

THE GAP BETWEEN FORMAL EDUCATION AND ECOTOURISM IN PENANG

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ABSTRACT

The development of ecotourism in Penang has to acquire environmental knowledge. We aimed to determine the supply, demand and career pathway for the environmental program in Penang. All the programs of Higher Education Providers (HEPs) were analyzed, market demand was conducted on the high schools' students of Penang empirically, and the career pathways were evaluated from essential recruitment companies. There are 84 tertiary education institutions in the Northern Peninsular Malaysia (five public universities, ten private universities, eight university colleges, and 61 colleges), but only three institutions provided environmental or related undergraduate programs; 13 institutions consisted of tourism management programs, but not specific in ecotourism. For the demand investigation, a program survey was conducted on 206 students with age between 16-19 (Form 4, 5, 6 and A-level); more than 58% of the students showed favorable to the environmental programs. However, the job opportunities related to the environment were significantly fewer compared to other occupations; this might be the reason for fewer programs in HEPs. Development of ecotourism in Penang must be equipped with the environmental knowledge to bring the true meaning of ecotourism--to protect nature, empower the local people, and educate the local population and the ecotourist.

Keywords: ecotourism in Penang; Northern Peninsular Malaysia; environmental program; higher education providers; high schools' student

INTRODUCTION

Malaysia is covered by 55.3% of Forests (Malaysia Timber Council, 2018). In the process of developing ecotourism, forests are experiencing increased unnecessary pressure, and deal with these challenges requires a steady stream of well-trained professionals that able to navigate changing societal values innovatively, changing resource conditions, and introduce and apply new technologies, products, and regulations. According to International Union for the Conservation of

Nature (IUCN), Ecotourism is defined as the "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people and involves interpretation and education" (IUCN, 2018), which the education specifically refer to the staff and visitors. The knowledge could be formal and informal, in which informal learning could be conducted during the tour or any tourism activities, and formal training generally delivered by academic or trained teachers in a systematic, intentional way within an education provider.

Environmental science in our study referred to the multidisciplinary research of all aspects of the Earth's physical and biological environments that encompass environmental chemistry, soil science, ecology, climatology, vegetation cover, marine and freshwater systems, as well as environmental remediation and preservation, and agriculture and land use (Nature, 2018). From the list of higher education providers (HEPs) in the Malaysian Qualifications Agency (MQA, 2018), the HEPs in the Northern Peninsular Malaysia that able to supply programs related to environmental sciences were surprisingly few. The short in supply may result in a gap between the number of professionals and the development of ecotourism in Penang.

Northern Peninsular Malaysia consisted of four states Penang, Perlis, Kedah, and Perak that makes up for an average Gross Domestic Product (GDP) of 4.2% of Malaysia (DSM, 2018). In Penang, the tourism industry is the second income generation after manufacturing, which attracted RM9.0 billion (5.4% of economic Malaysia) in 2016 (DSM, 2018). Ecotourism is arguably one of the fastest grown subsectors and Penang that having a total of 7,761 ha forested area, which consists of 6,060 ha Permanent Reserved Forest (Chow, 2018) is high potential in developing ecotourism. However, as Hong and Chan (2018) reviewed the threats and challenges faced by the sustainable development of Penang Taman Negara National Park, one of the major problems is the environmental education and awareness in Malaysia is still at the preliminary stage. Zaiton et al. (2013) did an in-depth interview on the visitors of Penang Taman Negara National Park, and most of the respondents agreed that more effort and funding should spend on education about conservation on both visitors and the local community. Gough and Scott (1999) emphasized the importance of formal education should come before the development of ecotourism, especially the sector of tourism that bought wide-ranging impacts, are perceived differently by different interest groups, and are subject to considerable uncertainty.

