The Effect of Environmental Knowledge on Pro-Environmental Behaviors in Marsa Matrouh :Place Attachment as a Moderator

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Abstract

Sustainable development could be understood as an objective that requires transitioning to green world; so that, improving environmental knowledge enhances behaviours and sustainability in tourist destinations. So, this study focuses on two of the antecedents of sustainable development in local tourist destinations and how they influence pro-environmental behaviors. The population of the study consisted of both local residents and vacationers of Marsa Matrouh. The present study used a quantitative approach and self-administered questionnaire was the tool for data collection. The results showed that both local residents and vacationers are at a desirable level in terms of place attachment and two behavioral models for the sustainable development of the city were proposed. In addition, the analysis of the results underlined the positive effect of environmental knowledge on pro-environmental behaviors of the two target groups. Based on the results, the study provided some recommendations for raising local residents' environmental knowledge through activating the environmental initiative "Live Green" that was adopted by the Egyptian state. According to the unique significance of place attachment for each sample, the study recommended some recommendations for benefiting the city of Marsa Matrouh as it still have some physical attributes that stimulate place attachment in spite of the recent renovations.

Keywords Environmental Knowledge -Place Attachment - Pro-Environmental Behaviors- Sustainable Tourism Development - Marsa Matrouh

Introduction

Environmental sustainability is one of today's humanity challenges. So, solving the environmental problems requires coordinated and real implementation actions for a powerful and long lasting benefits of tourism either for tourists or local residents as stakeholders. UNWTO has been confirmed that awareness about sustainable tourism and its practices should be gradually promoted. Hence, changing intentional and unintentional behaviors may influence natural ecosystems positively in tourist destinations. Despite, it is unclear whether tourists would maintain pro-environmental behaviors during their holidays or not. Miller et.al. 2007 stated that tourists are responsible for protecting the environment, but Barr, Shaw and Gilg 2011 confirmed that they are selfish during their vacations. This also was stated by Macinnes, Grun and Dolincar, 2023. So, researchers still try to understand the psychological processes that explain behaviors of both local residents and tourists. (UNWTO,2005; Miller et. al.

2007; Barr, Shaw & Gilg, 2011; Bilynets&cvelbar,2020; Macinnes,Grun&Dolincar,2022; Li et.al. 2023; Hoffmann et.al. 2024).
On the other hand, place making is about practices of people concerning nature and the universe and how people recognize, define, and create the place; so that this helps in planning destinations (Lew 2017; Chen, Hall & Brayag, 2021; Wang, Lai & Liu, 2021; Qiu, 2023). In this context, place attachment was discussed in tourism from environmental psychology approach as a positive emotional bond between the individual and the place. The related researches were mainly in two fields; community development studies and environmental psychology. It has its potential in raising the awareness of all stakeholders' environmental values and destination sustainability (Dwyer, Chen, & Li, 2019; Aman et.al., 2021; Tang, Liu & Long, 2021; Lalicic & Garaus, 2022).

Consequently, the current study asks the following questions; are the place-attached vacationers behave positively towards the environment on holiday? Does environmental knowledge of outsiders and insiders affect their emotional bonds and their behaviors differently? So that, the overall objective of the current research is to use the influence of place attachment on behavioural responses of local residents and vacationers of Marsa Matrouh positively.

Theoretically, this study is one of the first attempts to present two of moderated models for local residents and vacationers in the coastal destinations and this has not yet been attempted. In the proposed models the three factors; environmental knowledge, place attachment and pro-environmental behaviors are integrated.

From the practical side, the current study provides a basis for tourism managers in Marsa Matrouh in order to improve local residents' and vacationers' pro-environmental environmental behaviors, hoping for sustainable tourism in a coastal destination.

Literature Review

Environmental Knowledge (EK)

Global environmental problems, such as global climate change, are getting worse and people have gradually become more aware that they should be urgently solved. So, that environmental concern discusses a person's attitude towards tourism and environment relationship. Hence, it is the normal result of sustainable environmental knowledge and there is also a strong correlation between concepts of sustainable development and human behaviors (Cheng & Wu, 2013; Xu, Huang & whitmarch, 2020; Aman et.al., 2021; Javed & Kour, 2022).Environmental knowledge can be described as the amount of information about the environmental problems and one's ability to understand and evaluate their impacts. It is worth mentioning that environmental behaviors are affected by situational factors and behavioural intentions, which are closely related to cognitive factors represented by knowledge. In other words, when people have enough environmental knowledge, ecologically sustainable behaviour will be more displayed. Consequently, environmental knowledge is a result of individual's ability of gaining information and data and the basis of environmentally

positive behaviour. In other words, the more environmental knowledge people have, the more empathy and concern they have for destination environments (Blankenberg & Alhusen, 2019; Li et.al.2023; Tian & Liu, 2022; Puspita et.al. 2023). Additionally, previous studies have investigated tourists' environmentally responsible behaviour and the standpoint for this behaviour is the environmental knowledge (EK). It enhances tourists' behaviour in order to facilitate sustainable tourism development integrating place attachment. This type of environmental knowledge is not only about environmental problems, but also about the interrelationship between tourism, environment, and eco- labelling. It is worth mentioning that social media and environmental education for sustainable development are the biggest agents for influencing sustainable behaviour of a community (Cheng & Wu, 2013; Mahat et.al. 2019; Damijani´c,Piculijan & Ban,2023).

