Views of high school students on the impacts of mass tourism in the coastal zone of Ialyssos, Rhodes

Tzaberıs N.[1,*]And Syntychakıs Ch.[2]

[1]Department of Pre-school Education and Educational Design, University of the Aegean, 1 Dimokratias Ave, Rhodes 85100, Greece

[2] Programme of Postgraduate Studies "Environmental education", University of the Aegean, 1 Dimokratias Ave, Rhodes 85100, Greece

*corresponding author:

e-mail: tzaberis@rhodes.aegean.gr

Abstract. The purpose of this research is to explore the views of A and C class students of the high school of Ialyssos, Rhodes, on issues concerning the impact of mass tourism in the coastal zone of the region and the comparative study between the two groups. In this urban complex there are a number of tourist accommodations of all categories that span across the large coastline for the visitors convenience. This fact attracts the researchers' interest to record the views of students whose lives are in direct connection with the tourism sector. The ultimate goal is the research findings to be used for interventions in education for sustainable development. From the survey results general lack of knowledge about the topic is recorded. Although students argue that pollution received by the sea from tourism activities is a key problem for the coastal zone, they have a positive view about the concept of mass tourism. They question the pressures on natural resources and the environment, as they believe there is infinite capacity in nature to recover. They also argue that the increasing number of tourists will ensure, through its economic benefits, both the environment and the touristic future of the region.

Keywords: Mass tourism, environmental impacts, students views

1. Introduction

Examining the developments taking place in the economic, social and environmental realities it emerges that mankind, being thoughtlessly absorbed in selfish interests, focuses on the production and promotion of material goods in accordance to the consumption pattern (Huckle, 2012; Dahl, 2012) for the benefit of multinational companies (Nicholas, 2011). Adopting a hyper-consumption behavior results in excessive use of natural resources, causing multiple forms of pollution (Papavasileiou & Tzaberis, 2014), increased emission of greenhouse gases, acceleration of climate change (Tzaberis *et al*., 2014), dangerous reduction of biodiversity (Dunn, 2005), quality degradation and water scarcity (Corcoran *et al*., 2010), poverty increase (Royal Society, 2012), and serious disturbances in social structures (Larrère, 2011). It does not seem to have been fully understood that "the free global market together with the 'dirty secret' of big business providing profits, without assuming the costs for the 'diseases' of development" (Xanthakou & Kaila, 2011: 19) exist mainly at the expense of the weaker (Georgopoulos *et al*., 2014), contributing to the deterioration of environmental problems with potential threat to the survival of the planet (Griggs *et al*., 2013; IPCC, 2014).

In the name of development a unidimensional process of economic growth is promoted with unique beneficiaries the multinational industries, among which the industry of mass tourism is included, comprising tourist facilities, transportation, travel agencies, catering, retail businesses, and amusement clubs (Drosou *et al*., 2014, 2008: 16-17). The gigantism of these enterprises begins in the 50s with changes in work patterns combined with the increase of leisure time, which led to a significant increase in tourism (Marson, 2011). Nowadays the uncontrolled development of tourism is causing negative reactions in local societies (Robinson *et al*., 2011; Hill & Gale, 2009). However, professional tourism activities in their expansive course contribute to the depletion of natural resources while damaging the created capital and making multifaceted political, economic, social and technological changes in the areas of destination. In this uncontrolled way, the replacement of the natural by the created capital, if continued, will increase the risk of essential natural resources exhaustion at local, and possibly at global level (Gillis *et al*., 2011: 293-295).

Although the effects of tourism seem to ensure economic benefits by creating employment opportunities and income, boosting the economy and reducing unemployment, in fact the largest percentage of these companies are unilaterally aimed at personal gain. The promise to make a substantial capital investment in development projects is poorly implemented locally, and the profits usually end up in other countries (Tzaberis, 2015).

The slipperiness of the situation does not seem to be fully understood in order to take the appropriate decisions for the sustainable development of tourism locally. The application of the principle of receptivity which is the link between sustainable development and environmental management (Fennell & Ebert, 2004) is dealt with

economic growth statements. It is emphasized that Greece in 2014 held the 15th place among 141 countries in tourist arrivals (Chatzidakis, 2015) and that at the end of 2026, the total contribution of tourism to the GDP of the country will exceed 22%, while jobs directly and indirectly associated with the sector will reach 28% of total employment (Shinas, 2016).

