

# **Integrating Education for the Marine Environment in General Education English Courses**

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## **Abstract:**

The ocean affects all life on earth. To raise our youth's awareness and understanding of the ocean and related marine environmental issues, teachers of various disciplines work together to engage students in marine environmental education. The researcher conducted a two-year multimodal program in a General Education English courses at a higher institution in southern Taiwan, aiming to foster student awareness and appreciation of the oceans in conjunction with English reading and writing practices. The students read English picture books with ocean themes and responded to the readings by creating a group project using multiple forms of media. A variety of qualitative data sources were collected and analyzed. This article reports the context of the program and the results of its implementation. Since the program serves as an initial step designed to incite student to pay more attention to the marine environmental issues, further steps are expected in the future.

## **Keywords:**

Multimodal learning, English learning, Education for the marine,environment, Qualitative research, Reading response



## Introduction

The ocean plays a critical role in sustaining the life of this planet. In particular, it provides humans with food, medicine, natural resources, habitat, and essential ecological services, and therefore contributes to many valuable commercial, recreational, and cultural opportunities. Each resource and service provided by the ocean relies upon high marine environmental quality (1998 Year of the Ocean website, n.d., Introduction session). In recognition of the importance of the marine environment, the United Nations declared 1998 the International Year of the Ocean. This act serves as a reminder of the need to protect the ocean resources and also an affirmation of our commitment to safeguard the oceans for future generations (UNESCO PRESS Online, n. d., Message of UNESCO session). It in particular "provides individual organizations and governments with an important opportunity to raise public awareness and understanding of the ocean and related issues" (International Year of the Ocean website, n. d., Homepage). The United Nations Conference on Environment and Development, held at Rio de Janeiro in 1992, has made it clear in the Twenty-one Principle, "The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development and ensure a better future for all." Enlightening our students and making them realize the importance of the ocean has become the teachers' responsibility. As scholars have noticed, in order to effect change in the mindset of our youth on "the significance of marine protected areas and coastal resources in general, it is important to target the education sector" (Alexander & Williams-Peter, 2012, p.vi). In addition, by educating the youth, who may respond with a positive change in attitude towards marine resources, we teachers are cultivating future leaders and helping to make them become motivated to support policies and make more informed decisions (Alexander & Williams-Peter, 2012).

Taiwan and all the islands appertaining to it measure 1,7000 kilometers of coastlines. The maritime areas that Taiwan governs are 4.72 times the size of its land areas. Therefore, the Taiwan government has firmly established its ocean policy, as the Executive Yuan of Taiwan released the Ocean Policy White Paper in 2006, in recognition of the importance of the marine related issues and ocean affair management. The Ocean Policy White Paper proposes that Taiwan is an ocean country; it emphasizes that the government should make efforts to raise public ocean awareness and conduct nationwide programs for the protection of marine resources,



while the people should develop ocean thinking, cultivate ocean awareness, and work together with the government to create a healthy ocean environment, safe ocean activities and prosperous ocean industry (2006, p. 23). To achieve the ultimate goal of developing the nation into an ocean country with good qualities, in 2007 the Ministry of Education in Taiwan released The White Paper on Marine Education Policy, setting five major goals for marine education, including encouragement of students to favor marine education. Since the release of this paper, there has been a substantial need to integrate marine education topics in all the academic disciplines, English education curricula included.

I started teaching General Education English courses at a higher institution in southern Taiwan in 2009. At this higher institution, four-year undergraduate programs and five-year junior college programs are both offered. This higher institution is the only one in Taiwan with the sea as an educational focus and it takes pride in having successfully cultivated many marine professionals in the past decades. Students enrolled in either an undergraduate program or a junior college program, all marine profession related majors, should take at least six credit hours of General Education English to fulfill the requirement of core competence in language. Seeing that it is all teachers' responsibility to engage students in marine environmental education so that their awareness can be raised and they can become a powerful partner in protecting and preserving the oceans, as an English language teacher, I have tried to integrate marine environmental education in my General Education English curricula.

In the past decade throughout the nation, interdisciplinary pedagogy has been receiving increasing attention in both language education and general education research. For example, Su (2012) conducted a course integrating Spanish learning with character education, Shen (2011) required his university students to read political and economic news articles with the aim to enhance the students' French language skills, and Ong (2010) implemented music to teach general education mathematics courses. Among all the interdisciplinary empirical studies, surprisingly, integrating English learning instructions and marine environmental education has not been investigated by any scholars in Taiwan. Therefore, there is a pressing need in initiating such a study. This article introduces a student-centered English learning program, conducted in the Taiwan higher institution that I taught at during the school years 2011 and 2012, when the course design was repeated in the two consecutive years but different groups of students were recruited. Integrating the affective marine



environmental education, the program aimed to foster student awareness and appreciation of the oceans. After examining my entries in the teacher's journal, students' reflection on the learning experience, and their final works, such as an electronic picture book or a video clip, I report in this article the findings to the two research questions: 1) What are the students' perception as to whether the program helps them enhance their awareness of marine environment? 2) To what extent do the students' learning products exhibit appreciation and concern for the oceans? I also provide pedagogical suggestions at the end of the article.

