (EL), Behavioural Intention (BI) and Pro-Environmental Behaviour (PEB) provide factor loading values, AVE roots and Composite Reliability (C-R) values above the cut-off value so that they are convergent valid, discriminant valid and reliable. Each indicator in each variable has a variance error p value smaller than 0.05 so it can be said that all indicators are reliable. Environmental values (EV) formed by indicators of egoistic values (EV1) which has a standardized loading factor (λ) = 0.654, altruistic values (EV2) has a standardized loading factor (λ)=0.896 and biospheric values (EV3) gets a standardized loading factor (λ)=0.639. The Environmental Attitudes (AE) variable is formed by indicators of enjoyment of nature and willing to protect the marineecosystem (AE1) with a standardized loading factor (λ)=0.692, support for conservation policiesto protect the marine environment (EA2) getting a standardized loading factor (λ)=0.723, support and engage in environmental activism to protect the marine environment (EA3) getting a standardized loading factor

(λ)= 0,766, anthropocentric concern to protect the marine ecosystem (EA4) with standardized loading factor (λ)= 0.827, belief in science that can protect the marine environment now and in the future (EA5) with standardized loading factor (λ)= 0.508, feel the need toprotect the marine ecosystem (EA6) with standardized loading factor (λ)= 0,725, belief to change andimprove the marine environment (EA7) has a standardized loading factor (λ)= 0.643, belief in participating to preserve and protect the marine environment (EA8) with a standardized loading factor (λ)= 0.830, dominance over nature not to use the sea arbitrarily (EA9) with a standardized loading factor (λ)= 0,647, utilization of nature associated with protecting the marine environment(EA10) with standardized loading factor (λ)=0.671, willingness to pay attention to protect marine ecosystems (EA11) with standardized loading factor (λ)=0.559, and support for population growth (EA12) with standardized loading factor (λ)= 0.563. Work Climate (WC) is formed by the indicator Pro environmental climate (WC1) which has a standardized loading factor (λ)= 0.810 and autonomy Support (WC2) has a standardized loadingfactor (λ)=0.850. Environmental Leadership (EL) is formed by the indicator communicate responsibility (EL1) with a standardized loading factor (λ)= 0.871, act as a role model for subordinates (EL2) with a standardized loading factor (λ)= 0.826, trusting in the abilities of subordinates (EL3) with standardized loading factor (λ)= 0.822, encouraging subordinates to solve problems (EL4) with standardized loading factor (λ)= 0.808, and developing the capacity of subordinates to learn (EL5) with standardized loading factor (λ) = 0.862. The Behavioural Intention (BI) variable is formed by indicators of behavioural beliefs (BI1) with a standardized loading factor (λ)= 0.817, normative beliefs (BI2) with a standardized loading factor (λ) = 0.861, and control beliefs (BI3) with a standardized loading factor (λ)= 0.725. The Pro-Environmental Behavior of Seafarers (PEB) variable is formed by the indicator learning more about environment (PEB1) with a standardized loading factor (λ)= 0.720, developing and implementing ideas to reduce environmental impacts (PEB2) with a standardized loading factor (λ)= 0.785, developing environmentally friendly work processes (PEB3) with standardized loadingfactor (λ) = 0.547, recycling