The exploitative path followed by mass tourism can be improved or even reversed through proper education, which will provide knowledge and information on the consequences of these activities. The desired result of this process is the preparation of active, conscious and sustainably-minded people, who will have the incentive to arise and promote alternative forms of tourism, such as sustainable, green, controlled, participatory ecotourism etc. (Farsari, 2009: 50).

Taking into consideration that Rhodes as a popular tourist destination faces numerous environmental challenges, in parallel with continuing pressures to increase tourist capacity and services which result in the deterioration of the natural beauty, the degradation of local ecosystems and the alienation of the local culture, the objective of this study is to explore the views of first and third class students (aged 13 and 15) of the high school of Ialyssos, Rhodes on the impact of mass tourism in the coastal zone of the region.

2. Methodology

The reason why it was the area of Ialyssos, on the island of Rhodes, that was earmarked for the selection of the research target population was that this particular conurbation is typified by a high concentration of tourist accommodation establishments, pertaining a wide array of comfort classes, appropriately developed along an extended coastal zone and destined to cater to the needs of seaside holidaymakers. Under such circumstances, gauging the views of school students dwelling within this particular area, on the potential impact of mass tourism along the coast, avers itself to be of high interest for researchers.

It was the case study approach that was eventually selected as the fundamental method, in the light of requirements of this particular study, whereas the questionnaire was opted for as the most appropriate tool for the collection of relevant data. The research tool has indeed been developed in accordance with specific instructions set forth in relevant literature (Papanastasiou & Papanastasiou, 2014: 64-67) the idea being for all research issues to be catered to, the purpose having actually been to obtain information on the views, perceptions and beliefs harboured by those pertaining to the sample population. The final version of the questionnaire was administered to students of the high school of Ialyssos in February 2016.

The questionnaire in the beginning contained a series of personal questions concerning the gender and the class of the students, their participation in environmental education programs or activities, as well as their main source of knowledge. Ordinal variables were used in closed-type questions based in 5-grade Likert scale (Strongly disagree, Disagree, Neither agree or disagree, Agree, Strongly agree or Not at all, A little, Moderately, Much, Very much). Nominal variables were also used in questions where the selection from a list of options was required. To check the relevance between two nominal variables, the x^2 test was selected, taking into consideration all necessary prerequisites. Respectively, to check the pertinence between s nominal variable with two groups and an ordinal variable, the independent-samples t-test was applied. In case of lack of homogeneity of variances across the two groups, detected through Levene's test, an adapted value of t-test for not equal variances was selected.

3. Results description and analysis

One hundred and seventy four (174) individuals constituted the research sample, with high school class A students accounting for 46.55% and class C students accounting for 53.45%. Gender-wise, 54.60% males participated, versus 45.40% females. Seen in terms of the participation of such boys and girls in environmental education programs, class A students (63.0%) have been found to be ahead of class C students (43.0%). Within the overall sample, the majority (52.3%) declared to have taken part in such educational programs, on such main themes as recycling, renewable forms of energy and redevelopment of the schoolyard. As far as organized activities are concerned, in the matter of protection of the environment, the majority of students in the sample (64.4%) responded affirmatively, with class A students (74.1%) found to be ahead of class C students (55.9%) whereas beach cleansing and reforestation campaigns in the aftermath of fire were the two main activities enunciated as undertaken within the context of such approach.

A statistical analysis of the sources of knowledge on environmental issues revealed that class A students are bound to prevalently acquire such information through school (mean: 4.08), family (mean: 3.86) followed by the internet (mean: 3.31) whilst thematic literature and the mass media appear to have lower penetration. Class C students declared to have mostly relied on the world wide web for information on the subject (mean: 3.59), followed by family (mean: 3.56), whereas school, as a source of relevant data, only fared third (mean: 3.51). There are statistically significant differences detected as far as the role of school as a source of thematic information is concerned, with class A students declaring to consider it as the main source of relevant knowledge (mean: 4.08), whilst class C students have rated such source as their third choice (mean: 3.51) ($t(171) = 4.00$, $p < 0.000$). Although hardly mentioned, mass media and literature are nevertheless shown to be at quite a distance and with significant difference: ($t(168) = -2.75$, $p = 0.007$) and ($t(169) = 3.45$, $p = 0.001$) respectively. Also interesting, in that sense, is the fact that students who have become involved in environment-relevant programs have declared to be relying on literature as a potential source of knowledge, much more than children having stated as not having taken part in such activities, the mean rates being of 2.87 and 2.36, respectively ($t(169) = 2.64$, $p = 0.009$).