### **Marine Environmental Education**

Environmental education involves three key dimensions: education in the environment, education about the environment, and education for the environment. Education in the environment stresses that students gain learning experiences in both natural and built environments. Education about the environment aims to help students understand the natural and built environments and make them evaluate factors influencing the environments. Education for the environment is the affective aspects of environmental education, dealing with students' "emotions and their willingness to make lifestyle choices that help maintain and improve the quality of the environment" (Guidelines for Environmental Education in New Zealand Schools, The Key Dimensions session, n.d.). These three dimensions should apply to marine environmental education as well, whose affective aspects are to give students the marine environmental awareness, values and attitudes needed for sustainable development. In other words, education for the marine environment aims firstly to help students develop their awareness and appreciation of the oceans. Then it furthers the goal by leading students to care for the oceans and become willing to take actions that will contribute to the maintenance of healthy seas (Francis, Mwinuka, & Richmond, 1999).

K-12 teachers worldwide have made efforts to engage their students in learning activities aimed to educate their students on the marine environment. They have conducted various learning activities to educate children and youth to get close to the ocean and to maintain a sustainable marine environment. Successful implementation and sustainability of awareness activities targeting the youth have been reported. However, challenges also exist. In the report by Kanke, Kondo, and Yamamoto (2004), the scholars pointed out that in Tokyo Bay although there had been active civic activities for conserving the marine environment as a result of the environmental



education in schools, one problem was that those activities were not continuous and it was aimed at mere natural experience in most cases. Kanke's (et al.) report disclosed that the situation observed in the Tokyo Bay, however, is not a unique case. Very often we find students take part in marine environmental protection activities and it is frequently observed that those are one-time only activities. McKinley and Fletcher (2012) argue that in order for individuals to act responsibly towards the ocean and its resources an 'enhanced' awareness of marine environmental issues is required. Wu (2009), a Taiwanese scholar, in the book, *Marine Education: Textbooks, Teachers, and Teaching*, holds that the goal for marine education in elementary and secondary education is to promote an appropriate interaction between the ocean and the people. He further defines marine education by characterizing it into five aspects: presenting the ocean in art and literary forms, experiencing the ocean, caring about the ocean, invoking social criticism, and inspiring supernatural imagination. Many other teacher-researchers in Taiwan also carried out classroom practices to engage K-12 students in marine environmental education, such as Wu and Shih (2009, in Chinese) using picture books to improve a third-grade class' marine caring consciousness and Liao (2010, in Chinese) employing myth to improve elementary students' marine aesthetic consciousness. The multimodal English learning program discussed in this article was therefore conducted, with the hope to fill the gap in literature by initiating a discussion in the higher education context; it also held the belief that students need to have enhanced awareness of the importance of maintaining sustaining marine environments so that eventually pro-environmental behaviors can be expected.

## **Method**

### **The Participating Students**

The students participating in the program during the two school years were from two intact classes taking the required General Education English courses at a higher institution located in a harbor city in southern Taiwan. Altogether 45 second-year undergraduates in the 2011 school year and 41 third-year junior college students in the 2012 school year were recruited for the study. Their majors were either Shipping Technology or Marine Engineering, both maritime related professions. The students' English proficiency was at the intermediate level so that they would have sufficient reading and writing skills to accomplish the tasks required in the program. Before the study and poll began, written informed voluntary consents were obtained from all the participants.



## Context of the Program

The general goals of the General Education English curricula were to enhance students' English speaking, listening, reading, and writing skills. However, there is an increasing need to take a multi-discipline approach in higher education so that people with different academic backgrounds can communicate well with each other and scholars with various reservoir of knowledge and expertise can work together to address the enormous problems that the human family faces around the world (Hennessy, 2011). In addition, the participating students were maritime related majors, and the professional courses they were taking in their departments were helping them gain knowledge and understanding, skills and capabilities to protect the marine environment. Nevertheless, their attitudes and values, and action and participation, the other two equivalently important learning objectives of environmental education (Commonwealth of Australia, 2005), might not be sufficiently covered by the departments' academic subjects. Considering the two reasons above, I, as the instructor of the courses, designed an integrated English learning program to foster students' awareness of and concern about the marine environment.

The program was divided into three phases, all repeated in the two school years:

Phase one: The students read English picture books with ocean themes in them. The picture books were chosen based on the criteria that, in addition to an ocean-related theme, they were award winners or recommended by reviews published in widely-acknowledged journals. Moreover, a variety of picture books were selected to cover diverse genres. (See Appendix for the list of the titles.) Occasionally, during class hours, I guided the students to read through the books, but most of the time, the students read the electronic copies with their group members after class.

Phase two: The students responded to the picture books they read by creating, with their group members, a multimodal reading response project. The students made decisions on the topics and modes of their group projects, assigned tasks, did research, drafted scripts, created the multimodal products, and presented the final learning product to the class. The whole process was student-centered, while the instructor's role was to offer suggestions, to regulate and record the time schedule, and to give emotional support. A teaching assistant provided editing help when the students were working on their script drafts. The TA also helped upload the students' final works to the password-protected web spaces (wikispaces.com or YouTube) for the whole class to view.



