

# Connecting Intention to Use Online Banking, Commitment to Environmental Sustainability, and Happiness: The Role of Nature Relatedness

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## Connecting Intention to Use Online Banking, Commitment to Environmental Sustainability, and Happiness: The Role of Nature Relatedness

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### Abstract

In today's advanced technology, the environment continues to degrade in the constant pursuit of consumer happiness. To promote green banking in such situation, this study experimentally examines the role of nature-relatedness in connecting the intention to use online banking with the commitment to environmental sustainability and happiness. This study has manipulated nature relatedness into two levels, i.e., nature-related and nature-separated, and randomly assigned this to the participants. The results show that the manipulation was successful, as the participants who read the description about nature relatedness perceived that they are more nature-related than those reading nature-separated. Furthermore, the results show nature relatedness influences the intention to use online banking as well as the commitment to environmental sustainability and happiness. These findings suggest that nature relatedness is important for connecting technology and sustainability as well as happiness.

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*Keywords:* Green banking; nature relatedness; intention to use online banking; commitment to environmental sustainability; happiness

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## 1. Introduction

One of the technologies available for bank customers is online banking. Literature shows that among the motivations for customers to use such banking technology is the Internet [1], trust [1, 2], and time efficiency, as well as the higher satisfaction with online services compared to in-branch services [2]. In addition, online banking supports green banking (e.g., through less use of vehicles that reduces air pollution); however, the literature has not taken into account the sustainability issues. Hence, it is unclear if the intention to use online banking by the customers is combined with the commitment to environmental sustainability, more than just for the convenience reason. As everyone wants to be happy, it is also unclear whether such intention and commitment come with happiness. Thus, there is a need to identify the determinant of the intention to use online banking, and its commitment to environmental sustainability and happiness. To address this issue, this study proposes nature relatedness as potentially the driver of the intention to use online banking combined with the commitment to environmental sustainability and happiness. Nature relatedness is a basic human psychological need [3] and thus, everyone has this feature. This study examines the proposed relationship through experiment. This study contributes to the literature on promoting green banking through connecting technology and sustainability as well as happiness. The following sections discuss the model, the method, the results, the discussion, and conclusion.

## 2. Literature review and the proposed model

People and nature are related. The evidence of such relatedness appears in the study by Schultz et al. [4], whereby people are faster when relating themselves with nature (e.g., trees) than something built (e.g., cars). Nature relatedness refers to the extent of feeling a oneness with nature [5]. Environmental researchers argue that modern life makes some people perceive they are less nature-related (e.g., driving with the air conditioner makes people less affected by air pollution) that in turn, makes them easily disrespect the environment (e.g., excessive use of vehicles polluting the environment) [6, 7]. In this respect, it is important to examine the consequences of nature relatedness for potentially contributing to environmental protection. However, Capaldi et al. [8] found that most of the studies on nature relatedness are non-experimental, which makes the consequential effects of such relatedness need further examination.

To address the above issue, this study experimentally examines the consequences of nature relatedness on the intention to use online banking, the commitment to environmental sustainability, and happiness. A technology in banking that potentially helps protect the environment is online banking [1] and examination of the intention to use such banking system is, therefore, crucial. The intention to use online banking refers to a willingness to use different kinds of bank services through the Internet [9]. In the current rise of environmental issues (e.g., global warming), studies on online banking still focus on non-sustainability issues, such as perceived usefulness, security risk, performance risk [10], as well as trust [11] as determinants of the intention to use online banking. Hence, it is unclear if the driver of the intention to use online banking addresses environmental sustainability.

Without the commitment to environmental sustainability, people can easily move away from using online banking (e.g., driving to a bank branch with the car polluting the air), such as when having a temporary problem with the internet connection. In this regard, it is important to examine the consequential effect of nature relatedness with the commitment to environmental sustainability, whereby such commitment refers to a personal commitment to environmental sustainability, as opposed to how a person's view of the commitment by the government or society at large should be [12]. Such commitment has not been the focus of previous studies on online banking [e.g., 9, 10, 11], but this commitment helps protect the environment.

Some people perceive that addressing sustainability is tiring and thus, a cost of their happiness. For example, Ram et al. [13] and Nawijn and Peeters [14] found people are reluctant to use transportation modes that pollute the environment less, reasoning that such limitation makes their lives less comfortable. Happiness refers to a positive emotion from accomplishing something that one desires [15]. Happiness is important, as it is the ultimate life goal of human beings [15] and the goal of every decision [16]. Because feeling nature-related can be relaxing, some scholars argue that addressing sustainability does not cost happiness, though this relationship needs further investigation [7], [8, 17]. To address this issue, this study examines the consequential effect of nature relatedness on happiness.

