

THE MOTIVATIONS FOR VISITING GEOSITES: THE CASE OF CRYSTAL CAVE, WESTERN AUSTRALIA

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Abstract: This research investigates the motivation of tourists in a geotourism context. This study provides an initial investigation into tourist's motivations and the relationship between these motivations and the behavioural intention of the tourists to revisit a geosite. It utilises a self-determination theory approach and was conducted at Crystal Cave, Yanchep National Park, which is located near Perth in Western Australia. The main findings of the study were that relaxation, escape from the daily routine, sense of wonder and knowledge are the major intrinsic motivations. There was also a positive correlation between intrinsic motivation and behavioural intention to revisit the geosite.

Key words: geotourism, geotourists, motivation, self-determination theory, Australia

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INTRODUCTION

The development and promotion of geotourism products is growing at a rapid pace. There are now 89 global geoparks in 27 countries (UNESCO, 2012). Since the global awareness in the significance of geotourism has increased in recent years, UNESCO (United Nations of Educational, Scientific and Cultural Organization) has made significant contributions in expanding the culture of geoconservation, geoheritage and geotourism activities (Table 1).

Despite all this geotourism activity, to date there have been few studies and little discussion on the geotourism phenomenon due to the novelty of geotourism as a stand-alone type of tourism (Newsome & Dowling, 2010). Geotourism is one of the new forms of sustainable tourism. It is a new concept and most dictionaries do not offer a meaning for this term (Joyce, 2006). The geotourism research database and literature are still scant

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because of the lack of quantitative and qualitative studies. Recent developments in geotourism have heightened the need for such studies to expand our knowledge and understanding of this new phenomenon.

Table 1. The important events and conferences on geology and geotourism supported by UNESCO
(Data Source: Based on (UNESCO, 2012) and others)

Date	The Key event
1991	First International Symposium on the Protection of Geological Heritage: Declaration of the Rights of the Memory of the Earth, Digne-les-Bains, France
2000	Founding of the European Geoparks Network
2001	Agreement for cooperation between the Division of Earth Sciences of UNESCO and the European Geoparks Network
2004	Formation of the Global Network of National Geoparks assisted by UNESCO-First International Conference on Geoparks, Beijing, China
2006	The Second International Conference on Geoparks, Belfast, Northern Ireland
2008	The Inaugural Global Geotourism Conference, Fremantle, Australia
2010	The Fourth International UNESCO Conference on Geoparks, Langkawi, Malaysia The Second Global Geotourism Conference, Sarawak, Malaysia
2011	The Third Global Geotourism Conference, Muscat, Sultanate of Oman
2012	The Fourth International UNESCO Conference on Geoparks, Shimabara, Japan
2013	The Fifth Global Geotourism Conference, Reykjanes, Iceland

The purpose of this study is to explore the different motivations behind tourists engaging in a geotourism experience and to investigate the behavioural intention of the tourist to revisit a geosite. Using self-determination theory as a framework, this research seeks to investigate the different types of motivation (intrinsic motivation, extrinsic motivation and amotivation) behind the tourists undertaking the geotourism experience and how these motivations correlate with the desire for repeat visitation to the same geosite.

LITERATURE REVIEW

Information about geotourism is limited but is rapidly growing (Hose, 1995, 1998; Larood & Prosser, 1998; Buckley, 2003, 2006; Macadam, 2003; Xun & Ting, 2004; Dowling & Newsome, 2006, Joyce, 2006; Reynard, 2008; Panizza & Piancente, 2008; Komoo & Patzak, 2008). It has only been carried out in a small number of areas and concentrates on the scope and nature of geotourism (Dowling & Newsome, 2010; Newsome et al., 2012), the definition of geotourism (Newsome & Dowling, 2010), Geoparks and Geotourism (Farsani et al., 2010; 2012), the relation between geotourism and other forms of tourism (mainly ecotourism), and issues surrounding the development of geotourism (Slomka & Kicinska-Swidarska, 2004; Slomka, 2011). Notwithstanding the significance of these studies paving the way for our understanding of the geotourism paradigm, they pay scant attention to the issue of why people travel to the geosites and this important issue is still an undeveloped area of study.