Phase three: After sharing their multimodal projects, the students received both teacher and peer feedback on their projects. Their projects were also graded by the teacher and the whole class and counted as part of the students' course achievements. I provided a rubric for grading, and the elements such as content, insight, performances/layout, English expression, and attraction to the audiences/readers, were listed. Toward the end of the program, the students reflected on their learning experiences, re-examining their appreciation of the ocean and their willingness to protect and preserve it, when a retrospective survey was administered. In the first year the survey was conducted via a five-point Likert scale questionnaire, from strongly agree to strongly disagree. However, in order to gather more information, in the second year, an open-ended survey replaced the five-point Likert scale questionnaire to find out more about student perceptions.

### **Data Sources**

I used the qualitative research method to collect data, including 1) students' reflection on the learning experience and their perceptions of the program, collected with the exit surveys at the end of the semester; 2) students' final works, the artifacts they created with group members by using the multimodal media, such as a picture book or a video clip; 3) my teacher's journal, in which I marked class observations. When coding, I adopted the constant comparative method (Lincoln & Guba, 1985) to cross-examine the array of data until major themes emerged. In addition, I borrowed Krathwohl, Bloom, & Masia's categories of the affective domain taxonomy to categorize the “feeling tone,” the “emotion,” or the “degree of acceptance or rejection” detected in the contexts of students multimodal works (1964, p. 7) in order to investigate if the ocean awareness was displayed in the works. The hierarchy-ordered domain categories, that is, receiving, responding, valuing, organization, and characterization by a value or value complex, were therefore used to analyze the students' final works. Table 1 provides a brief summary of the definitions of the domains:



Table 1  
*Summary of the Definitions of the Affective Domains*

<u>Domain Category</u>	<u>Definition</u>
Receiving	Awareness, willingness to receive, controlled or selected attention
Responding	Acquiescence in responding, willingness to respond, satisfaction in response
Valuing	Acceptance of a value, preference for a value, commitment
Organization	Conceptualization of a value, organization of a value system
Characterization by a value or value complex	Generalized set of characterization, "a philosophy of life" (Kratwohl et al., 1964, p. 166)

## Results

### Student Perceptions of the Program

In the retrospective survey, I asked the question: "Does this program help develop your appreciation of the ocean and motivate you to get close to it?" The students' answers to the retrospective surveys, presented in Table 2, revealed their perceptions. The numbers of students choosing "strongly agree" and "agree" were combined to indicate the total percentage of positive answers, while the numbers of students choosing "strongly disagree" and "disagree" were combined to indicate the total percentage of negative answers.

Table 2  
*Student Answer to the Survey Question*

	<u>Agree</u>		<u>Neutral</u>		<u>Disagree</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Year I</u> (Total n=45)	23	51	20	44	2	5
<u>Year II</u> (Total n=41)	20	49	6	14	15	37
<u>Total</u> (Total n=86)	43	50	26	30	17	20





The figures in Table 2 show that half of the total participating students thought the program helped them appreciate the ocean and made them get close to the ocean. This suggests that during the two years, the program succeeded in arousing at least half of the students' awareness of the ocean, leading them to appreciate its values and their willingness to have activities by and in the ocean. Students' open-ended survey answers provided more information. Their comments revealed that the books they read and the final projects they completed affected to what extent the students appreciated the ocean and whether or not they went to the ocean for activities. For example, Ruan-Zong (pseudonyms and quotes translated from Chinese all throughout the article) read *Dory Story* (Pallotta, 2004), a narration describing an imaginary sailing trip the boy Dory had when he was taking a bath, and Ruan-Zong reflected, "After reading the picture book, I felt like going scuba-diving and watching the ocean creatures." Xie-ming read *Bats at the Beach* (Lies, 2006), a content book introducing the lives of bats at the beach, and he commented, "I felt close to the ocean, and I even surfed the Internet to get more information about the ocean." Another student, Hu-yao, also pointed out, "Before shooting our video, I had not been to the beaches for a long while; neither had I stepped on the sand or played with the waves for a long time. This experience brought me to get closer to the ocean." Hu-yao's group went to the beach and acted out the scenes described in the picture book, *Lottie's Beach Towel* (Mathers, 2001): They jumped on the hot sand, rowed in a self-made paper boat, used a towel to serve as a sail, and returned home after the happy journey. All these were made into their final project, a mini movie. This example showed that when the students created their reading response project with a setting by the ocean, they had the opportunity to experience and embrace the ocean.