This study proposes a model shown in Fig. 1. The model begins with nature relatedness (NRS) as a basic human psychological need [3] that potentially exist following the rise of environmental degradation (e.g., deforestation) [18].

In such a condition, people may have the intention to use online banking (IUO) as well as the commitment to environmental sustainability (CES) to reduce the degradation (e.g., less trees felled to make paper) [19]. Further, as nature relatedness is relaxing, it potentially drives happiness (HPS) [8].

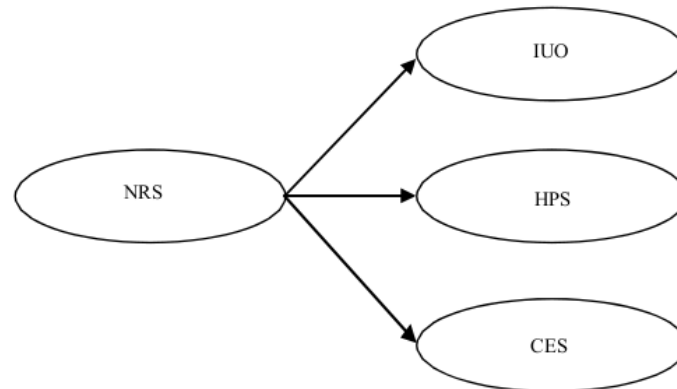


Fig. 1. Proposed model.

### 3. Method

#### 3.1. Research strategy

This study selected experiment as the research strategy. The reason for selecting experimentation is the need to address the control of any extraneous variables (e.g., through randomly assigning participants to the experimental conditions) [20]. Extraneous variables refer to variables other than the independent variable of the study, which may influence the dependent variable of interest [20]. Following Miller [21], this study has manipulated the independent variable (i.e. nature relatedness) into two levels: nature-related and nature-separated. The description of the nature-related is as follows:

“Rio has just found himself to be nature-related. For example, when he goes to a bank by motorcycle or car, he pollutes the air and he breathes other organisms. Further, doing transactions in the bank makes Rio have to use bank forms, take a queue ticket, and other use of paper that needs more trees to be cut down to make the paper material; however, trees help clean polluted air. He thinks that the use of online banking is another indication of his nature relatedness, as it reduces tree felling to make paper”.

Whereas the description of nature-separated is as follows:

“Rio has just found himself to be nature-separated. For example, when he goes to a bank, he could simply avoid polluting the air pollution through the use of a mask when he uses a motorcycle and can close the window when using a car. He does not need to spend much time on pollution reduction or other environmental issues, including the use of online banking. He thinks that being nature-separated is completely correct”.

#### 3.2. Research method

The questionnaire for this study consists of four parts: a cover letter, the levels of nature relatedness, measurement of the variables under investigation, and demographic information. The cover letter states that participation in the experiment is voluntary, and the participants may stop completing any parts of the questionnaire, which is intended to allow this study to achieve more accurate responses from the participants [22]. For the level of nature relatedness (i.e., nature-related and nature-separated), the description appears in Section 3.1.

To measure the variables, this study adopted scales from previous studies as shown in Appendix A. Six items measuring nature relatedness were used to check the manipulation of such relatedness. Following Likert [23], this study measured the items using the 5-point Likert scale, with 1 representing disagree totally to 5 representing agree totally. An exception is an item measuring the commitment to environmental sustainability (i.e., “How frequently does the need to reduce carbon emissions affect what Rio does, for example by choosing to drive less or to turn lights off when he can?”) whereby this study measured the item using a 5-point semantic differential scale, with 1 representing very infrequently to 5 representing very frequently [24]. All the indicators are reflective, as they represent the reflections of the respected construct [25]. Upon presentation of the items, the last part of the questionnaire covered the demographic variables (gender, age, the duration of being a bank’s customer, and the experience of online banking).

Young people determine the future of the environment. They grasp the environmental consequences of their actions as well as have the education and awareness to protect the environment [26]. In this respect, undergraduate students in a higher education institution in Surabaya served as the population for this study [27]. Further, as human beings have a similar cognitive process [28], this study selected participants on a convenience basis. Following Ho [29] that each experimental group should have at least 20 responses and an unequal number among a group is acceptable, this study randomly distributed 110 questionnaires to the participants. Each participant evaluates only one questionnaire and thus, the experiment falls into a between-subject design. Among the questionnaires distributed, there were 5 incomplete responses, making 105 responses suitable for further analysis, or a 95.45% response rate [30]. This response rate is far above the minimum of 50% in social research [30]. Within that number of final responses, 50 were from participants reading the nature-related description and 55 from participants reading the nature-separated description.