Concerning the views of individuals in the sample as to which extent the term "mass tourism" should be perceived as denoting a positive or a negative circumstance for tourism, practically all students have been recorded to harbour a positive perception thereof (72.8% and 88.2%,

respectively). Such trend might be attributed to the revenue as well as to jobs eventually generated for the parents of such students, under the circumstances. Amongst class A students, negative opinions run up to 27.2% as opposed to 11.8% amongst class C students ($x^2(1) = 6.62$, $p = 0.010$).

Table 1, below, reflects students' views on a series of challenges triggered within the coastal zone as a consequence of mass tourism. What the outcome of the research actually suggests is that in both high school grades contemplated, students consider such issues as marine pollution (mean: 3.72), the change of use of land (mean: 3.11) and the alteration of the natural landscape (mean: 3.12) to be quite serious issues whereas the issues of the reduction of biodiversity and limited access to the seafront fare lower on the intensity scale (mean: 2.91 and 2.65, respectively).

As far as the students' opinion on the main source of marine pollution is concerned, there has been detected a deviation between the two groups when it comes to "industrial plants", with class A students considering this to be an important source of pollution (45.7%) as opposed to class C students (17.2%). Similar deviation has moreover been detected with respect to the potentially polluting role of "hotel facilities" (22.2% and 43%, respectively) ($x^2(5) = 19.64$, $p = 0.001$).

A coincidence of views is nevertheless established through consideration of data set forth on Table 2, below. In both instances, students are shown to greatly "blame" tourism both for the deterioration of the quality of sea water and for the accumulation of waste along the coast, with recorded means at 4.01 and 3.80, respectively. The degree of agreement in statements as to the favourable contribution of tourism-related professional activities to the aesthetics of the coastal zone (mean: 3.14) is rather interesting. Weighing the statistical relevance of response to all five such issues leads to the conclusion that only the statement according to which tourism cause the outlook of the coastal zone to be improved (class A mean: 3.32; class C mean: 2.94), could be retained as holding some statistical significance ($t(172) = -2.33$, $p = 0.020$).

Table 3, below, reflects statistical information drawn from the analysis of data yielded from research into the students' perceptions of tourism. Reading through such data eventually reveals that there is no major deviation between the two groups in this particular matter. More specifically, out of the six recorded statements only two have been found to feature statistically significant difference. Class C students seem to be more in agreement (mean: 3.70) with the statement that "aesthetic pollution" and the degradation of the environment under the impact of mass tourism could be a future threat in the prospect of tourism development as opposed to class A students (mean: 3.40) ($t(168) = -1.98$, $p = 0.049$). Differentiation has also been recorded as to the views that the natural environment has an unlimited capacity of recovery from whatever degradation suffered as a consequence of tourism, with class C students shown to be more in agreement with such statement (mean: 3.05) as opposed to class A students (mean: 2.68) ($t(165) = -2.49$, $p = 0.014$).

Table 1. Means and standard deviations at the level of students' agreement on issues within the coastal zone resulting from mass tourism.

ISSUES	Class A		Class C		Total	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Marine pollution	3.58	1.22	3.84	0.99	3.72	1.11
Change of use of the land / Switching from natural environment to housing	3.19	1.21	3.04	1.18	3.11	1.19
Alteration of the natural landscape	3.34	1.26	3.02	1.09	3.12	1.18
Reduction of biodiversity	3.02	1.33	2.81	1.25	2.91	1.29
Limited access to the seafront	2.73	1.23	2.59	1.06	2.65	1.14

Table 2: Means and standard deviations as to the degree of agreement amongst students on issues concerning the impact of mass tourism on the coastal zone.