As is discussed above, half of the students found that the program helped them appreciate the ocean. However, the other half of the students either held a neutral attitude (30%) or did not find it so (20%). The high percentage of students choosing to give a neutral answer might attribute to the limitation of data collection. As the survey was conducted by giving a Likert-scale questionnaire in the first year, twenty students chose "neutral" as their answer (that is, 23% of all the participants and 77% of the students whose answer was neutral). This probably was because these students did not find that the program necessarily enhanced their appreciation of the ocean, nor, on the other hand, did they find it did not. So they chose "neutral" to play it safe. In the second year, the students were requested to fill in the open-ended survey, and this



helped eliminate ambiguous answers. Only six students wrote comments not really showing whether they agreed or disagreed. Most answers coded as "neutral" went like this: "It was okay," which usually means "so-so" in Chinese when the speaker does not feel like giving a specific answer. Therefore, in the future, a more rigorous research design would contribute to make up for the insufficient information obtained in the first year.

As the students in the second year needed to give a specific statement instead of circling on "agree" or "disagree," the percentage of students expressing that they did not find the program helpful in strengthening their appreciation of the ocean became higher. The number of students stating "disagree" went from two to fifteen in the second year, and the total percentage throughout the two years was 20%. In other words, less than a quarter of the students did not see the program helpful in promoting their appreciation of the ocean, which could still suggest a moderate success of the program. As for why some students disagreed that the program helped them appreciate the ocean, students' survey answers provided some insights.

Except for the four students who did not give any explanations, students not agreeing were mostly (six out of seventeen) those who did not find the books they read related to the ocean theme. In other words, if the book was not particularly about the ocean, either with a character going to the sea or beach or with an introduction about the creatures living in or by the sea, then the students did not see the connection between the book and the ocean. For example, one group of students read *Hondo and Fabian* (McCarty, 2002), a simple story about how the dog pet Hondo spent a day at the beach while the cat pet Fabian idled its day away at home.

As the plot is simple and no particular stress is put on the ocean scene, this group created a final project having nothing to do with the oceans. The group leader, Lan-kai, commented, "Our topic had a very indistinct relation with the ocean theme," and they created a 3D animation showing that a father telling the bed time story, *Hondo and Fabian* (McCarty, 2002), to his son. In addition to the students who thought their book was not related to the ocean, three students stated that they did not like the ocean or it was too hot to go to the beach. Apparently, the program was not intriguing enough for them to change their opinions.

### **Student Group Project Works**

The affective domain taxonomy was employed to further examine the ocean awareness displayed in the students' project works. According to the definitions of the



affective domains, the first two domains, 'receiving' and 'responding', required the students to exhibit an acceptance of being engaged in the activities the program delivered and to show willingness to respond to the activities. The fact that all the students helped their groups complete the final projects might as well suggest that the students were able to receive and respond to the program. In addition, I asked specifically in the retrospective survey: "Do you like the idea of completing the group project in response to the ocean-related picture books you read for the course?" Table 3 summarizes the students' answers.

Table 3

*Student Answer to the Question: "Do you like the idea of completing the group project in response to the ocean-related picture books you read for the course?"*

	<u>Agree</u>		<u>Neutral</u>		<u>Disagree</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Year I</u> (Total n=45)	32	71	9	20	4	9
<u>Year II</u> (Total n=41)	34	83	3	7	4	10
<u>Total</u> (Total n=86)	66	77	12	14	8	9

Table 3 shows that during the two years, most students (77%) liked the idea of creating a group project in response to the ocean-related books. This finding confirmed that when participating in the program, the students were able to receive and respond to the course activities. Following that finding, I investigated if the students displayed a higher-ordered affective learning, that is, acceptance of a value, conceptualization of a value, and eventually forming a philosophy of life. I examined the students' final project works and observed affluent examples of the higher ordered affective domains.

To begin with, a number of the students' reading response projects indicated that they were concerned about the preservation of the marine environment. For example, during the first year, among the 17 groups creating an online picture book, five of them had a theme focusing on the importance of ocean protection. One group even particularly stated in the preface that their picture book, addressing to children, was to



make children see the crisis that the ocean was going through (see Figure 1).