Place Attachment (PA)

The concept of "place" has gained attention of humanistic geography and some other social scientists since the 1970s. Place is a social construct and the environment is the core of such a place based on one's experiences, relationships, emotions, and ideas. It is also a centre of social practices experiences, and meanings and the interaction with place leads to perceptions, which are created with landscapes, ideas, meanings and symbols of places. In other words, some may feel attached to a place because of the close social ties, while for others the attachment is directed to the physical aspects of a place. Hence, place is a foundation for their behaviors regarding future development of that place. Place attachment is commonly used in tourism literature to show the strong or affective bond between people and particular places. (Buchecker, 2009; Jorgenson & Nickerson, 2016; Tonge et.al. 2015; Lalicic & Garaus, 2022).

Place attachment refers to some emotional and psychological connections that are shaped through interactions between people and specific irreplaceable places tourist destinations are of them. It stems from social, historical or spiritual cohesions or memorable experience and physical attributes of the place. In other words, Place attachment is a meaningful end of a tourist trip, when all tourism experiences complete. In addition, place attachment is not static relationship and changes over time. It is the desire to maintain long-lived deeply ingrained attachment. So, higher place attachment leads to higher social relationships (Tsai, 2012; El Gamil, 2014; Hosany et.al.,2015; Tonge et.al.,2015; Cao, Yu. &Xu , 2021; Lalicic& Garaus, 2022).Place attachment is in consent with the theory of planned behavior to predict intention. It is not just emotional it is also accompanied by cognition and practice. So that, place attachment can generate positive behaviour outcomes as a basis for sustainable tourism and this requires all stakeholders' involvement and the relationships among them (Tonge et.al., 2015; Han et.al, 2019; Dwyer, Chen, & Li,2019; Zou,et.al.,2022).

It is a complex multidimensional construct and it is divided into place dependence and place identity. Place dependence refers to an individual's dependence on the function of the place to achieve the desired objective depending on the place basic value. So, based on the experience; the behaviour expressed is repeated visit of the place as a destination or being sympathetic and proud of one's city. Place identity

possesses individuals' cognitive and emotional attachment to the place as they identify themselves in relation to the place. It is about how to express, affirm and reflect one's identity especially if it has links to family or places of origin. So that, inappropriate behaviour at their place is seen offensive to themselves. Place dependence deals with how the place well serves to achieve one's goals compared to another place and it leads them to be loyal., In other words, the ability of the place to satisfy recreational, self-enhancement, or other psychological goals of an individual (McCabe, 1993; Klanica et.al., 2006; Cheng, Wu, Huang, 2013; Tonge et.al., 2015; Alrobaee& Al-Kinani, 2019; Dameria et.al., 2022).

Tuan 1974, a human geography scientist, found that there is an emotional connection between people and their community and their daily life settings that are related with environmental perceptions (Jin, et. al, 2020; Dameria et.al. 2022; Javed & Kour, 2022; Qiu, 2023). It is about community connectedness and sense of community ownership towards place and nature. For example, the role played by residents who were place attached to Alpine landscape in tourism development. Moreover, individuals' responsible environmental behaviour in their familiar place of residence gradually push them to engage in safeguarding regional environment and sustainable tourism development (Cheng, Wu, Huang, 2013; Chen & Dwyer, 2018; Dwyer, Chen, & Li,2019).

Additionally, concept of place attachment is about continuous interaction of tourists and a tourist destination that forms a strong emotional connection and personal memory may be an antecedent of place attachment. (Buchecker 2009; Jorgenson& Nickerson, 2016; Jin et.al. 2020; Wang, Lai & Liu, 2021). For example, Selfie tourism and photo-sharing on social media could also be used for a memorable tourist experience and place attachment. It is worth mentioning the stronger the place attachment is , the greater tourist gives meaning to a place based on their social contacts, emotions and long-term destination experience that strongly affects their behaviour positively .In other words, the high level of attachment to a destination motivate tourists to protect and improve it (Cheng, Wu & Huang, 2013; Alshemeili, 2014;Lalicic & Garaus, 2022; Trinando et.al. 2022).Thus, when tourists have prolonged relationship with a destination, their identification with, and dependence on, the destination will be induced and then they gain Pro-Environmental Behaviors as a tool for successful and sustainable management of the destinations (Cheng, Wu & Huang, 2013; Hosany et.al., 2015; Han et. al., 2019). So, the level of place attachment is also determined by past familiarity with the place in leisure activities such as family trip (Dwyer, Chen, & Li, 2019).

In short, if a person become attached to a place, he is more likely to protect it. So, this relationship is commonly used in sustainable destination management and formulation of environmental policies (Tian & Liu, 2022; Ribeiro et.al, 2023).