## 4. Results

### 4.1. Demographic characteristics

Female participants (57.1%) are slightly more dominant than the males (42.9%). The majority of the participants are 17-20 years old (54.2%), followed by 21-24 years old (44.8%), and the fewest number over 24 years old (1%). Being a customer of a bank dominates (72.3%), followed by two banks (21.9%), three banks (4.8%), and lastly more than three banks (1%). Most of the participants reported using online banking for less than a year (41.9%), followed by no experience (25.7%), 1-3 years (21.9%), and lastly more than three years (10.5%).

### 4.2. Manipulation checks

To assess the success of the manipulation of nature relatedness, this study performed a t-test. In performing this test, the study compared the mean score of the six items measuring nature relatedness between the groups reading the nature-related and nature-separated descriptions. The results show the manipulation was successful, as those reading the nature-related description perceived Rio as more nature-related than those reading nature-separated (3.91 vs. 2.11,  $p < 0.001$ ).

### 4.3. Validity and reliability assessment

This study employed partial least square structural equation modeling (PLS-SEM) to evaluate the proposed model. Compared with covariance-based structural equation modeling (CB-SEM), PLS-SEM is more appropriate for this study, as it focuses on prediction rather than theory confirmation [31]. To ascertain that the measures represent the constructs of interest, this study assessed the validity and reliability of the instrument prior to evaluating the structural model. In applying PLS-SEM, this study used WarpPLS 5.0 software. Following Hair et al. [31], this study deleted any indicator loadings of less than 0.7, and five items were deleted (CES 3-7), with the results shown in Table 1. In terms of validity, Table 1 shows that all the constructs have the average variance extracted (AVE) above the minimum requirement of 0.5 [31], indicating an adequate level of convergent validity. Furthermore, Table 2 shows that the square root of AVE is greater than the inter-construct correlations [31], indicating a sufficient level of discriminant validity. In terms of reliability, Table 1 shows that each construct has a composite reliability above 0.7, indicating

internal consistency reliability [31]. Table 1 also shows that all the indicator loadings of the respected constructs are above 0.7, suggesting indicator reliability [31].

Table 1. Factor loadings, average variance extracted (AVE), and composite reliability (CR).

Item	Factor loadings			AVE	CR
	IUO	CES	HPS		
<i>Intention to use online banking (IUO)</i>					
IUO1	0.945			0.896	0.963
IUO2	0.942				
IUO3	0.952				
<i>Commitment to environmental sustainability (CES)</i>					
CES1		0.922		0.722	0.886
CES2		0.922			
<i>Happiness (HPS)</i>					
HPS1			0.912	0.851	0.919
HPS2			0.891		
HPS3			0.736		

Table 2. Discriminant validity.

Variable	IUO	CES	HPS
Intention to use online banking (IUO)	(0.947)		
Commitment to environmental sustainability (CES)	-0.023	(0.922)	
Happiness (HPS)	0.253	-0.121	(0.850)

Note: Square roots of AVE are shown on the diagonal

4.4. Structural model assessment

The results of the structural model assessment appear in Fig. 2. As Fig. 2 shows, nature relatedness affects the intention to use online banking, the commitment to environmental sustainability, and happiness. Thus, this study has experimentally confirmed the proposed model. Further, Fig. 2 shows R<sup>2</sup> for the intention to use online banking, the commitment to environmental sustainability, and happiness as 0.32, 0.07, and 0.03 respectively.

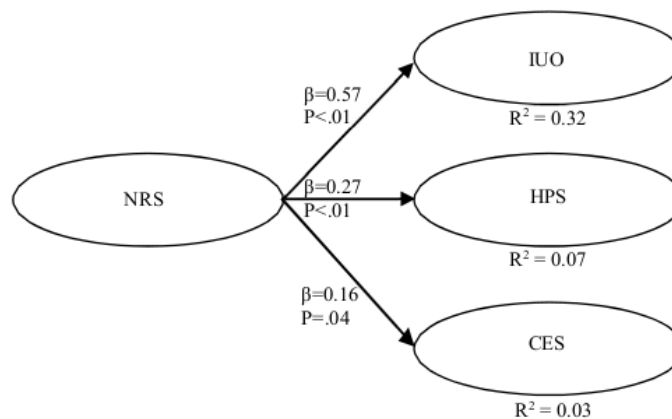


Fig. 2. Results of the structural model assessment.