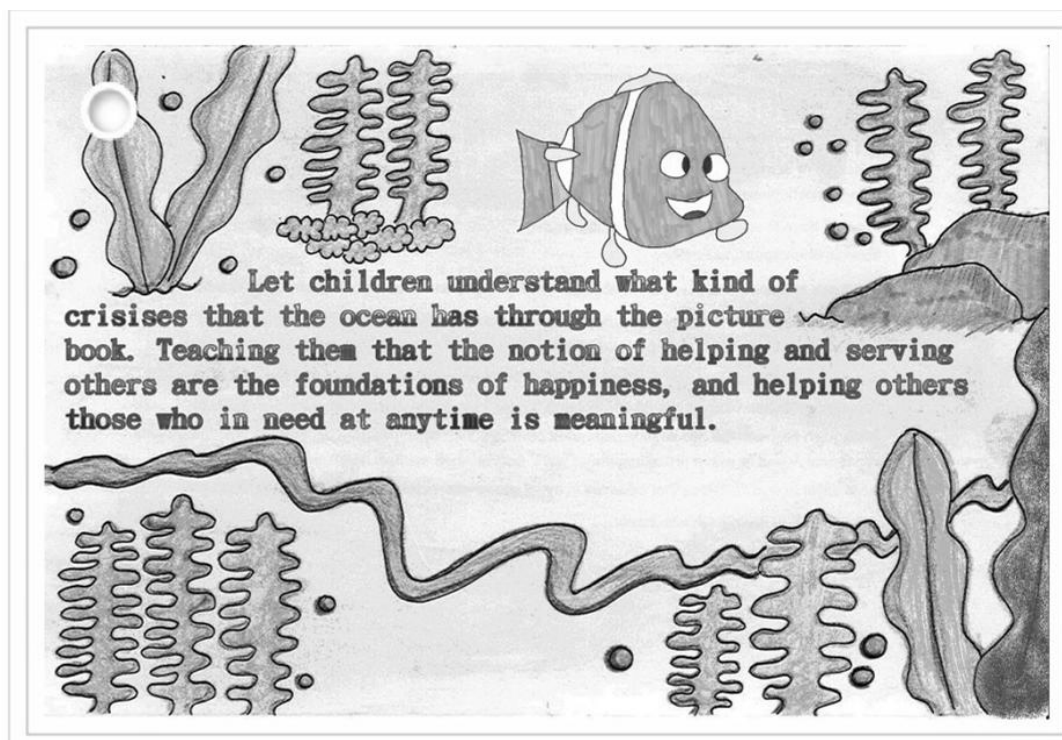


Figure 1. Preface of student online picture book

The following example pages of another group's final work illustrated how the students focused the theme of their self-made picture book on marine environmental protection. As their story went, one day the main character, a little bear, accidentally found a treasure map his father left for him. Waving goodbye to his mother, the little bear set out on his journey for the treasure (Selected Page 1). However, after going through all kinds of hardship on the sea and finally arrived on the treasure island, the little bear was disappointed to see that there was no treasure except trash on the island (Selected Page 2). With the help of his mother and his village people, who were forced to leave their homeland destroyed by the tsunami, the little bear cleaned up the island and realized that the beautiful island was the real treasure to him (Selected Page 3).



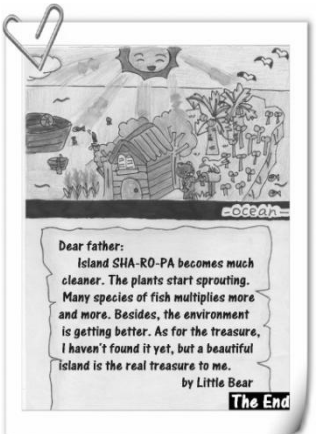
Selected Page 1	Selected Page 2	Selected Page 3
		
<p><i>"Little Bear: Mother, take care of yourself."</i></p>	<p><i>"... The little bear: Dear god! There isn't any treasure. There is only garbage everywhere."</i></p>	<p><i>"... As for the treasure, I haven't found it yet, but a beautiful island is the real treasure to me."</i></p>

Figure 2. Selected pages from student self-created picture book

This example exhibited that the group of students, when creating their picture book, intended to deliver such a message in the text that, as islanders' lives were affected by the ocean, cherishing and preserving the island they were inhabited on was the most important thing.

In the second year, among the ten groups creating multimodal projects, six of them shot their videos at the beach (see Figure 3 for an example video clip). This was because many of the books the groups read were related to the ocean theme, and so the students went to the beach to act out the scenes in the books. Such a result suggested that the program succeeded in inviting the students to get close to the ocean, as is discussed in the earlier section.