Pro-Environmental Behaviors (PEBs)

Behavioural intention is described as an intention to perform or not perform a specific behaviour and it indicates the motivation to perform an actual behaviour. Pro-Environmental Behaviors (PEBs) are individual's intention to take the responsible

visible actions that have a positive impact on the environment conservation. It is an activity conducted by individuals or groups that can promote the sustainability of natural resources. Pro-environmental behaviors focus on improving environmental conditions and reducing negative impacts on the environment, which include reducing gas emissions, waste of natural resources, etc. Pro-environmental behaviors are based on the theory of planned behaviour and theory of norm activation (Bazyar et.al.,2021; Wu, Font & Liu, 2021; Tian & Liu, 2022; Dameria et.al. 2022; Zhang et.al.2022; De Bernardi, Linde, and Ioannides, 2023). This means that if an individual believes in moral obligations to protect the outdoor environment, he will take the corresponding responsible behaviors and will have awareness of consequences. The term "pro-environmental behaviors" includes a wide range of purposeful actions which can be described as responsible environmental behaviors. They also express any action performed individually or collectively towards environment may cause in mitigating harm, or improving the environment directly or indirectly. They also discuss any daily precaution efforts that are minimize the negative impact of human activities on the environment. It describes sustainable consumption of natural resources by a person or a group of people such as recycling, waste management and responsible transport use and energy consumption. These behaviors are due to the environmental awareness that is may be come from education and this underscores the first information on the environmental topics one encounters in the formation of his attitude and behaviour.

If the awareness is high, then the level of pro-environmental behaviour is also high either for tourist or residents (Tonge et.al. 2015; Lelono et.al.2018; Xu, Huang & whitmarch, 2020; Aman et.al. 2021; Tang, Liu & Long, 2021; Bilynets & Cvelbar, 2022; Poluektova et.al,2024). For example, Gen Z of travellers are demonstrating high levels of willingness to sacrifice for the environment and green consumption values. They have also higher tendency towards sustainable practices such as buying local food, higher engagement in food waste reduction behaviors, compared to older travellers (Tonge et.al. 2015; Schönherr & Pikkemaat, 2023 and Ribeiro et.al, 2023).

These behaviors are driven though two paths; awareness and morality towards environmental protection, and the interests of individuals. According to the theory of self-interest, the pro- environmental behaviors is driven by expected or desirable outcomes. So that, PEBs are often used synonymously with environmentally responsible behaviour, environment-friendly behaviour, eco-friendly behaviour, environmental conservation behaviour, green and pro- sustainable behaviour. In addition, environmental behaviour of visitors depends on the environmental settings observed and this enhance positive behaviors. In other words, PEBs of local residents affect visiors' positively (Mchunu, Nyikana and Tichawaa, 2021; Tang, Liu & Long, 2021; Ribiero et.al. 2023).

These behaviors can be distinguished in four categories; environmental activism such as involvement in organizations, no activist behaviors such as public-sphere petitioning, private-sphere environmentalism like household behaviors of water saving and responsible energy use and travelling modes. PEB can be also divided into protection, avoidance of harm activities such as pollution prevention, transformation

and preventing waste behaviours (e.g. recycling or purchasing eco-friendly goods) and finally, influencing others activities that promotes sustainability like instruction and rewards (Blankenberg & Alhusen, 2019; Puspita et.al, 2023).

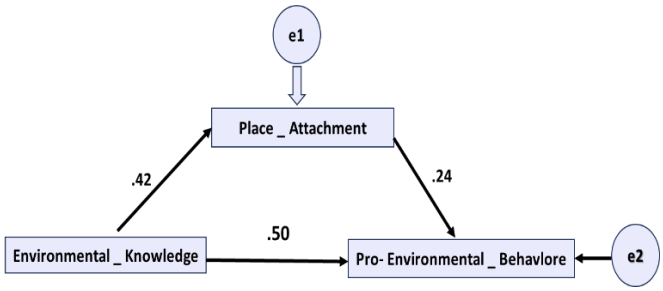

Fig 1. Vacationers' conceptual model

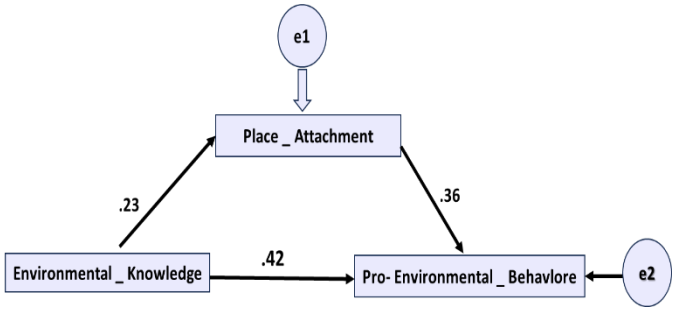

Fig 2. Local residents' conceptual model

Hypotheses of the study

H1- Environmental Knowledge (EK) of Vacationers of Marsa Matrouh has a positive impact on their Place Attachment (PA).

H2- Place Attachment (PA) of Vacationers of Marsa Matrouh has a positive impact on their Pro-environmental Behaviours (PEBs)

H3- Environmental Knowledge (EK) of Vacationers of Marsa Matrouh has a positive impact on their Pro-environmental Behaviours (PEBs).