In Penang, environmental education for ecotourism is addressed by the Department of Wildlife and National Parks (DWNP), Department of Environment (DOE), and Ministry of Tourism Malaysia in Malaysia (Nair, 2015). Still, HEPs played a crucial role as knowledge support. Nevertheless, in Northern Peninsular Malaysia, the HEPs that able to provide environmental, conservation, and ecotourism undergraduate programs are relatively less. Surprisingly, there is no study analyse and related the student's interest with the environmental course in Northern Peninsular Malaysia, for the best of our knowledge. Therefore, we aimed to analyze and review the supply, demand and job opportunities if environmental programs in Northern Peninsular Malaysia, particular for the development of ecotourism in Penang.

METHODOLOGY

Supply

The environmental knowledge suppliers were focused on tertiary education (Higher Education Providers-HEPs) that defined as the institution which able to conduct knowledge creation (research) and knowledge dissemination for undergraduate programs. The HEPs and their programs that accredited by Malaysia Qualification Agency (MQA) in Northern Peninsular Malaysia were reviewed and analyzed from the official website of MQA

Demand

To obtain the initial sample, we identified 14 schools/institutions (Table 1) that providing secondary and pre-university education. Our selection of schools was based primarily on gender and races while also ensuring variation in private and public status and geographic region. The 300 students that were in the secondary schools with the age 16-19 (Form Four, Five and Six and A-level) were asked to complete an anonymous survey instrument, using a combination of directed questions (using a 5-point Likert scale with 1 = strongly agree and 5 = strongly disagree) and open-ended questions. The majority of these students (n = 250) were National Secondary Schools in Penang; the remainder were A-level students that plan to study overseas or private institutions. The directed questions answered using a 5-point Likert scale included statements that overall assessed interest on the environmental program. Respondents were contacted through a survey questionnaire form regarding their interests in the environmental program. The data was analysed by using Mann-Whitney U test by SPSS 22.0

Table 1. List of Secondary Schools

Name of the school
SMK Air Itam
SMK Westlands
SMK Convent Green Lane
SMK Convent Lebu Light
SMK (L) Methodist
SMK Penang Free
SMK St Xavier
Chung Hwa Confucian High School
Chung Ling High School
Convent Datuk Keramat
Heng Ee High School
Penang Chinese Girls' High School
Union High School
KDU Penang University College

Job vacancies

The online tool (Backhaus, 2004; Kureková, 2015) was used to collect and analyze web-based data about the labor market in Malaysia. Some Malaysia leading private internet recruitment sites – Jobstreet, LinkedIn, Mudah.my– were used as the source of online job vacancy data collection.

The advertisements that post on the websites were analyzed based on their content and skills that have to be related to environmental conservation, environmental education, ecotourism, etc.

RESULT AND DISCUSSION

Supply

There is 22.72% (5 out of 22) of public universities, 17.85% (10 out of 56) of private universities, 20.51% (8 out of 39) of University Colleges, and 15.44% (61 out of 395) of colleges located at Northern Peninsular Malaysia, the list of the institution and respective state was detailed in Table 2 and 3.

Among these 84 HEPs Northern Peninsular Malaysia, only three public universities provide the environment or related programs, in which they are USM (Bachelor of Applied Science in Environmental Biology), UniMAP (Bachelor of Engineering in Environmental Engineering), and UiTM (Penang branch) (Bachelor of Chemical Engineering in Environment). UTAR is the only private university that provides Bachelor of Engineering (Hons) Environmental Engineering in the region.

There are 13 HEPs provide tourism program, UUM (public university), and Quest International University Perak (a private university) provide Bachelor of Tourism Management. KDU Penang University College delivers both Bachelor and Diploma in International Hotel and Tourism Management, whereas UCTAR offers an Advanced Diploma in Hospitality Management (Tourism). All the colleges provide diploma in tourism with no specification; here is the list: International College of Technology & Professional (Perlis); Keris College (Perak)- Diploma in Tourism Management; Kolej Poly-Tech MARA Alor Setar; MSU College Sg Petani; Perak College of Technology; Reliance College Pulau Pinang; SEGi College Penang; Sentral College Penang Certificate in Tourism Operations. None of the tourism undergraduate programs specify in ecotourism, although they may do the specialization at the post-graduate level.