By reviewing the literature it is apparent that motivation theories and studies play a vital role in understanding why tourists travel and the kinds of activities they engage with whilst away from home. According to Gnoth et al., 2000, "...motivation is the most significant and complicated part of tourism demand". In addition, it is considered the most fundamental and crucial topic in tourism studies.

Thus, if there is no motivation in tourism, demand will not exist (Sharpley, 2006). Accordingly, several studies of tourist motivations have been carried out on different types of tourism (Cohen, 1972, 1974, 1979; Plog, 1972; Crompton, 1979; Iso-Ahola & Allen, 1982; Dann, 1981, 1983; Bear & Ragheb, 1983; Mill & Morrison, 1985; Fodness, 1994; Veal, 1997; Goossens, 1998; Kozak, 2002; etc). Despite the breadth of

application of motivation theories in the tourism literature, studies about the scope and nature of the motivations of tourists undertaking geotourism experiences are uncommon. Hence, this study reflected an urgent need to bridge the lacuna in the geotourism literature and to develop the different dimensions of geotourism studies. Therefore, the main objective of this paper is to report on a pilot study, which was conducted to test the survey tool, before distribution to the international and domestic tourists at The Pinnacles, Nambung National Park and Crystal Cave, Yanchep National Park, Australia, as well as in Wadi Rum and the Dead Sea in Jordan.

RESEARCH DESIGN AND STUDY AREA

The aim of this study was to measure the motivations behind tourists' decisions to engage in a geotourism experience at Crystal Cave in Yanchep National Park (Figure 1). Crystal Cave is considered a large cave because its length is more than 310 meters (English & Jasinska, 2003).

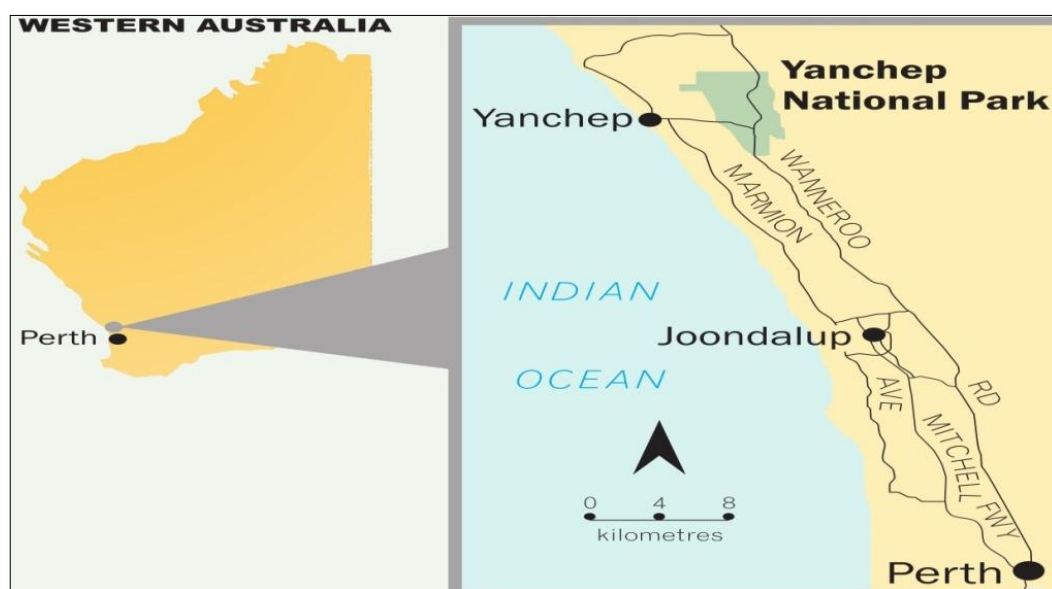


Figure 1. Location of Crystal Cave at Yanchep National Park, Western Australia
(Source: DEC, 2012)