H4-Place Attachment moderates the relationship between Environmental Knowledge (EK) and Pro-Environmental Behaviors (PEBs) for vacationers of Marsa Matrouh.

H5- Environmental Knowledge (EK) has a positive impact on Place Attachment (PA) of local residents of Marsa in Marsa Matrouh.

H6- Place Attachment (PA) of local residents of Marsa Matrouh has a positive impact on their Pro-environmental Behaviours (PEBs).

H7- Environmental Knowledge (EK) of local residents of Marsa Matrouh has a positive impact on their Pro-environmental Behaviours (PEBs).

H8-Place Attachment moderates the relationship between Environmental Knowledge (EK) and Pro-Environmental Behaviours (PEBs) for local residents of Marsa Matrouh.

H9-There is a significant differences in Place Attachment (PA) between Vacationers and local residents in Marsa Matrouh

Methodology

Population, Sample and design

The current study adopted a descriptive analytical methodology. Two random samples were the focus of this study; local residents and vacationers of Marsa Matrouh.

This study tested the proposed hypotheses and a quantitative research approach was also adopted. The city of Marsa Matrouh was chosen because tourist studies did not pay sufficient attention to it, despite its importance as a coastal destination that receives a large number of local vacationers.

In order to obtain a reliable data, self-administered questionnaires were conducted in Arabic and all questions were closed. The two forms start with the warm-up part including the objectives of the study affirming that the responses are for scientific purposes only. The second part was about the independent variable; Environmental Knowledge (EK), and it included seven items for the two forms. They were adapted from an earlier published studies (Cheng & Wu, 2015; Tang, Ma & Ren, 2022).

The third part was for Place Attachment (PA); this latent variable was containing three items for local residents and six items for vacationers and they were taken from (Tsai,2012; Cheng, Wu,& Huang,2013; Tonge et.al.,2015; Jin et.al.,2020; Cao ,Yu, & Xu,2021; Wang, Lai & Liu,2021; Lalicic & Garaus,2022; Pullano et. al.,2024). The fourth part was about the dependent variable "Pro-Environmental Behaviours (PEBs)". It was comprised of seven questions for vacationers and the sentences in local residents' form were six. Questions were taken from (Xu, Huang & Whitemarch,2020; Tang,Liu &Long,2021;Tang, Ma & Ren,2022; Li et.al.,2022; Damijanic, Pculjan &Ban,2023; Ribeiro et.al.,2023; Zulvianti, Akmal & Putra,2023; Liu et.al.,2024). The questionnaires were designed with a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Questionnaires were conducted using Google Forms for each sample between Nov. 2023 and Jan., 2024. The researcher distributed 200 questionnaires for each sample, and valid questionnaires for local residents' questionnaire were 112 giving a response rate of .56 percent. For the vacationers' sample, valid questionnaires were 178 with response rate of .89

Validity and Reliability

- **Content validity**

  The questionnaires were presented in their first version of (10) of tourism experts. They made their comments regarding the easiness of understanding all items. About the Lawshe Content Validity Ratio (CVR) (Johnston, Wilkinson, 2009), it was found that all items of the Questionnaire had acceptable content validity values, and the average content validity percentage for the questionnaire of local residents and vacationers as a whole were (0.910), (0.906) respectively.

Table (1) Construct Validity and Reliability for vacationers

Constructs	Scale item coding	Factor Loading	Square of FL.	AVE	Sq. root of AVE	Comp. Rel.
Place Attachment	PA6	0.623	0.623	0.519	0.721	0.892
	PA5	0.731	0.731			
	PA4	0.606	0.606			
	PA3	0.888	0.888			
	PA2	0.734	0.734			
	PA1	0.707	0.707			
Pro-Environmental Behaviors	PEBs7	0.596	0.596	0.597	0.773	0.931
	PEBs6	0.617	0.617			
	PEBs 5	0.88	0.88			
	PEBs 4	0.87	0.87			
	PEBs 3	0.723	0.723			
	PEBs 2	0.859	0.859			
	PEBs 1	0.809	0.809			
Environmental Knowledge	EK7	0.617	0.617	0.528	0.727	0.905
	EK 6	0.796	0.796			
	EK 5	0.662	0.662			
	EK 4	0.8	0.8			
	EK 3	0.487	0.487			
	EK 2	0.833	0.833			
	EK 1	0.822	0.822			

Table (1) clarified the convergent validity of the measurement model of vacationers of Marsa Matrouh. For items loadings of the construct, AVE was calculated for all latent variables and all of them were statistically significant (above 0.5) ranging from 0.59 for (PEBs) to 0.51 for (PA). In other words, all items in the model are consent with its construct. The square root of AVE was calculated for all latent variables and all of them were statistically significant. The values were ranging from 0.73 for (EK) to 0.77 for (PEBs) as shown in table. 1. Composite reliability (CR) was also calculated to confirm the measures' reliability. The composite reliability of all latent constructs must exceed 0.70. The calculated values were ranging from .91 for (EK) to .93 for (PEBs) indicating the internal consistency of the model. (Bacon, Sauer & Young, 1995; Hamid, Sami & Sidek, 2017).