and reusing goods (PEB4) with standardized loading factor (λ) = 0.590, and questioning activities that can damage the environment (PEB5) with standardized loading factor (λ) = 0.852. After conducting validity and reliability tests on each latent variable, some prerequisites that must be met in structural modelling are normal multivariate assumptions, assumptions of the absence of multicollinearity or singularity and outliers. The results of data normality testing on all research variables provide a multivariate Critical Ratio value of 1.805 and this value lies between -1.96 and 1.96,so it can be said that the data has a multivariate normal distribution. Singularity can be seen through thedeterminant of the covariance matrix. The results gave a Determinant of sample covariance matrix value of 0.109. This value is not close to zero so it can be said that there is no singularity problem in the analyzed data. Multicollinearity can be seen through the correlation between exogenous latent variables. Multicollinearity can be seen through the correlation between exogenous latent variables. The p value on Covariance is greater than α = 0.05, so it is said that there is no multicollinearity. The results provide a p value for each exogenous latent variable, namely environmental values and environmental attitudes of 0.210, environmental values and work climate of 0.117, environmental values and environmental leadership of 0.232, environmental attitudes and work climate of 0.069, environmental attitudes with environmental leadership of 0.141, then work climate and environmentalleadership of 0.162. These values are greater than α =0.05 so it can be said that there is no multicollinearity problem in the analyzed data. Outliers are observations that appear with extreme values univariate or multivariate. The results of the outlier test in this study are presented in Mahalanobis distance or Mahalanobis d-squared. A Mahalanobis value greater than the Chi-square table or a p1 value < 0.001 is said to be an outlier observation. In this study there are four outlier data, because it is still below 5 per cent of the observations, it can be said that there are no outliers. Furthermore, the form of the path diagram of the Pro-Environmental Behaviour of Seafarers (PEB) model is presented in the following model:
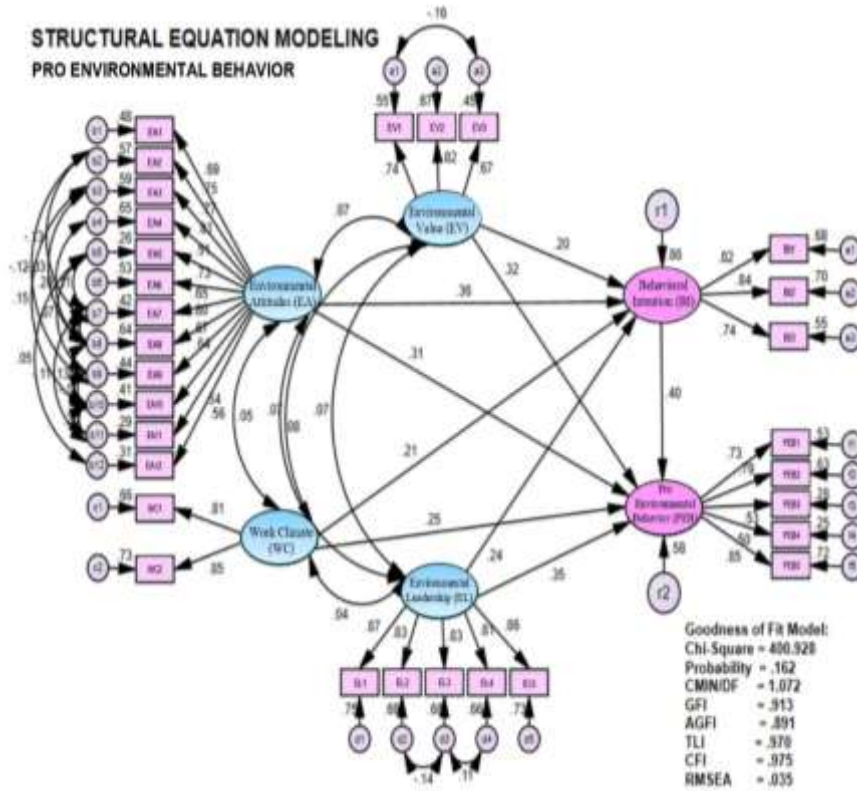
Figure 2. Model of the Effect of Environmental values, Environmental Attitudes, Work climate and Environmental Leadership on Pro-Environmental Behaviour of Seafarers with Behavioural Intention as intervening variable.

The results of testing the SEM measurement model using the complete AMOS program can be seen in Table 2 below:

Table 2. Test Results Environmental values, Environmental attitudes, Work climate, Environmental leadership on Pro-Environmental Behaviour of Seafarers with Behavioural Intention as intervening variable

Criterions	Cut – Off Value	Calculation Results	Explanations
Chi – Square	Expected low	400,928	χ^2 with df = 374 is 420,094 Good
Significance Probability	≥ 0,05	0,162	Good
RMSEA	≤ 0,08	0,035	Good
GFI	≥ 0,90	0,913	Good
AGFI	≥ 0,90	0,891	Quite good
CMIN/DF	≤ 2,00	1,072	Good
TLI	≥ 0,90	0,970	Good
CFI	≥ 0,90	0,975	Good

Based on the table above, it shows that the criteria used to assess the feasibility of a model state that it is good and good enough. Thus, it can be said that the model is acceptable, which means that there is a fit between the model and the data.