Demand

The survey was administered in February 2018 to 300 students with a response rate of 68.7%. We first document the level of understanding of the environmental program, then followed by the interests in pursuing the course. We then examine whether the interests may be motivated by helping in environment conservation, a better career, good salary payment or just learning something new. The students showed an excellent understanding of environmental programs (N = 206, mean score = 1.82), and more than 58% of them show progressive in pursuing the program. However, when further investigated the obstacle faced by the students in continuing the program, the main reason was “job opportunities.” The means score for the survey question was detailed in Table 4.

Table 2. List of Public or government institutions at Northern Peninsular Malaysia

University			University colleges		
No.	Public universities	State	No.	University colleges	State
1.	Sultan Idris Education University (UPSI)	Perak	1	Allianze University College of Medical Sciences (AUCMS)	Penang
2.	Universiti Malaysia Perlis (UniMAP)*	Perlis	2	Han Chiang University College of Communication	Penang
3.	Universiti Sains Malaysia (USM)*	Penang (Minden and NibongTebal Campuses)	3	INSANIAH University College (KUIN)	Kedah
4.	Universiti Teknologi MARA (UiTM) (Perak Campus)*	Perak, Perlis, and Penang	4	Islamic University College of Perlis	Perlis
5.	Universiti Utara Malaysia (UUM)#	Kedah	5	KDU Penang University College#	Penang
			6	Tunku Abdul Rahman University College Penang Branch Campus	Penang
			7	Tunku Abdul Rahman University College Perak Branch Campus#	Perak
			8	Veritas University College	Penang
No.	Private universities	State			
1	AIMST University	Kedah			
2	Albukhary International University	Kedah			
3	Quest International University Perak#	Perak			
4	Universiti Kuala Lumpur - UniKL	Perak and Kedah			
7	Universiti Sultan Azlan Shah (USAS)	Perak			
8	Universiti Teknologi PETRONAS (UTP)	Perak			
9	Universiti Tunku Abdul Rahman (UTAR)*	Perak (Perak Campus)			
10	Wawasan Open University	Penang			

*Institutions that provide environmental programs

Institutions that provide tourism programs

Table 3. List of colleges at Northern Peninsular Malaysia (Name of the institution and its respectively state)

College

1	Adventist College of Nursing and Health Sciences	Penang	16	Institut Teknologi Dan Pengurusan Lebu Victoria (ITPLV)	Penang	31	Kolej Poly-Tech MARA Alor Setar	Kedah	46	Olympia College Pulau Pinang	Penang
2	ATIC International College	Penang	17	Institut Teknologi Tun Abdul Razak (ITTAR Alor Setar)	Kedah	32	Kolej Poly-Tech MARA Ipoh	Perak	47	Penang International Dental College	Penang
3	College of Nursing and Health Sciences Seri Manjung	Perak	18	Institut Teknologi Tun Abdul Razak (ITTAR Pulau Pinang)	Penang	33	Kolej PTPL Penang	Penang	48	Penang Medical College	Penang
4	Cosmopoint College Ipoh	Perak	19	International College of Technology & Professional	Perlis	34	Kolej Teknologi Mulia	Perak	49	Penang Skills Development Centre (PSDC)	Penang
5	Cosmopoint College Pulau Pinang	Penang	20	INTI International College Penang	Penang	35	Kompas International College	Perak	50	Perak College of Technology (Previously known as : Institut Teknologi Perak)	Perak
6	Cosmopoint College Sungai Petani	Kedah	21	Island College of Technology	Penang	36	KPJ International College of Nursing and Health Sciences Pulau Pinang Branch	Penang	51	PIA College (Previously known as : Institut Seni PIA)	Perak
7	Disted College	Penang	22	Kemayan Advance Tertiary College (Penang Branch)	Penang	37	Lake View College	Perak	52	Reliance College Pulau Pinang	Penang
8	Equator College	Penang	23	Keris College	Perak	38	Lam Wah Ee Nursing College	Penang	53	SC College (Previously known as : Institut Profesional)	Kedah
9	FELCRA College	Perak	24	Kolej Informasi Teknologi Cosmospect	Perak	39	Langkawi International College	Kedah	54	SEGi College Penang (Previously known as : Institut Perdagangan Sistemik)	Penang
10	Hospital Fatimah School of Nursing	Perak	25	Kolej Integrasi Perkembangan Kemahiran (IPK)	Penang	40	Masterskill Global College, Ipoh	Perak	55	Sentral College Penang (Previously known as : Sentral Technology College Penang)	Penang
11	Institut First Robotics Industrial Science (FRIS)	Penang	26	Kolej Islam Teknologi Antarabangsa (KITAB)	Penang	41	MSU College Sg Petani	Kedah	56	Spectrum International College of Technology	Selangor
12	Institut Hasani Kedah	Kedah	27	Kolej I-Systems Bukit Mertajam	Penang	42	Multimedia College (Northern)	Perak	57	Stradford International College (Previously known as : Silicon Institute of Technology)	Penang
13	Institut Pengajian Tinggi Islam Perlis (IPTIP)	Perlis	28	Kolej Kamunting	Perak	43	Mutiara International College Of Technology Innovation	Perak	58	Sunway College Ipoh	Perak
14	Institut Pengurusan Teknologi Utara	Kedah	29	Kolej Maxwell	Perak	44	Ocean Institute of Audio Technology	Wilayah Persekutuan Kuala Lumpur	59	Surya College	Penang
15	Institut Teknologi A.N.S.	Kedah	30	Kolej Perkembangan Awal Kanak-Kanak Bukit Merah	Perak	45	Olympia College Ipoh	Perak	60	TAJ International College	Perak
									61	The One Academy Penang	Penang