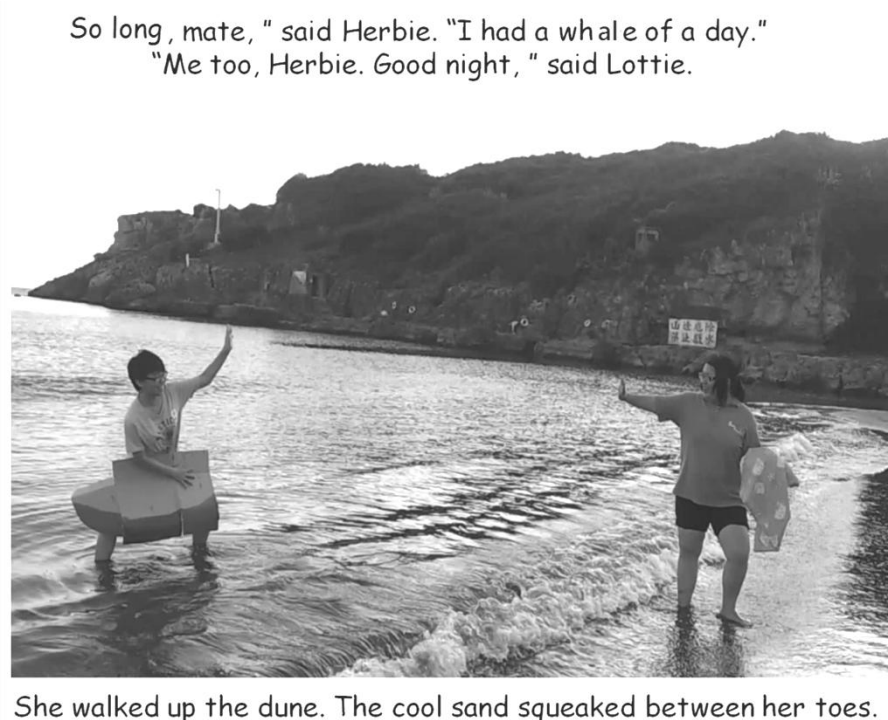


Figure 3. Student video with a beach scene

However, in the second year, students' project works did not necessarily reflect their concerns about marine environmental issues. Most of the groups in their final projects provided comments on the books they read, such as how the book reminded them of their childhood experiences, how imaginative or interesting they thought the book was, and how they felt about spending some time at the beach. The teacher's assignment instruction should contribute to the result, as no particular requirement was imposed before the groups conducted their final projects; the only instruction for the students was to respond to the books. Therefore, students took the freedom to come up with various topics, without paying particular attention to the ocean theme.

Still, one group specifically pointed out in their project that they felt regretful about the polluted Cijin beach, where they visited and shot their video. They even mentioned that they were going to clean the beach after they completed their group project (Figure 4).



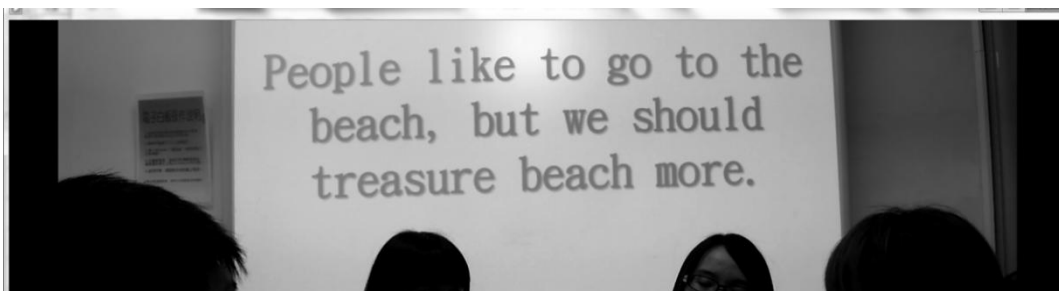


Figure 4. Students talking about cleaning the beach

The same group presented in their final comment the following passages:

*Taiwan is an island surrounded by the sea, and our life is connected to it. Every year there are many large events held at the beach; for example, the Gongliao Music Festival, Spring Scream, etc. Everyone likes the beach, but every time after the end of the large activities, we always see the overfilled trash cans and garbage all over the beach.*

*Not only the beach is hurt, but also the whole environment is endangered. If people no longer value the ocean and even protect the whole environment. One day, this beautiful scenery will be depleted and people will no longer enjoy the beauty that nature brought us.*

This group demonstrated that the students accepted and conceptualized the value of appreciating the ocean; they also developed a life philosophy of preserving the marine environment.

When asked if the students found it important to integrate the concept of ocean awareness and appreciation in the curricula, 26 students (63%) of the second year stated yes, nine students (22%) did not give a clear answer, and only six students (15%) indicated no. Some students considered it important to incorporate ocean-related issues in the curricula because they were aware that Taiwan is an island and there is a need to develop marine environmental education; others thought it important because they were maritime profession majors, and they viewed it their responsibility to gain more knowledge about the ocean. Take Yang-ru's answer for example. He wrote, "Yes, it is important. We not only live in Taiwan, we also study in a marine college. So we must learn more knowledge and information from the curricula."

## Discussion & Conclusion

The examination of student perceptions and their final projects suggested that the students enjoyed the program. Many of them perceived that it helped enhance their appreciation of the ocean and led them to get close to it. In addition, most groups conducted their projects with a theme related to the ocean, and among them, six groups, that is, over one-fifth of all the groups during the two years, particularly addressed the issue of preserving marine environment in their projects. As there was no explicit requirement on the topics of student project assignments, the results suggested that the program I carried out achieved a moderate success in arousing student ocean awareness and provided them with an opportunity to be engaged in ocean-related affective learning.

To attain an even greater success, one pedagogical implication is to provide students with reading materials more related to the theme of the ocean. Some participating students in this program indicated that they did not see the connection of the books they read with ocean awareness or ocean appreciation. Therefore, there is a need to incorporate more ocean-related books for reading texts. On the other hand, although most of the picture books read throughout the program were considered by the students interesting, inspiring, and were valued because they develop critical thinking in both older and younger students (Burke & Peterson, 2007), a couple of the books, aiming for much younger readers, appeared too simple to incite the students' sophisticated responses. As a result, in their response projects, the students might express how they felt about these books instead of meeting the teacher's expectation about reflecting on the messages the texts delivered.

The topics of student response projects also determined to what extent the awareness of marine environment was included in the contexts of the projects. The teacher's instruction played an indispensable role here. During the first year, I asked the groups to come up with a response project related to the ocean. Accordingly, all the group electronic picture books had either the ocean as the background or ocean creatures as the main characters. For example, one group described a sports competition under the sea, where the fish, shrimp, and crabs ran, jumped, or pulled the rope for the medals. Another group told a story about three princes sailing across the tumbling sea to rescue a princess imprisoned on a deserted island. As the topics had to be about the sea, as many as five groups (among the seventeen) integrated the concept of marine environmental protection in their books: The students wrote about





how the ocean and the beach had been polluted by the humans, and how important it was that people and other animals, including the mermaids, should work together to preserve the oceans as well as the living environments.