Table (2) Construct Validity and Reliability for local Residents

Constructs	Scale item coding	Factor Loading	Square of FL.	AVE	Sq. root of AVE	Comp. Rel.
Place Attachment	PA3	.748	0.560	0.612	0.782	0.825
	PA2	.763	0.582			
	PA1	.833	0.694			
Pro-Environmental Behaviors	PEBs1	.818	0.669	0.540	0.735	0.873
	PEBs2	.882	0.778			
	PEBs3	.758	0.575			
	PEBs4	.645	0.416			
	PEBs5	.730	0.533			
	PeBs6	.517	0.267			
Environmental Knowledge	EK7	.606	0.367	0.506	0.711	0.875
	EK6	.509	0.259			
	EK5	.818	0.669			
	EK4	.779	0.607			
	EK3	.749	0.561			
	EK2	.719	0.517			
	EK1	.748	0.560			

Table (2) clarified the convergent validity of the measurement model of local residents of Marsa Matrouh. For items loadings of the construct, AVE was calculated for all latent variables and all of them were statistically significant (above 0.5) ranging from 0.61 for (PA) to 0.51 for (EK). In other words, all items in the model are consent with its construct. Items with low loadings (less than 0.5) were dropped in order to strengthen the analysis' results. The square root of AVE was calculated for all latent variables and all of them were statistically significant. The values were ranging from 0.72 for (TT) to 0.86 for (VI) as shown in table. 2. Composite reliability (CR) was also calculated to confirm the measures' reliability. The composite reliability of all latent constructs must exceed 0.70. The calculated values were ranging from .88 for (EK) to .82 for (PA) indicating the internal consistency of the model. (Bacon, Sauer & Young, 1995; Hamid, Sami & Sidek, 2017).

Table (3) analysis for Discriminant Validity for vacationers sample constructs

Constructs	(1)	(2)	(3)
Place Attachment	0.721		
Pro-Environmental Behaviors	0.091	0.773	
Environmental Knowledge	0.143	0.160	0.727

Table (4) analysis for Discriminant Validity for local residents sample constructs

Constructs	(1)	(2)	(3)
Place Attachment	**0.782**		
Pro-Environmental Behaviors	**0.068**	**0.735**	
Environmental Knowledge	**0.031**	**0.435**	**0.711**

-**Discriminant validity** for vacationers of Marsa Matrouh, the square root of Average Variance Extracted (AVE) was calculated for all latent variables and all of them were statistically significant. The values were ranging from .**77** for (PEBs) to .**73** for (EK) as shown in table 3. For local residents of Marsa Matrouh, the square root of (AVE) for all latent variables were also statistically significant. The values were ranging from.**78** for (PA) to .**71** for (EK) as shown in table 4. These results indicate that each latent variable is distinct to the others. This is crucial for ensuring that the measurement model for each sample accurately captures the unique variance associated with each construct.

Data analysis

In order to test the research hypotheses, Amos 26 was used. Structural Equation modelling (SEM) allows multiple regression analyses of factors including multiple regression, correlation and analysis of variance (Ullman & Bentler, 2013). The model's validity and reliability were verified followed by a test of hypothesis through path analysis.

Table (5) Path analysis and Hypothesis Testing for vacationers' sample

Hypotheses	Path	Estimate	S. E.	C. R.	P	Decision
H1	EK --> PA	.573	.421	6.180	***	**Supported**
H2	PA --> PEBs	.151	.237	3.723	***	**Supported**
H3	EK -->PEBs	.438	.504	7.919	***	**Supported**
H4	(EK) (PA) --> PEBs	0.087	.100	-	***	**Supported**

As shown in table 5

- There is a direct effect of Environmental Knowledge on Place Attachment for vacationers of Marsa Matrouh. It was statistically significant ($\beta = 0.421$, $p < .01$). This result supports H1.
- There is a direct effect of Place Attachment on Pro-Environmental Behaviors of vacationers of Marsa Matrouh It was statistically significant ($\beta = 0.237$, $p < .01$). This result supports H2.
- There is a direct effect of Environmental Knowledge on Pro-Environmental Behaviors for vacationers of Marsa Matrouh. It was statistically significant ($\beta = 0.504$, $p < .01$). This result supports H3.
- There is an indirect effect of Environmental Knowledge on Pro-Environmental Behaviors for vacationers of Marsa Matrouh It was statistically significant ($\beta = 0.100$, $p > .01$). This result supports H4.