It is demonstrated that the caves in Yanchep National Park have been shaped by the deep growing of the Tuart tree roots in the ground to get the water from pools inside the caves (English et al., 2000). This research used a quantitative approach that involved inviting a convenience sample of 100 tourists (Figure 2) visiting the cave on weekends during the months of April and May 2010 to complete a short interviewer administered survey. The surveys were written in English and all participants were over 18 years of age.

The design of the questionnaires was based on the main constructs of the self-determination theory. The intrinsic motivation (IM) includes of eleven items. The extrinsic motivation (EM) consists of six items whereas the amotivation (AM) includes three items. The tourist motivations items included were adapted from the literature and were modified to be appropriate for the nature of geotourism.

For example, the researchers considered 'gaining knowledge' and 'sense of wonder' as two types of intrinsic motivation because geotourism is based on a "sense of wonder,

appreciation and learning” (Dowling & Newsome, 2006, p. 4). A five point Likert-scale was utilized to express the level of agreement with each motivation items. The Likert scale ranged from 1 (strongly disagree) to 5 (strongly agree).

The (BPNS) was used in the second section of the pre-tested questionnaire to evaluate the state of the three basic needs (autonomy, competence and relatedness) with the respondents. Thus, the researched adapted ten items from this scale which has 21 items. BNPS was measured by five Likert scales which ranged from 1 (not true) to 5 (true). The researcher applied the behavioural intention battery (Zeithaml et al., 1996) to measure the behavioural intention of the tourists to revisit Crystal Cave in the final section of the pre-tested questionnaire.

The behavioural intention battery (13 items) was measured in this study by five Likert scales which ranged from 1 (extremely unlikely) to 5 (extremely likely). The data collected from this convenience sample was entered into the software package SPSS (Statistical Package for the Social Sciences Version 15) and frequencies and cross tabulations were performed (Jennings, 2010).



Figure 2. Tourists undertaking different tourism activities at Crystal Cave
(Source: DEC, 2012)

RESULTS

Of the 100 domestic and international tourists surveyed, 40 (40%) were female, 59 (59%) male, and there was one missing value (Table 2). The largest age category of the respondents is 18-34 (26%) whereas the age category 35-39 represented only 12% of the total age categories. The largest portion of the respondents has secondary education (34%), undergraduate education (31%) or postgraduate education (31%). It can be seen from the data in Table 1 that (37%) of the respondents are Australian. English tourists represented high rate of the respondents in Crystal Cave (27%) with the distribution of the other respondents included many nationalities from Asia, Europe, America and Middle East.

Overall, the majority of respondents (73) had not sourced any information about Crystal Cave before visiting it. The results of the usage of source information, as shown in Figure 3, indicate that the internet (13%) is the most frequent source of information employed by the respondents to learn more about the Cave before their visit to the site. What is interesting in this data is that there was no usage of local tourist offices or magazines.

Table 2. Demographic variables of the respondents

Demographic items	Value	Percent
Gender	Male	59.0%
	Female	40.0%
Age (Years)	18-34	26.0%
	35-39	12.0%
	40-49	20.0%
	50-59	25.0%
	60+	17.0%
Education	Primary	1%
	Secondary	34%
	Undergraduate	31%
	Post-graduate	31%
Nationality	Australian	37%
	New Zealander	3%
	Indonesian	5%
	English	27%
	Chinese	5%
	South Korean	2%
	Singaporean	4%
	Malaysian	1%
	Swiss	2%
	Irish	1%
	American	1%
	Indian	1%
	Saudi	2%
	Danish	1%
	Russian	1%
Sri Lankan	3%	
Albanian	1%	