During the second year, however, I did not particularly ask the groups to respond to the books with their projects focusing on the ocean. The students took the liberty to use a variety of media to create their projects in response to the books. As most of the books were related to the ocean, many groups went to the beach to shoot their videos. However, they did not particularly address the issue of marine environmental protection. Instead, the students responded to the plots of the stories or pointed out what lessons they had learned from the texts. For example, one group commented that they gained more appreciation of parents' love as they saw from the book, *Where Is Home, Little Pip?* (Wilson, 2008) how anxious the penguin parents were when their little penguin got lost. Such an example showed that the students sometimes did reflect on the texts, though it was not necessarily about marine environmental preservation. Therefore, the pedagogical implication is that teachers should give more explicit and direct instruction if more affective learning concerning marine environment is desired. In addition, age as a variable may also exert a remarkable effect on the research's outcome. The participating students in the first year were second-year university students, while the participating students in the second year were third-year junior college students, who were two years younger than their predecessors. It was very likely that the younger students in the second year were not mature enough to ponder more about the deeper meanings embedded in the contexts of the books. If that was the case, then the teacher's instructions and guidance would be even more crucial.

What needs to be kept in mind is that the goal of the program was not to instill the awareness and caring for the oceans in the student minds; rather, it was to arouse and strengthen the awareness and concerns that were already there. As the participating students were young adults and their majors were marine profession related, many of them acknowledged that it was essential for them to value the oceans and to preserve the marine environments. This program served as the incitement to remind the students to take these issues more seriously. What needs to be done as the next step is to encourage the students to take real action. Kllgour (n.d.: Conclusion session) suggested that "anyone working in marine and coastal management is responsible for effectively 'educating' people." By "educating" Kllgour meant



"building people's capacity to make personal, long term behavioural changes to conserve our coasts and oceans" (n.d.: Conclusion session). As discussed earlier, the outcomes of the English learning program I conducted revealed that one group among the participating students started talking about helping clean up the beach; another group intended to promote caring about the ocean through the messages conveyed in their book. To have more students demonstrate the determination to help and be engaged, teachers across disciplines should work together to come up with more learning programs, guiding the students and leading them to really take actions. That way, the affective learning has achieved its goal and we will all help preserve the oceans.

This paper reports the study of a student-centered English learning program conducted with the concept of interdisciplinary course design. Students' development of ocean awareness and appreciation was the focus of the study. However, what cannot be ignored is that the ocean program was implemented in general English education courses, whose aim was to enhance students' English abilities. Therefore, in addition to examining students' ocean awareness, further research needs to be carried out to investigate whether students' English proficiency was also improved throughout their participation in the course learning activities. As spelling errors and wrong pronunciations were sometimes detected in the student final works, and meanwhile as some students reflected and considered that the program was helpful to their English learning, more studies need to be conducted to expand our understanding of such interdisciplinary programs. It will be even more beneficial when student's English learning results are examined and discussed.

Further investigation can also be conducted to examine and compare how marine-related majors and other majors react to such interdisciplinary programs. Will marine-related majors react more positively to the programs? Or will other majors benefit more by displaying more changes of attitudes and deeper appreciation of the ocean? The answers should contribute to the literature and hopefully this article serves to initiate an invitation of further studies.



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### **Appendix: Titles of Ocean-Related Picture Books Read in Class**

- Cooper, E. (2006). *Beach*. New York, NY: Orchard Books.
- Huneck, S. (2000). *Sally goes to the beach*. New York, NY: Harry N. Abrams.
- James, S. (1996). *Dear Mr. Blueberry*. New York: Aladdin.
- Kraus, R. (1987). *Herman the helper*. New York: Simon & Schuster Children's Publishing.
- Lies, B. (2006). *Bats at the beach*. Boston, MA: HMH Books for Young Readers.
- Markle, S. (2005). *Killer whales*. Minneapolis, MN: First Avenue Editions.
- Mathers, P. (2001). *Lottie's new beach towel*. New York: Alladin.
- McCarty, P. (2002). *Hondo & Fabian*. New York, NY: Henry Holt and Co.
- Pallotta, J. (2004). *Dory story*. St. Watertown, MA: Charlesbridge Publishing.
- Ryan, P. (2001). *Hello, ocean*. St. Watertown, MA: Charlesbridge Publishing.
- Sheldon, D. (1991). *The whales' song*. Summit, NJ: A Puffin Pied Piper.
- Wilson, K. (2008). *Where is home, little Pip?* New York, NY: Margaret K. McElderry Books .