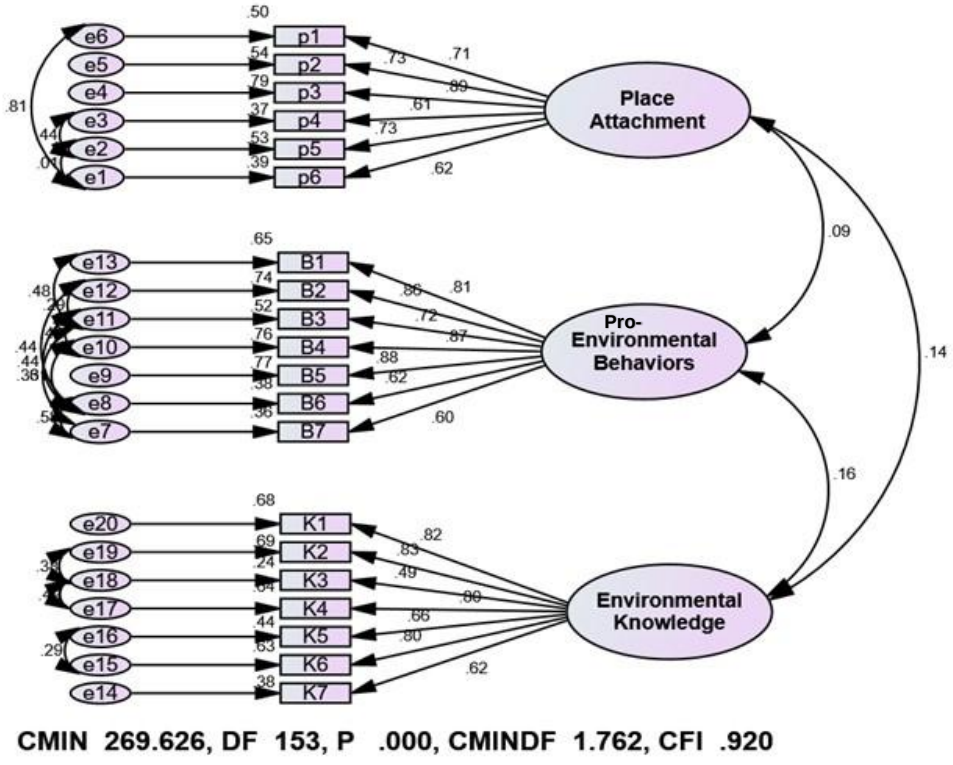

Fig.(3) A Confirmatory Factor Analysis Model of vacationers

Table (6) Path analysis and Hypothesis Testing for local residents' sample

Hypotheses	Path	Estimate	S. E.	C. R.	P	Decision
H5	EK --> PA	.142	.225	2.434	.015	**Supported**
H6	PA --> PEBs	.580	.364	4.753	***	**Supported**
H7	EK -->PEBs	.424	.423	5.525	***	**Supported**
H8	(EK) (PA) --> PEBs	.082	.082	.100	***	**Supported**

According to Table (6)

- There is a positive and direct effect of Environmental Knowledge on Place Attachment for local residents in Marsa Matrouh. It was statistically significant ($\beta = 0.225$, $p < .05$). This result supports H5.
- There is a direct effect of Place Attachment on Pro-Environmental behaviors for residents in Marsa Matrouh. It was statistically significant ($\beta = 0.364$, $p < .01$). So that, H6 is supported.
- There is a direct effect of Environmental Knowledge on Pro-Environmental Behaviors for local Residents in Marsa Matrouh It was statistically significant ($\beta = 0.423$, $p < .01$). According to this result H7
- There is an indirect effect of Environmental Knowledge on Pro-Environmental Behaviors for local Residents in Marsa Matrouh It was statistically significant ($\beta = 0.082$, $p > .01$).