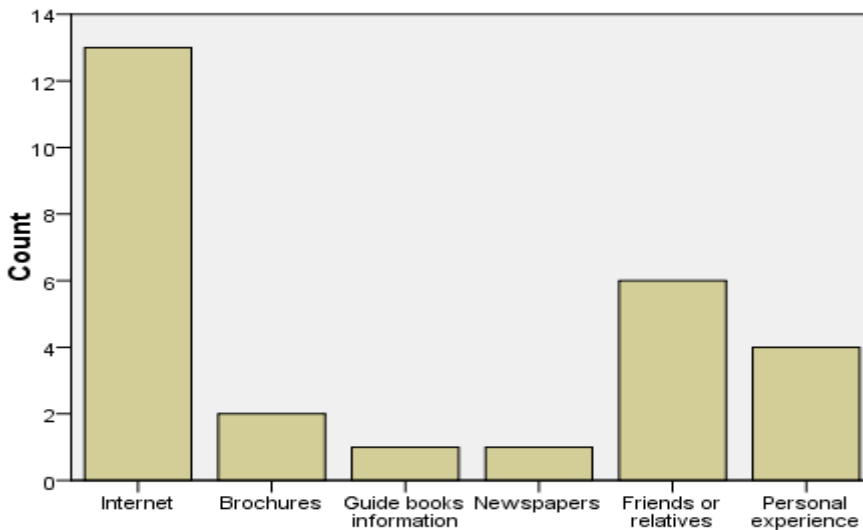


Figure 3. Sources of information for the respondents

The mean of the intrinsic motivation ranged from the lowest mean score (3.11) to the highest mean score (3.88) (Table 3). The main factors of the intrinsic motivation

behind visiting Crystal Cave is relaxation (Q2. To relax and reset), sense of wonder (Q20. To explore new places) and escape from the hustle and bustle of the daily life (Q3. To escape from the daily life routine). Cronbach's Alpha (to assess the reliability of the intrinsic motivation scale) for the 11 items of the intrinsic motivation is (.831).

Table 3. The results of intrinsic motivation measurement

Measures	Mean	Standard deviation
Factor 1: Knowledge		
To learn new things	3.65	1.10
To increase my knowledge	3.63	1.13
Factor 2: Relaxation		
To relax and rest	3.88	0.988
To refresh my mental and physical state	3.11	1.19
Factor 3: Escape		
To escape from the daily life routine	3.81	1.04
Factor 4: Enjoyment		
It is exciting	3.75	1.08
To have fun	3.62	1.04
Factor 5: Friendship		
To meet people with similar interests and hobbies	2.48	1.04
To travel with friends and my family	3.52	1.12
Factor 6: Sense of Wonder		
Because it is an exotic place	3.21	1.29
To explore new places	3.87	1.11

The mean score of the extrinsic motivation ranged from (2.15) to (3.16). Thus, the major factors of extrinsic motivation are the identified motivation (Q6. Because it has many social, cultural and recreational advantages for me, Q11. Because I believe it is personally important to me to travel to the site), and the interjected motivation (Q9. In my life I need this type of tourism activity to be happy). While the external regulation has the lowest mean score (Table 4). The Cronbach's Alpha for the six items of the extrinsic motivation is (0.687). In the amotivation context the three items show low means score which is ranged from (1.79) to (2.11) as shown in Table 5. What is interesting in this data is that most of the tourists in Crystal Cave express their disagreement with the amotivation state. However, many questions have been raised about the desire of the tourists to express only their positive feelings toward the sites. The Cronbach's Alpha for the three items of the amotivation is (.687).