From the appropriate model, each path coefficient can be interpreted through the following structural equation:

$$BI = 0.200\ EV + 0.356\ EA + 0.214\ WC + 0.241\ EL$$
$$PEB = 0.320\ EV + 0.311\ EA + 0.246\ WC + 0.346\ EL + 0.400\ BI$$

With:
EV   : Environmental values
AE   : Environmental attitudes
WC   : Work climate
EL   : Environmental leadership
BI   : Behavioral Intention Pro-Environmental
PEB   : Pro-Environmental Behavior of Seafarers

The path coefficient test in Figure 2 and the above equation in detail is presented in Table 3 below:

Table 3. Results of Path Coefficient Testing Model of the Environmental values, Environmental attitudes, Environmental eadership on Pro-Environmental Behaviour of Seafarers with Behavioural Intention as intervening variable.

Variables	Coeficient	C.R.	Prob.	Explanations
Environmental values (EV) → Pro-Environmental Behavior of Seafarers (PEB)	0.320	2.342	0.019	Significant
Environmental attitudes (EA) → Pro-Environmental Behavior of Seafarers (PEB)	0.311	2.065	0.039	Significant
Work climate (WC) → Pro-Environmental Behavior of Seafarers (PEB)	0.246	2.011	0.044	Significant
Environmental leadership (EL) → Pro-Environmental Behavior of Seafarers (PEB)	0.346	2.989	0.003	Significant
Environmental values (EV) → Behavioral intention (BI)	0.200	2.139	0.032	Significant
Environmental attitudes (EA) → Behavioral intention (BI)	0.356	3.507	0.000	Significant
Work climate (WC) → Behavioral intention (BI)	0.214	2.580	0.010	Significant
Environmental leadership (EL) → Behavioral intention (BI)	0.241	3.025	0.002	Significant
Behavioral intention (BI) → Pro-Environmental Behavior of Seafarers (PEB)	0.400	2.216	0.027	Significant

Based on Table 3, the interpretation of each path coefficient according to the hypothesis in this study is as follows:

Hypothesis 1. Environmental values influence the pro-environmental behaviour of seafarers

Hypothesis 1 which states that environmental values have an influence on pro-environmental behaviouris accepted. This can be seen from the path coefficient which has a positive sign of 0.320 with a C.R. value of 2.342 greater than 1.96 and obtained a significance probability (p) of 0.019 which is smaller than the specified significance level of 0.05. Thus, environmental value has a direct effect on pro- environmental behaviour of 0.320, which means that every one-point increase in environmental value will increase pro-environmental behaviour by 0.320.

Hypothesis 2. Environmental attitudes influence the pro-environmental behaviour of seafarers Hypothesis 2 which states that attitudes about the environment have an influence on pro-environmental behaviour is accepted. This can be seen from the positive path coefficient of 0.311 with a C.R. value of 2.065 greater than 1.96 and obtained a significance probability (p) of 0.039 which is smaller than the specified significance level of 0.05. Thus, attitude about the environment has a direct effect on pro- environmental behaviour of 0.311, which means that every one-point increase in pro-environmental attitude will increase pro-environmental behaviour by 0.311.

Hypothesis 3. Work climate influences the pro-environmental behaviour of seafarers

Hypothesis 3 which states that work climate affects seafarers' pro-environmental behaviour is accepted. This can be seen from the positive path coefficient of 0.246 with a C.R. value of 2.011 greater than 1.96and obtained a significance probability (p) of 0.044 which is smaller than the specified significance level of 0.05. Thus, work climate has a direct effect on pro-environmental behaviour of 0.246, which means that every one-point increase in work climate will increase pro-environmental behaviour by 0.246.