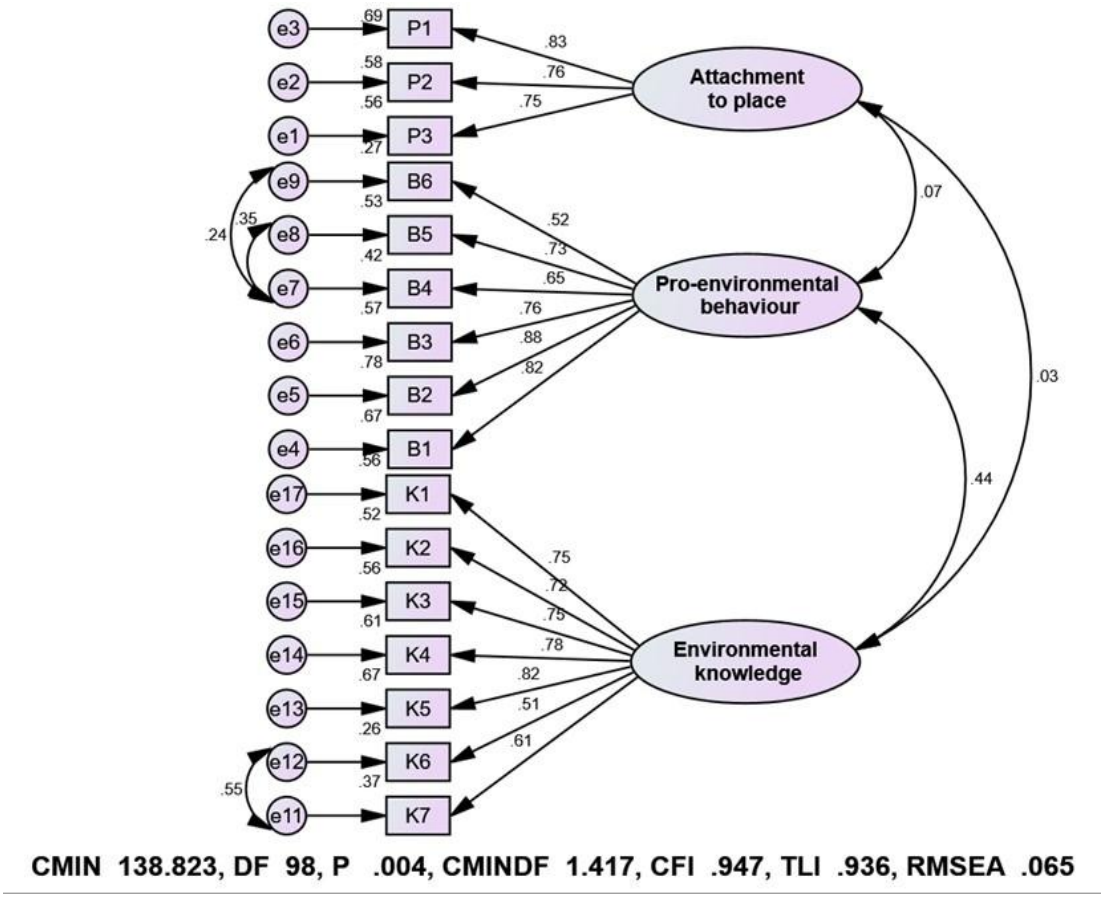

Fig. (4) A Confirmatory Factor Analysis Model of local residents

Table (7) levels of Place Attachment for vacationers and local Residents samples in Marsa Matrouh

constructs	Vacationers (n=178)		Local Residents (n=112)		Significant differences		H9
	Mean	SD	Mean	SD	t	p-value	Supported
Place Attachment.	72.04	15.87	87.20	13.90	8.301	.000	
Pro-Environmental Behaviors.	77.08	7.60	85.68	11.06	7.849	.000	
Environmental Knowledge.	73.69	8.75	71.79	8.28	1.845	.066	

As illustrated in Table (7) there are significant differences at level of in Place Attachment and Pro-Environmental Behaviors between the two samples in Marsa Matrouh for local Residents. The meaning of attachment differs between the two groups; attachment of local residents is related with their empathy, commitment and belonging. For vacationers it is about belonging, identity and enjoyment with recreation and This result supports H9.

In contrast, there is no differences at level of environmental knowledge between vacationers and local Residents and this indicates the necessity of spreading environmental awareness among Egyptians concerning coastal areas.

Pro- environmental behaviours of vacationers are about accommodation in green and eco-hotels, adherence to instructions in beaches and persuading their relatives and friends to avoid any harmful behaviours to environment and the same significance is for local residents. This is because pro-environmental behaviours of residents "others" affect visitors' pro- environmental behaviours positively as stated by Naoi, Soshiroda & Iijima, 2020.

In addition, local residents showed their readiness for changing their behaviours for environmental protection, participation in pro- environmental activities and buying environmentally friendly products. This may be due to the Egyptian state's initiatives launched by the Ministry of Environment, such as "Live Green" and the Integrated Coastal Zones Management (ICZM) for preserving coastal areas (Ministry of Environment).

Implications, Conclusions, Recommendations

The current study tended to investigate the influence of place attachment on pro-environmental behaviors of both vacationers and local residents in Marsa Matrouh as a coastal destination. The study adopted this framework from psychology to directly test its use in tourism field as it is an innovative approach that uses emotions of visitors in destination management. Based on the results, place attachment is significant for determining pro-environmental behaviours but the meaning of emotional and functional bonds differs from the perspective of the two groups.

Considering place dependence, for residents, it is interpreted in terms of searching for the best places to live. It is related to massive open and green spaces, diversity of land use and housing types, population density, high degree of communication and multiple modes of transport network. For the vacationers, place dependence is about availability of tourist facilities and entertainment and high degree of accessibility. Within the framework of tourism projects along the northern coast, the city of Marsa Matrouh had a share in these renovations, as the road inside the city was expanded during the months of February and March 2024 as well as outside the city from Ras El Hekma. There are also a number of new bus lines, some new fast foods restaurants and new inaugurated hotels.

Emotionally, the unchanged or little changed parts of the city contribute to visitor's place identity in terms of sense of belonging. For example, most of the vacationers are used to visit Street of Alexandria, old iconic hotels and resorts such as Beau site. There is also the district of Siwan products such as Dry mint, olive and olive oil, and many kinds of pulp. So, they feel attached to the city because of that rest features, and if some parts are adapted in accordance to the changing patterns of the inhabitants, the place can maintain the preferences of their visitors and create new ones.