Table 4. The results of the extrinsic motivation measurement in the pilot test

Measures	Mean	Standard deviation
Identified		
Because it has many social, cultural and recreational advantages for me	3.16	1.05
Because I believe it is personally important to me to travel to the site	2.73	1.17
Interjected		
In my life I need this type of tourism activity to be happy	2.59	1.21
I must be occupied with activities	2.47	1.25
External regulation		
To show others that I am a distinct person	2.15	1.18
Because my family and friends tell me to do this activity	2.22	1.31

Table 6 shows the results obtained from the preliminary analysis of tourist basic needs satisfaction. The highest mean scores are (4.09) and (4.04) which represent the relatedness factor. Whereas the lowest mean score is (1.88) which relates to autonomy factor. The Cronbach's Alpha for BNS is (.642).

Table 5. The results of amotivation measurement

Measures	Mean	Standard deviation
Not by choice; I don't care about this type of tourism activity	1.88	1.15
I don't really know; I don't think that this type of tourism suits me	2.11	1.28
Honestly, I don't know; I think that I wasted my time in this type of tourism activity	1.79	1.19

Table 6. The results of basic needs satisfaction measurement

Measures	Mean	Standard deviation
Autonomy		
That my choice of visiting this geosite is based on my true interests and values	3.56	1.03
Pressured at this place	1.88	1.25
That there is not much opportunity for me to decide for myself where I want to visit	2.11	1.22
Competence		
That people I know tell me I am good at choosing tourist sites	3.01	1.09
That most times I feel a sense of accomplishment from what I do	3.32	1.06
That I have been able to learn interesting new skills	3.02	1.16
Relatedness		
That people at this place were friendly towards me	4.09	.937
That I like the people I am travelling with	4.04	.978
A strong sense of intimacy with the people I spent time with	3.20	1.15
That the people I travel with do not seem to like me much	1.89	1.09

A Pearson correlation analysis was conducted to examine whether there is a relationship between the tourists motivation and the behavioural intention to revisit Crystal Cave. The results showed a statistically significant positive relationship between the factors of intrinsic motivation (the knowledge, relaxations, enjoyment, and sense of wonder) with the items of the loyalty (Table 7). Furthermore, the results showed also a statistically significant positive relationship between one of the factors of extrinsic motivation identified ($r=433$). Whereas, the results revealed a weak correlation between the amotivation and the loyalty. The correlation between switch items and factors of motivation (intrinsic, extrinsic and extrinsic) are weak and negative. The results showed also a weak correlation between motivations and pay more. External and internal responses are correlated positively with enjoyment factor and identified as an extrinsic factor.

**** .Correlation is significant at the 0.01 level (2-tailed)**

*** .Correlation is significant at the 0.05 level (2-tailed)**

DISCUSSION

Tourist motivation is at the core of tourists' behaviour. Until now very little has been written in the literature about the motivations of tourists undertaking geotourism experiences. This study provides a small insight to this gap in the tourism literature. The quantitative results of this study showed that the major intrinsic motivation behind the

domestic and international tourists undertaking the geotourism experience in Crystal Cave were relaxation, escape from the bustle and hustle of the daily life, sense of wonder and gaining knowledge (Figure 4).

Table 7. The correlation between tourist motivation and behavioural intention to repeat visitation to Crystal Cave