Hypothesis 4. Environmental leadership influences the pro-environmental behaviour of seafarers

Hypothesis 4 which states that leadership affects pro-environmental behaviour is accepted. This can beseen from the positive path coefficient of 0.346 with a C.R. value of 2.989 greater than 1.96 and obtaineda significance probability (p) of 0.003 which is smaller than the specified significance level of 0.05. Thus, leadership has a direct effect on pro-environmental behaviour of 0.346, which means that every one-point increase in leadership will increase pro-environmental behaviour by 0.346.

Hypothesis 5. Behavioural intention influences the pro-environmental behaviour of seafarers

Hypothesis 5 which states that behavioural intention has a positive and significant effect on seafarers' pro-environmental behaviour is accepted. This can be seen from the positive path coefficient of 0.400 with a C.R. value of 2.216 greater than 1.96 and obtained a significance probability (p) of 0.027 whichis smaller than the specified significance level of 0.05. Thus, behavioural intention has a direct effect on seafarers' pro-environmental behaviour of 0.400, which means that every one-point increase in behavioural intention will increase seafarers' pro-environmental behaviour by 0.400.

Hypothesis 6. Environmental values influence the pro-environmental behaviour of seafarers with the mediation of behavioural intention

Hypothesis 6 which states that environmental values have an influence on pro-environmental behaviourof seafarers with mediation of behavioural Intention is accepted. Environmental values have a positiveand significant effect on behavioural intention with a path coefficient of 0.200 with a C.R. value of 2.139 greater than 1.96 and obtained a significance probability (p) of 0.032 which is smaller than the specified significance level of 0.05. With the value of the effect of behavioural intention on pro- environmental behaviour of 0.400, the indirect effect of environmental values variables on Pro- Environmental Behavior of Seafarers with the mediation of the intervening

endogenous latent variable Behavioral Intention is 0.080.

Hypothesis 7. Environmental attitudes influence the pro-environmental behaviour of seafarers with the mediation of behavioural intention Hypothesis 7 which states that environmental attitudes have an influence on pro-environmental behaviour of seafarers with mediation of behavioural intention is accepted. Environmental attitudes affect behavioural intention with a path coefficient value of 0.356 with a C.R. value of 3.507 greater than 1.96 and obtained a significance probability (p) of 0.000 which is smaller than the specified significance level of 0.05. With the value of the effect of behavioural intention on pro-environmental behaviour of 0.400, the indirect effect of the Environmental Attitudes variable on Pro-Environmental Behavior of Seafarers with the mediation of the intervening endogenous latent variable Behavioral Intention is 0.142.

Hypothesis 8. Work climate influences the pro-environmental behaviour of seafarers with the mediation of behavioural intention

Hypothesis 8 which states that work climate affects the pro-environmental behaviour of seafarers withmediation of behavioural intention is accepted. Work climate has a positive and significant effect on behavioural intention with a positive path coefficient of 0.214 and a C.R. value of 2.580 greater than 1.96 and obtained a significance probability (p) of 0.010 which is smaller than the specified significance level of 0.05. With the value of the effect of behavioural intention on pro-environmental behaviour of 0.400, the indirect effect of work climate variables on pro-environmental behaviour of seafarers with the mediation of the intervening endogenous latent variable Behavioral Intention is 0.086.

Hypothesis 9. Environmental leadership influences the pro-environmental behaviour of seafarers with the mediationof behavioural intention

Hypothesis 9 which states that environmental leadership influences the pro-environmental behaviour of seafarers with the mediation of behavioural intention is accepted. Environmental leadership has a positive and significant effect on behavioural intention with a positive path coefficient of 0.241 and a C.R. value of 3.025 greater than 1.96 and obtained a significance probability (p) of 0.002 which is smaller than the specified significance level of 0.05. With the value of the effect of behavioural intentionon pro-environmental behaviour of 0.400, the indirect effect of environmental leadership variables on pro-environmental behaviour of seafarers with the mediation of the endogenous latent variable intervening behavioural intention is 0.096.