Table 4 Student Responses to a Survey Instrument Regarding Interests on Environmental Program

Survey questions	Means scores
• <i>I understand what is environmental program or related courses</i>	1.82
• <i>I am interested in pursuing an environmental program or related courses</i>	2.41
• <i>If you are interested in an environmental program, what is your motivation? (N=119)</i>	
Desire to help in environmental conservation	1.25
Enjoyment of learning	1.61
Career considerations	3.16
Salary considerations	3.71
• <i>If you are interested in an environmental program, what is your main obstacle? (N=119)</i>	
Selection of university/college in Malaysia	3.12
Family	3.13
Job opportunities	1.29
Financial constraint	3.21

*Survey questions were answered using a Likert scale on which 1 = strongly agree, 2 = agree, 3 = undecided, 4 = disagree, and 5 = strongly disagree

Job Vacancies

Although job vacancies may be available on the official website of ecotourism companies, due to time constrict, our analysis focused on online recruitment companies. The online tool assessed on Feb 2018 and there were 28 823 job ads posted on Jobstreet.com; 31885 job ads posted by LinkedIn. By searching for “conservation,” environment, and ecotourism; there are a total of 71 job ads showed a positive result. Most of the jobs for environments focused on environmental services (based on the working environment), Health, Safety, Security Environmental (HSSE), and Environmental/Health/Safety (ESH) Officer Engineering. For conservation, job opportunities such as marine conservation officer and program admin are available from WWF, and Country Garden Pacificview Sdn Bhd (Forest City Country Garden of Johore) was looking for landscape Officer. There were some related to Palm oil, such as The Forest Trust was looking for Project Leader for their Palm Program. The one that related was the Flagstaff Holdings Sdn. Bhd of Habitat Penang Hill was looking for an environmental education manager.