Behavioural intention items	Intrinsic motivation						Extrinsic motivation			Amotivations
	F1	F2	F3	F4	F5	F6	F1	F2	F3	F1
LOYALTY										
Crystal Cave would be my first choice for my next holiday	.176 .088	.234* .023	.158 .126	.243* .018	.185 .078	.119 .251	.433** .000	.024 .819	.267** .010	.216* .038
I would recommend Crystal Cave to someone else	.394** .000	.107 .308	.232* .024	.406** .000	.183 .082	.485** .000	.057 .584	.146 .166	.084 .429	-.173 .099
I would say positive things about my experience in Crystal Cave	.309** .003	.009 .933	.149 .154	.88** .000	.146 .170	.422** .000	-.003 .980	.126 .233	.051 .629	-.215* .041
I would encourage my family members, peers and friends to visit the Caves	.287** .005	.030 .773	.044 .672	.347** .001	.004 .971	.398** .000	.229* .027	.143 .173	.028 .789	-.028 .788
I will visit Crystal Cave again in the next few years	.192 .067	.018 .863	.168 .109	.425** .000	.035 .748	.421** .000	.213* .043	-.029 .789	.070 .514	-.045 .673
SWITCH										
I would not visit Crystal Cave again in the next few years	-.148 .155	.118 .256	.095 .358	-.013 .901	-.036 .731	-.138 .183	.118 .258	-.204* .050	.033 .754	.183 .079
I will visit another site that offers a different type of tourism experience	-.041 .694	.023 .824	.116 .267	.115 .271	.029 .784	.096 .355	.229* .027	.155 .140	.097 .359	.086 .415
PAY MORE										
I would continue to visit Crystal Cave even if the price of its services increased somewhat	.155 .135	-.067 .522	.088 .404	.259* .012	.015 .890	.149 .155	.023 .825	.085 .420	-.059 .577	-.078 .463
I would go to another tourism site that offers cheaper prices	-.169 .110	.143 .178	.070 .508	.087 .408	.064 .548	-.035 .738	.203 .054	.037 .732	.064 .547	.179 .092
EXTERNAL RESPONSE										
I would switch to another place as I experienced a problem with the services at Crystal Cave	.091 .385	.225* .029	.125 .229	.139 .180	.121 .250	.074 .477	.356** .000	.126 .228	.070 .507	.014 .894
I would complain to other tourists if I experienced a problems with Crystal Cave services	-.142 .173	.066 .530	.045 .665	.060 .563	-.100 .343	.037 .722	.107 .306	.000 1.000	.009 .930	.055 .601
I would complain to the tourism authorities if I experienced problems with Crystal Cave services	-.073 .486	.076 .469	.037 .720	.030 .776	-.19 .855	-.037 .720	.213* .040	.102 .333	.191 .068	.191 .069
INTERNAL RESPONSE										
I would complain to Crystal Cave staff if I experienced any problem with the services	.003 .975	.136 .193	.042 0685	.221* .031	-.07 .309	.079 .449	.322** .002	.110 .292	-.082 .436	.082 .434

This study produced results which corroborate the findings of previous work which have suggested that geotourism is a combination of learning, education, appreciation and sense of wonder. For example Dowling and Newsome (2006, p. 4) stressed that geotourism is “sense of wonder, appreciation and learning”. Hose (cited in Burek & Prosser, 2008, p. 38) argued that there are two major types of geotourists – a recreational group and an educational group.



Figure 4. Educational activities at Crystal Cave (Source: DEC, 2012)

Joyce (2006) considered the geotourist as a normal visitor who is interested in one or more parts of geology. Furthermore, the geotourist is “an individual who is going to a site with geological or geomorphological characteristics for viewing the site and gaining knowledge about the features of this site” (Allan, 2012, p. 30) (Figure 5).