IMPACT OF TOURISM	Class A		Class C		Total	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
There is negative impact on seawater as a consequence of sewage generated from hotel facilities	3.84	1.19	4.16	0.94	4.01	1.08
High quantities of waste are produced and accumulated along the coast during summer.	3.78	1.07	3.83	1.05	3.80	1.06
Tourism causes the outlook of the coastal zone to be improved	2.96	1.35	3.30	1.35	3.14	1.35
Tourism-related professional activities contribute to the improvement of aesthetics of the coastal zone.	2.94	1.12	3.32	1.04	3.14	1.09

Water sports affect marine life in the coastal zone	2.68	1.25	2.61	1.05	2.64	1.15

Table 3: Allocation of frequencies and rates as to the degree of agreement amongst students on issues generally relevant to tourism

STATEMENTS	Class A		Class C		Total	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
The more tourism flows into an area, the higher the income to be generated, money that may further be utilized toward the development of projects contributing to the protection of the environment.	3.80	1.06	3.94	1.06	3.87	1.06
Mass tourism flows are indispensable toward securing a tourist future for the area of Ialyssos.	3.69	1.06	3.78	0.98	3.74	1.02
"Aesthetic Pollution" and the degradation of the environment under the impact of tourism are a future threat to tourism development.	3.40	0.97	3.70	0.96	3.56	0.97
A considerable increase in tourist flows may cause an increase in revenue. although it should be expected to ultimately degrade the quality of life for the inhabitants in the respective tourist destination areas.	3.19	1.17	2.88	1.08	3.02	1.13
Benefits to be reaped from tourism and employment such activity generates. are considerable enough to justify certain concessions. albeit to the detriment of the environment.	2.85	1.16	2.76	1.20	2.80	1.18
Natural environment has an unlimited capacity of recovery from degradations suffered under the impact of tourism.	2.68	0.95	3.05	0.92	2.87	0.95

4. Conclusions

Results yielded from this research suggest that in both groups the students' participation in environmental education programs is limited, whereas there is only an indirect relevance between program's themes to tourism. Whatever awareness on environmental issues there may be present amongst high school students of class A is principally obtained at school, whilst class C students mostly acquire such awareness through the internet. In both grades, the "family" factor fares amongst the top three priorities. Nevertheless, these sources of knowledge lack the validity that looking up information in thematic literature eventually warrants. It is however observed that participation in environmental education programs avers itself to be of statistically high relevance to the recourse to literature as a source of knowledge in the matter.

Research has also revealed that students in both grades tend to have a positive perception of mass tourism. Deviation detected in the responses given by students in the two groups –statistically significant as it is– may be attributed to the fact that students in the former group were more numerous in participating in environmental education programs at school, hence their more "environmentally aware" profile. When it comes to the issue of marine pollution, a unanimous perception seems to exist throughout the sample that this is a fundamental challenge within the coastal zone. In so thinking, the students greatly blame hotel facilities for this particular form of pollution, despite the fact that accommodation installations in the area are connected to the sewerage mains, over which waste is typically channeled towards the biological wastewater treatment facility. An explanation to such particular view –which, be it noted, seems to be widespread in the community– might be found in the fact that isolated cases of breakdowns at the level of pump-rooms along the various wastewater disposal networks, under the impact of overloading during summer, could eventually create the false impression that hotel facilities are responsible for pollution within the coastal zone.

There is a knowledge deficit detected with respect to matters relevant to tourism development as a whole. Students in the sample unanimously believe that ever-increasing tourist flows are, what with the financial benefits they entail, bound to ensure environmental protection whilst securing a future for this area, further also entertaining the perception that Ialyssos' tourism prospects are to be consolidated by uninterrupted massive inflows of visitors. There is no consensus, however, amongst such students as to the need for concessions for the benefit of tourism and to the detriment of the environment whilst they seem to doubt that there is unlimited potential in

the environment for recovery under the pressure it has constantly been under.

Findings yielded from this research will hopefully be contributing to the development of appropriate intervention modules under the environmental education programs, ultimately leading to the creation of environmentally aware citizens. On such basis, the mobilization of students as well as of the community as a whole towards the promotion of sustainable forms of tourism development, could aver itself to be doubly beneficial: namely both as a process –in that it could contribute to an upgrading of social conditions– and as a result –in that such process could help cast the foundations for better living conditions as well as for the adoption of preventive measures for the benefit of the environment.