General Discussion

The four institutions (Table 4) that provide environmental programs in Northern Peninsular Malaysia, only Universiti Sains Malaysia (USM) focused on the environmental quality and conservation; this may put the development of Penang ecotourism at a disadvantaged position, in which rely heavily on the professionals from only USM or other states. Referring to the 13 HEPs (Table 3) that provide tourism programs, specialization in ecotourism may be part of the program so that the graduates could be equipped with multidiscipline particularly environmental knowledge. The importance of environmental expertise in ecotourism was demonstrated by Orams (1997), who studied how environmental education affects the dolphin tourism in Queensland. Based on his survey system that consisted of one control group who had no environmental education and an experimental group that had been involved with the environmental education program, only 8% of the control group but over 20% of the experimental group increased their environmental awareness after the dolphin demonstration. Besides, only 13% in the control group tried to get more information compared with over 41% in the experimental group, and Orams (1997) concluded that staff and ecotourists with environmental knowledge could enhance the development of ecotourism significantly. In the short run, to narrow down the gap between education and ecotourism, HEPs (particular on tourism program) could activities that engage with the indigenous group. The engagement was well demonstrated by a project between the University of Maryland and the Kayapó indigenous group in Brazil (Zanotti, 2008). The project's focus was to keep Kayapó indigenous people like the teachers for the HEPs' students. Students were allowed not only to learn about the biology of the area but also the importance of the local culture, especially concerning environmental management.

As the local community- students from Penang Island demonstrated a strong desire to help in environmental conservation (Table 4), this indicates the students were potential in assisting the Penang ecotourism. However, the means score of obstacle pursuing the course for "selection of HEPs in Malaysia" was 3.12 (Table 2), showing the number of HEPs may not be the concern for the students. During the informal interview, the interviewee mentioned they might further the program in other places of Malaysia (exp. Kuala Lumpur) or overseas. The main obstacle to prevent students from further their interest was the number of "job opportunities" (Means score = 1.25, Table 2). The concern of job opportunities may be the primary reason for relatively fewer HEPs providing environmental programs. Therefore, ideally, the development of ecotourism in Penang is creating more job opportunities and eventually promoting more formal education in Northern Peninsular Malaysia; however, promoting formal education requires higher cost (for academia and researches) and many HEPs that with limited funding choose not to offer the course. Nair (2015) emphasizes that in the market-driven environment, investment in education could be repaid through tourists who come in large quantities, and when our ecotourism able to gives more experiences to the tourists, they may stay longer and therefore stimulate the local economy. In Penang, we have many good examples of ecotourism that created professional job opportunities such as Taman Negara Pulau Pinang (Penang National Park), Penang Bird Park, ENTOPIA, Tropical Spice Garden and ESCAPE, and when considering the quality assurance (QA), quality improvement, as well as expansion, more well-trained professionals or courses will be required in the future.

To achieve both desirable economic and environmental objectives, the development of ecotourism should be an interconnected gear, as illustrated in Figure 1, in which components of 1) Developing ecotourism, 2) create more job opportunities, and 3) encourage environmental education. Moreover, future and current ecotourism ventures must bring the true meaning of

ecotourism--to protect nature, empower local people, and educate the local population and the ecotourist.

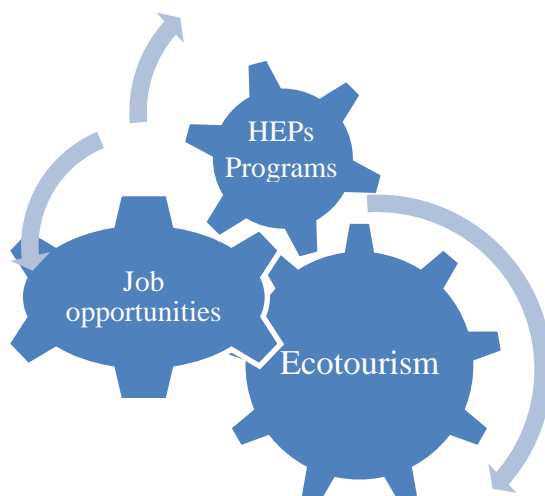


Figure 1: The Hierarchy of development of Ecotourism

CONCLUSION

Relatively few environmental undergraduate programs in Northern Peninsular Malaysia, although the high school students showed a strong desire to pursue those related programs. This mainly due to insufficient job opportunities in the Malaysia labor market. Inadequate knowledge bodies in environment conservative and ecotourism put the development of Penang ecotourism at a disadvantaged position. In the future, the stakeholder of ecotourism agencies in Malaysia should invest more in environmental education to ensure a steady stream of well-trained professionals generated in parallel to the developing of ecotourism.

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