## 5. Discussion

The results of this study experimentally show that nature relatedness connects the intention to use online banking, the commitment to environmental sustainability, and happiness. In particular, nature relatedness drives the intention to use online banking, along with commitment to environmental sustainability. This finding is consistent with Dean et al. [19] that nature relatedness reflects a self-identification with nature, and a conservation worldview that potentially drives the behavioral intention with the commitment to sustainability.

Another finding of this study is that nature relatedness drives happiness. This finding is consistent with the literature that such relatedness is relaxing, and thus, positively affects happiness [8, 32, 33, 34]. As the previous studies are correlational, the cause and the consequence are unclear. Thus, this study experimentally specifies nature relatedness as the cause and happiness as the consequence

In addition to the above causal relationships, the r-squared varies. R-squared for the intention to use online banking (0.32) is considered high in social science (as it is above 0.25), while the commitment to environmental sustainability and happiness (0.07 and 0.03 respectively) is considered low, but still respectable due to a huge variation in human behavior [35, 36, 37], the use of randomization that lowers the R-squared [37], and the comparison with the R-squared of the previous study on nature relatedness [32].

## 6. Conclusion

Environmental degradation affects both decision makers (e.g., those who use a car that pollutes the air) and non-decision makers (e.g., pedestrians). A study addressing sustainability is, therefore, beneficial. This study experimentally found that nature relatedness drives the intention to use online banking along with the commitment to environmental sustainability and happiness. The findings suggest that addressing sustainability does not cost their happiness [38], rather it improves that positive emotion [7, 8, 34, 39], which is useful for promoting green banking. Nature relatedness is, therefore, crucial in reducing environmental degradation in the current and future familiarity to use technology.

To implement the findings, bank practitioners may use sunlight to reduce lighting in the daytime and other actions (e.g., planting trees to reduce air pollution as well as giving customers fruit tree seeds instead of toys) aiming at reminding the nature relatedness of their stakeholders (e.g., the customers). Based on this relatedness, they may promote online banking beyond convenience reasons and emphasize the commitment to environmental sustainability [2] and happiness [7, 32, 34].

Despite the contribution of this study on sustainability, there are some limitations that provide future research opportunities. Firstly, the current experiment uses a written description of nature-related and nature-separated that has a tight control on the extraneous variables [20, 40]. While this description has a strong internal validity (i.e., the relationship among the variables), it is weak regarding external validity (e.g., generalization of findings in other contexts) [20, 40]. Future research may opt to conduct the experiment in a real setting to improve the external validity.

Secondly, students in higher education institutions were the participants for this experiment. Despite the fact that students mainly have similarities with real consumers [41], future research may opt to employ real consumers as the participants to identify any potential differences. Thirdly, this study focuses on nature relatedness, a human basic psychological need, [3], in order to connect technology, sustainability, and happiness. To explain further this connection, future studies may employ other variables, such as a recent study on social anxiety in the digital age [42] and how it may drive people to use the technology more wisely while considering the wellbeing of other people and nature.

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## Appendix A. Measurement items

Code	Item	Source
NRS	Nature relatedness	[6]
NRS1	My ideal vacation spot would be a remote, wilderness area.	
NRS2	I always think about how my actions affect the environment.	
NRS3	My connection to nature and the environment is part of my spirituality	
NRS4	I take notice of wildlife wherever I am.	
NRS5	My relationship with nature is an important part of who I am.	
NRS6	I feel very connected to all living things and the earth.	
IUO	Intention to use online banking	[43]
IUO1	Rio intends to use internet banking within the near future	
IUO2	Rio plans to use internet banking	
IUO3	Rio expects to use internet banking in the near future	
CES	Commitment to environmental sustainability	[12]
CES1	It takes too much time and effort to do things that are environmentally friendly (reverse coded)	
CES2	Scientists will find a solution to global warming without people having to make big changes to their lifestyle (reverse coded)	
CES3	The environment is a low priority for Rio compared with a lot of other things in his life	
CES4	He is environmentally friendly in most things that he does.	
CES5	Most people in Indonesia today need to change their way of life so that future generations can continue to enjoy a good quality of life and environment.	
CES6	Rio personally needs to change his way of life so that future generations can continue to enjoy a good quality of life and environment.	
CES7	How frequently does the need to reduce carbon emissions affect what Rio does, for example by choosing to drive less or to turn lights off when he can?	
HPS	Happiness	[44]
HPS1	In general, Rio considers himself happy	
HPS2	Compared to most of Rio's peers, he considers himself happy	
HPS3	Rio enjoys life, regardless of what's going on	

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