References

Chatzidakis A. (2015), *Trends of tourist movement 2008-2015, EOT* [in greek], State printing, Athens.

Corcoran E., Nellemann C., Baker E., Bos R., Osborn D. and Savelli H. (Eds), (2010), *Sick Water? The central role of wastewater management in sustainable development. A Rapid Response Assessment.* United Nations Environment Programme, UN-HABITAT, GRID-Arendal.

Dahl A. (2012), Alternatives to the consumer society. *PERL 2nd International Conference*, Berlin, 19-20 March 2012.

Drosou X.M., Fioraki, G.M. and Theodorou G.A. (2008), *Functions of Hotel facilities* [in greek], ITYE-Diofantos, Athens.

Dunn R. (2005), Modern insect extinctions, the neglected majority. *Conservation Biology*, **19**, 1030-1036.

Fennell D.A. and Ebert K. (2004), Tourism and the precautionary principle, *Journal of Sustainable Tourism*, **12**(6): 461-479, DOI: 10.1080/09669580408667249.

Georgopoulos A., Nikolaou K., Dimitriou A., Gavrilakis K. and Blionis G. (2014), *Earth. A small and fragile planet* [in greek], Gutenberg, Athens.

Gillis M., Perkins D.H., Roemer M. and Snodgrass D.R. (2011), *Economics of development* [in greek], Typothito/Dardanos, Athens.

Griggs D., Stafford-Smith M., Gaffney O., Rockström J., Öhman M.C. *et al*. (2013), Policy: sustainable development goals for people and planet, *Nature, 495*, 305–307.

Hill J. & Gale T. (2009), Ecotourism and environmental sustainability: An Introduction, In J. Hill & T. Gale (Eds.), *Ecotourism and Environmental Sustainability: Principles and Practice*, Taylor and Francis.

Huckle J. (2012), Even more sense and sustainability. *Environmental Education Research*, **18**/6, 845-858.

IPCC-Intergovernmental Panel on Climate Change (2014), *Climate change 2014: impacts, adaptation, and vulnerability*, IPCC, Accessed on 29/10/2016 at http://www.ipcc.ch/report/ar5/wg2/.

Larrère C. (2011), Respect or responsibility? What ethics for the environment? [in greek] In E. Theodoropoulou, M. Kaila, M. Bonnet & C. Larrère (Eds.), *Environmental Ethics: from research and theory to application* (pp. 41-67), Diadrasi, Athens.

Marson D. (2011), From mass tourism to niche tourism, In P. Robinson, S. Heitmann & P.U.C. Dieke (Eds.), *Research themes for tourism*, CABI.

Nikolaou K. (2011), Science and crisis: Approaching a socially just exit [in greek], *Proceedings of 21th Panhellenic Congress of Chemistry*, Thessaloniki, 9-12 December 2011.

Papavasileiou V. and Tzaberis N. (2014), The inventiveness of art in recyclable materials use in the framework of education for the environment and sustainability [in greek], *5th National Conference "Creativity in Education"*, Drama, 28-29 November 2014.

Robinson P., Heitmann S. and Dieke P.U.C. (Eds.) (2011), *Research themes in tourism*, CABI.

Royal Society (2012), *People and the planet*, Report 01/12. The Royal Society Science Policy Centre.

Shinas M. (2016), Using tourism to uplift the Greek economy, The role and contribution of the EU [in greek], *15th SETE Conference, "Tourism & Development"*, Athens, 17-18 October 2016.

Tzaberis N. (2015), The contributions of active citizens in forming new values standards for sustainable touristic development [in greek], *7th PEEKPE Conference "Environmental education and education for sustainability"*, Volos, 8-10 May 2015.

Tzaberis N., Xenitidou S. and Mogias A. (2014), The contribution of education for sustainable development in addressing ethical issues of climate change, *ADAPTtoCLIMATE Conference*, Nicosia, Cyprus, 27-28 March 2014.

Xanthakou Y. and Kaila M. (2011), *Creative problem solving* [in greek]. Athens: Diadrasi.