DISCUSSION

Based on the results of this study, environmental values have a significant impact both directly and indirectly through the mediation of behavioural intentions on seafarers' pro-marine environmental behaviour. Environmental values play important role in managing environmental behaviour. Studiesshow that some values can have various effects on environmental behaviour (Tamar et al, 2021). Environmental values in this study can be operationalized as concepts or beliefs about a seafarer's desired end state or behaviour regarding the marine environment and may drive the selection or evaluation of seafarer behaviour to act pro-marine environment while on duty. Values are often formedearly in life, culturally constructed, transcend situations, and are tied to one's identity (Steg and de Grott, 2019). The environmental values of seafarers in this study are seen from three value orientations, namely egoistic value, altruistic value and biospheric value (Stern and Dietz, 1994; Schultz, 2001). These three values can measure seafarers' environmental values, which based on the results of this study have a significant impact on seafarers' behaviour to support the sustainability of the marine environment. Egoistic value is operationalized as a value that exists within individual seafarers to protect aspects of the marine environment personally, altruistic value which is a view that exists within seafarers who consider that damage to the marine environment has negative consequences not only for themselves asseafarers but also for others and biospheric value which is operationalized as a value that exists within seafarers in assessing this marine environmental problem related to the benefits to the ecosystem will be a significant driver for seafarers to have pro-environmental work behaviour in maintaining marine sustainability. These three aspects of environmental values have a significant influence on the pro- environmental work behaviour of seafarers who are respondents in this study. Gatersleben et al. (2014) which states that value can be said to be one of the appropriate variablesto understand the variables that influence pro-environmental behaviour. In line with this, several studieshave also suggested that there is a set of basic beliefs and values held by individuals that are behind theecological crisis problem (Erdogan, 2009). In the context of work, individuals' personal inclination to take part in environmental safety allows them to transfer their behaviour to the workplace (Tudor et al., 2007). This suggests that environmental values influence individual pro-environmental behaviour including in the workplace, which in this study also significantly proved that environmental values directly influence pro-environmental behaviour in seafarers while carrying out sailing duties. The results of this study also show that environmental attitudes possessed by seafarers can encourage seafarers to carry out pro-environmental work behaviours when carrying out sailing tasks. In relation to the environment, Milfont and Duckitt (2010) defined attitudes about the environment as psychological tendencies shown by assessing the natural environment with a certain degree of favour or dislike. How seafarers evaluate their feelings about the marine environment in which they work canencourage them to take actions that support environmental sustainability. Overall, there was a significant correlation between attitudes about the environment and pro-environmental behaviour. This correlation suggests that employees' pro-environmental behaviour is