Thus, based on the above-mentioned, it can be concluded that Marsa matrouh still have some physical attributes that stimulate place attachment. However, urban planners should increase its vitality by increasing the green and open Spaces. In addition taking administrative, legal, economic, scientific and technological measures is important to reduce the load of environmental utilization for the survival of beach

tourism. As the predominant form of tourism to Marsa Matrouh is mass tourism, therefore, administrators of Marsa Matrouh governorate that is concerned with beach tourism should pay attention to strengthening environmental knowledge. Local government , National Tourism Organization and Ministry of Tourism and Antiquities should co-operate to shoot quality documentaries, drama series, films or advertisements of famous beaches for recording these valuable attractions. Additionally, leaving leaflets in every hotel bedroom is a must. Thus, vacationers can gain a positive memory of the city and this also raises vacationers' attachment to the destination. In addition, tips should be published on social media and web sites of the entitled "we care for our Marsa Matrouh" providing information regarding environmental protection in order to stimulate all visitors' affection.

Considering environmental knowledge and pro-environmental practices, it is necessary to activate the environmental initiatives adopted by the Egyptian state. So, Egyptian media, Egypt State Information Service and public relations units in all ministries should organize Seminars in order to increase all citizens' knowledge and incentive trips should be prepared for employees of ministries to coastal areas with monitored environmental practices. According to Egypt Vision 2030, some effective environmental initiatives has been launched in order to encourage environmental knowledge. First, The Live Green campaign which aims to achieve sustainable development. This requires environment protection and turn green. It is a common dream to live in a healthy environment and to ensure the sustainability of natural resources and wealth.

Second, there is a need for launching a new promotional campaign like ecotourism and natural reserves campaign "Egypt Eco" within the Integrated Coastal Zones Management (ICZM) that was adopted by ministry of the environment. The suggested campaign should aim to support the sustainable use of coastal resources, raise awareness of their importance, and involve the local community in their protection by training and developing its methods in promoting sustainable investment opportunities. The suggested name is "Blue Egypt".

Regarding tourism industry, it is necessary for the Central Administration of Tourism and Resorts to set clear environmental guidelines at the entrances to beaches, along with deterrent penalties in case of violation. For hotel managers to take the necessary measures towards sustainable management of their beaches in accordance with (ICZM). For hotels and public beaches, restrictions and guide signs about responsible behaviour for tourists should be determined and lectures for personnel should be given. In addition, Matrouh governorate and ministry of the environment should co-operate in designing effective environmental plans for waste management with incentives for participating hotels.

Finally , education is the leader of basic knowledge building and behavioural change, so that a curriculum must be created to be generalized to all Egyptian universities named "sustainable development", within the framework of students' awareness about Sustainable Development Goals (SDGs) and Egypt Vision 2030 and its Sustainable Development Strategy (SDS). It is necessary for the community service and environmental development sector in all universities to adopt an executive program appropriate to the various specializations in the form of

community activities. In the context, faculty of tourism and hotels in Marsa Matrouh should organize environmental knowledge campaign for hotels and schools in co-operation with Matrouh governorate. This will educate students with the responsible behaviours in a weekly meeting for one year and students unions should also participate in the implementations.

Limitations and Future Researches

The generalizability of the results might be limited since the survey was conducted solely in Marsa Matrouh. The current research could be applied to other coastal tourist destinations in Egypt. Additionally, it is could be also applied on other types of destinations such as rural destinations and this needs further research work in the future. Other mediating variables that influence the relationship between EK and PEBs could be used in future researches, such as environmental attachment and corporate social responsibility.

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تأثير المعرفة البيئية علي السلوكيات الداعمة للبيئة في مرسى مطروح التعلق بالمكان كمتغير معدل

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مستخلص

يمكن فهم التنمية المستدامة على أنها هدف يتطلب التحول إلى العالم الأخضر؛ لذا فإن تحسين المعرفة البيئية يعزز السلوكيات والاستدامة في المقاصد السياحية. لذلك، تركز هذه الدراسة على اثنين من سوابق التنمية المستدامة في المقاصد السياحية المحلية وكيفية تأثيرها على السلوكيات المؤيدة للبيئة . يتكون مجتمع الدراسة من سكان مدينة مرسى مطروح والمصطافين فيها. استخدمت الدراسة الحالية المنهج الكمي، وكان الاستبيان الذاتي هو أداة لجمع البيانات. أظهرت النتائج أن كلا من السكان المحليين والمصطافين في مستوى مرغوب فيه من حيث التعلق بالمكان وتم اقتراح نموذجين سلوكيين للتنمية المستدامة بالمدينة. بالإضافة إلى ذلك، أشار تحليل النتائج إلى الأثر الإيجابي للمعرفة البيئية على السلوكيات الداعمة للبيئة لدى المجموعتين المستهدفتين. وفي ضوء النتائج قدمت الدراسة بعض التوصيات لرفع مستوى المعرفة البيئية لدى السكان المحليين من خلال تفعيل المبادرة البيئية "اتحضر للاخضر" التي تتبناها الدولة المصرية. وفي ضوء الأهمية الفريدة للارتباط المكاني لكل عينة، أوصت الدراسة ببعض التوصيات لصالح مدينة مرسى مطروح حيث أنها لا تزال تتمتع ببعض السمات المادية التي تحفز الارتباط المكاني على الرغم من التجديدات الأخيرة.

الكلمات المفتاحية المعرفة االبيئية – التعلق بالمكان – السلوكيات المؤيدة للبيئة – التنمية السياحية المستدامة– مرسى مطروح.