## Reference

- Alexander, L., & Williams-Peter, S. (2012). A teacher's guide to marine environmental education in Saint Lucia. (In Tulsie, B. Ed.) Saint Lucia National Trust and United Nation environment programme--Caribbean environment programme. Kingston, Jamaica. Retrieved from [http://campam.gcfi.org/CaribbeanChallenge/MidGrants/StLucia\\_MPA\\_Manual\\_-\\_FINAL.pdf](http://campam.gcfi.org/CaribbeanChallenge/MidGrants/StLucia_MPA_Manual_-_FINAL.pdf)
- Burke, A., & Peterson, S. (2007). A multidisciplinary approach to literacy through picture books and drama. *English Journal*, 96(3), 74-79.
- Commonwealth of Australia (2005). *Educating for a sustainable future: A national environmental education statement for Australian schools*. Impact Printing (Vic) Pty Ltd. Retrieved from <http://www.environment.gov.au/education/publications/pubs/sustainable-future.pdf>
- Francis, J., Mwinuka, S., & Richmond, M. (1999). *A schoolteacher's guide to marine environmental education in the Eastern African region*. UNEP. Retrieved from <http://www.icran.org/pdf/EAF-SchoolTeachersGuidebook-complete.pdf>
- Guidelines for Environmental Education in New Zealand Schools. Retrieved from <http://efs.tki.org.nz/Curriculum-resources-and-tools/Environmental-Education-Guidelines/The-Key-Dimensions-of-Environmental-Education>
- Hennessy, J.L. (2011). What are the advantages of a multi-disciplinary approach to education? Silver Spring, MD: Discovery Communications, LLC.
- Kanke, H., Kondo, T., & Yamamoto, K. (2004). A study of the present condition and problems of marine environmental education in Tokyo Bay. (In Proceedings of OCEANS '04, MTTS/IEEE TECHNO-OCEAN '04, pp. 962-967, Vol.2).
- Kilgour, K. Marine environmental education--Are we learning our lessons? Retrieved from <http://www.coastalconference.com/2011/papers2011/Kate%20Kilgour%20Full%20Paper.pdf>
- Krathwohl, D.R., Bloom, B.S., & Masia, B.B. (1964). *Taxonomy of educational Objectives: Handbook II: Affective domain*. New York: David McKay Co.
- Liao, C.-l. (2010). A research on myth teaching to improve students' marine aesthetic consciousness. (Unpublished master's thesis). National Taiwan Ocean University, Keelung, Taiwan.



Lincoln, Y., & Guba, E. (1985), *Naturalistic inquiry*. Beverly Hills, CA: Sage Publications Inc.

McKinley, E., & Fletcher, S. (2012). Improving marine environmental health through marine citizenship: A call for debate. *Marine Policy*, 36, 839-843.

Ong, J.-I. (2010). Natural science and music: The review and study of the design and practical model for the interdisciplinary course of general education. *Guandu General Education Journal*, 6, 59-86.

Rio Declaration on Environment and Development. Retrieved from <http://www.unep.org/documents.multilingual/default.asp?documentid=78&articleid=1163>

Shen, C.-h. (2011). Teaching strategy for interdisciplinary professional French: The case of supplementary reading training activity in political-economic course. *Fu Jen Journal of Foreign Languages : Linguistics, Literature, and Culture*, 7, 105-126.

Su, S.-j. (2012). Cross-field Spanish teaching: Combination of the course on Spanish commercial purpose and the character education. *Foreign Language Studies*, 6, 95-114.

The Ministry of Education (2007). *White Paper on Marine Education Policy*. Retrieved from <http://english.moe.gov.tw/ct.asp?xItem=7103&ctNode=784&mp=11>

UNESCO PRESS online. Retrieved from <http://www.unesco.org/bpi/eng/unescopress/97-250e.htm>

Wu, C.-k. (2009, in Chinese). *Marine Education: Textbooks, Teachers, and Teaching*. Taipei, Taiwan: Wu Nan Culture Enterprise.

Wu, C.-k., & Shih, H.-j. (2009). The teaching praxis to promote marine caring consciousness by picture book. Proceedings from *2009 Taiwan Ocean Conference*, pp. 388-402. National Taiwan Ocean University, Keelung, Taiwan.

1998 Year of the Ocean. Retrieved from <http://www.grida.no/geo/GEO/Geo-2-255.htm>



## 融合海洋環境教育於通識英文課程

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### 摘要：

海洋影響所有地球上的生物，為了強化年輕學子的海洋意識，並加強他們對海洋環境議題的重視，各個領域的教師已攜手合作一同進行海洋環境教育。本文作者執行了一項為期兩年的課程與教學研究，目地在深化學生的海洋情意學習。這項研究以南台灣一所科技大學修習通識英文課程之兩班學生為對象，學生在修習英文讀寫技能的同時，閱讀以海洋為題材的英文繪本，並產出多媒體閱讀回饋作品，如海洋繪本或多媒體影片，研究者借此以達到提昇學生海洋意識及情操的跨領域教學目標。研究者蒐集並分析了多項質性資料，本文中即報告了此項教學研究之課程設計與研究結果，期盼藉由本文之發表，未來會有更多跨領域教師投入海洋環境教育之研究行列。

### 關鍵詞：

多元學習、英文學習、海洋文化教育、質性研究、閱讀回饋