influenced by their environmental attitudes (Abun and Racoma, 2017). Individuals with high environmental attitudes also tend to behave pro-environmentally (Kollmuss and Agyeman 2002; Chen et al, 2011; Prati et al, 2015). Attitude is the most important factor for intention to perform environmental behaviour. This means that employees' perceptions of the advantages and disadvantages of their perceived actions play a decisive role in the intention to engage in environmentally supportive behaviour (Yuriev et al, 2020). Attitudes about the environment in the work context can influence a person's intention to act pro-environmentally in their work organization (Tudor et al., 2007; Cordano et al., 2010; Lulfs and Hahn, 2013). Thus, attitude is an important factor that determines how employees behave in an environmentally friendly manner in the workplace. Employees who have a positive attitude towards the environment report more pro-environmental behaviour (Bissing-Olson et al., 2012). Research conducted by Tian et al. (2019) showed that environmental attitudes can positively predict voluntary green work behaviour expected from employees. By harnessing controlled and autonomous motivation, environmental attitudes can influence this behaviour. Environmental attitudes are directly related to both mandatory and voluntary pro-environmental behaviours. When an employee has a positive environmental attitude, they may follow organizational requirements for sustainable behaviour and take the initiative to participate in such sustainable activities. In the context of this research, seafarers' positive attitudes towards marine sustainability will be a strong driver of pro-marine work behaviour. The more positive the seafarers' attitude towards environmental sustainability, the stronger the tendency of seafarers' pro-marine environment work behaviour. This study also found that work climate influences the emergence of pro-marine environmental behaviour in seafarers both directly and through the mediation of behavioural intentions. Work climate can be defined as an employee's perception of the organisational environment and its priorities. Work climate refers to policies, practices, and procedures that direct employee behaviour by indicating the main objectives of the organization (Hicklenton et al., 2019). In this study, work climate relates to seafarers' assessments of shipboard work policies, practices and procedures that demonstrate the company's organizational priorities to guide seafarers' work behaviour related to marine environmental sustainability. A shipboard work climate that can guide seafarers' work behaviour related to marine environmental sustainability efforts can psychologically influence or encourage seafarers to perform pro-marine environment work behaviour when carrying out sailing duties. A workplace that supports pro-environmental behaviour can encourage employees to behave pro-environmentally both at work and outside the workplace. The results of this study also show consistency with several previous studies which state that pro-environmental work climate influences employees to behave pro-environmentally (Norton et al., 2015; Robertson & Barling, 2013). Work climate learned through interactions between group members can influence employees' pro-environmental behaviour (Zientara & Zamojska, 2018). Therefore, a pro-environmental work climate is needed to increase pro-environmental behaviour in employees. (Ture and Ganesh, 2014). In addition, a pro-environmental work climate can increase employees' self-transcendence value and motivate them to participate in activities that care for the environment (Latif and Aziz, 2018). In the work environment, one's involvement in pro-environmental lifestyles can be an important factor in one's environmental lifestyle (Foster et al., 2022). Employees who work in companies that implement environmentally friendly practices in their work processes are more likely to be willing to implement pro-environmental work behaviours as a motivational factor to work in an environmentally friendly way. In an organization, employees' pro-environmental behaviour plays an important role in realizing the company's environmental goals (Mateen et al., 2023). The results of this study which show that environmental climate positively influences seafarers' pro-environmental behaviour can be interpreted that when seafarers have a positive assessment of the various policies in their workplace related to the protection of the marine environment, it can encourage seafarers to increasingly have work behaviour that support the preservation of the marine environment. The role of leaders in shipping plays an important role in preserving the sea. In carrying out work according to their functions, crew members need to always coordinate, so that the role of the leader is very important in the process of developing their duties (Guritno, 2019). When seafarers perceive that leaders are able to communicate and serve as role models regarding pro-marine environment work processes to their subordinates, this will encourage seafarers to perform work behaviour that can also support the sustainability of the marine environment. Leadership is critical in high-risk industries such as shipping because inadequate leadership can lead to problems such as marine accidents that result in injury, death, property damage, and environmental pollution (Hasanspahic´ et al., 2021). The tendency of seafarers to positively evaluate leadership from superiors on board in this study may encourage pro-environmental behaviour from seafarers when carrying out sailing duties. Based on the perspective of empirical findings, this study found empirical evidence of direct and indirect effects through behavioural intentions of environmental values, attitudes about the environment, work climate and environmental leadership on pro-environmental behaviour in seafarers. The results of this study can be considered as the development of the theory of pro-environmental behaviour in general and the theory of pro-environmental behaviour related to seafaring work behaviour by seafarers specifically by focusing on pro-environmental behaviour at sea. In addition, the results of this study can also enrich the theoretical understanding of the aspects that can influence pro- environmental behaviour in the work context formed from factors including environmental values, attitudes about the environment, work climate and environmental leadership. The findings strengthen existing research on the psychological dynamics of pro-environmental behaviour at work related to the aspects conceptualized in this study. In addition, the results of this study are

expected to provide recommendations for shipping companies and related parties for policies related to efforts to improve seafarers' pro-environmental work behaviour. Some of the efforts that can be made include environmental education and training, enforcement of environmentally friendly work rules and procedures, monitoring and evaluating environmentally based work, rewarding seafarers' performance that supports environmental sustainability and increasing communication and active participation of seafarers in marine environmentally friendly work processes.

CONCLUSIONS

The results of this research model test are able to explain how the dynamics of the relationship between environmental values, attitudes about the environment, work climate and environmental leadership on pro-environmental behaviour in seafarers, both directly and indirectly with the mediation of behavioural intention. It is concluded that the model obtained is relatively good enough to describe the pro-environmental behaviour of seafarers. The results of this study are expected to make a significant contribution to the study of environmental psychology and organizational industrial psychology, especially in the study of pro-environmental work behaviour in seafarers.

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