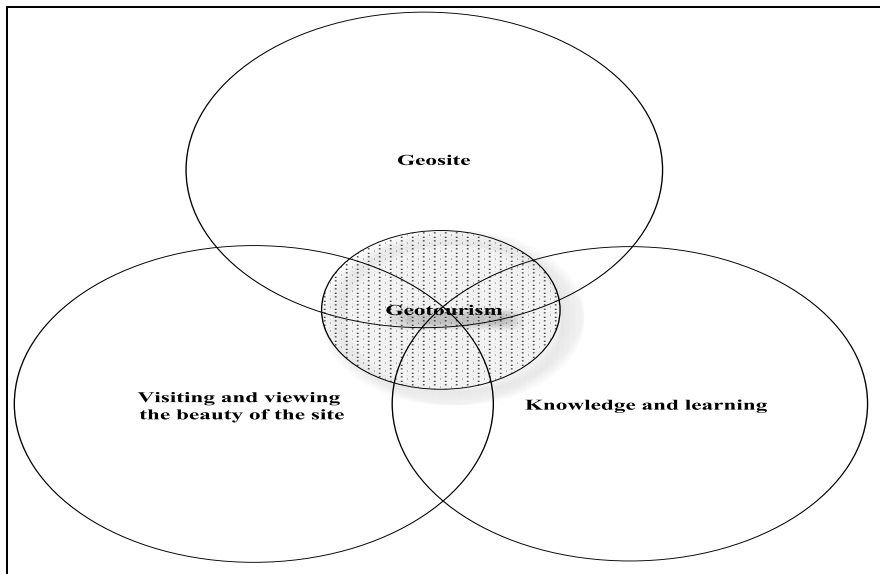


Figure 5. The Geotourism experience (Allan, 2012)

In the extrinsic motivation context (identified, intorjected and external regulation), the results of this study indicate that there was no significant effect of the external regulation on tourist motivation.

Further investigations in other geosites and other cultures which take these external regulation variables into account, will need to be undertaken because these factors are presented strongly in many cultures. Most of the tourists expressed high intrinsic for of motivation with low amotivation.

The mean scores of amotivation are 1.88 (Q8. Not by choice; I don't care about this type of tourism activity), 2.11 (Q15. I don't really know; I don't think that this type of tourism suits me), 1.79 (Q18. Honestly, I don't know; I think that I wasted my time in this type of tourism activity).

However, one source of weakness in this study which could have affected the measurements of amotivations was international tourists do not like to express negative feelings toward their tourism experience because of its sensitivity, and the domestic tourists try to avoid a focus on negative opinions in order to improve the image of their tourism attractions and their own country.

The results of this study showed that the geotourism experience at Crystal Cave represented a high level of fulfilment in regard to the need for autonomy, competence and relatedness.

The most interesting finding was that few of the tourists believed that they were pressured at the site (7%), whereas the majority did not support this idea (56%). The current study found that the intrinsic motivation and extrinsic motivation correlated positively with the likelihood of revisiting the geosite (Table 6).

Taken together, these results suggest that the ideal outcome of successful geotourism experiences is in the fulfillment of the tourist needs thus increasing the level of the likelihood of their re-visitation.

This correlates to the intrinsic and extrinsic motivations of the tourist. It can therefore be assumed that the status quo of geotourism as a new form of tourism requires more focus on repeat visitations.

Whereas geotourism has existed for less than ten years, retaining the first time tourists or geotourists, is more effective than promoting the geosites to new tourists, particularly as the value of the geotourism experience will still not be popular with some types of tourists.

CONCLUSION

The outcomes of this study provide a better understanding of tourist motivation; his/her basic needs satisfaction and the correlation of the motivation with the behavioural intention to revisit the geosite. Several limitations to this study need to be acknowledged.

Many tourists at Yanchep National Park visited the Park for recreation purposes to rest and relax at the edge of the lake without visiting the Crystal Cave. The tourist is required to pay an entrance fees (AUD \$11, \$5 per motor cycle and concession cardholders, and \$5 per coach passenger [\$2 per senior passenger]) to enter the park, while the entry to Crystal Cave costs: adults \$10 per Adults; children (6 to 15 years) \$5 each; a mini group (two adults and two children) \$25; and Australian Seniors Card holders \$8 per person.

The visit must be pre-booked and the tickets are available from the Park's visitor centre. The Cave tours are held at 10.30am, 11.30am, 1pm, 2pm, and 3pm (Department of Environment and Conservation, 2010).

The majority of the tourists (particularly domestic) prefer to stay at the barbecue area and enjoy the lakeside view without visiting Crystal Cave. Another

obstacle is that many tourists did not complete the survey and other tourists completed it rapidly without sufficient concentration on the answers.

The outcomes of these obstacles are some missing values and outliers. Nevertheless, there are no serious missing values in this pilot study and they were managed by a list-wise procedure.

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