The Integration of Humanities and Technology for Interactive Learning

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Abstract

Tamsui district in Taiwan is a historical region. There are many ancient cultural monuments, such as Fort San Domingo, Hobe MacKay Hospital, Hobe Fort, Tamsui Customs Officer's Residence, Oxford College, and so on. Hence, in this paper, we design two e-storybooks for children by integrating of Tamsui humanities and computer technology. The two e-storybooks are built by a visual programming language, which its environment is media-rich. Children can interact with the characters in the story while reading the e-book. This way for informal learn not only is interesting, but also achieves the purpose of cultural immersion.

Key words: Interactive learning, visual programming language, e-storybooks, cultural immersion

Introduction

Tamsui district in Taiwan is located at the emerald green Datun mountain and along the side of Tamsui River. The inclination of its terrain is steep and winding. Hence, it is an excellent location to overlook the Tamsui river estuary and the nearby sea. In the 17th century, Spaniards and Dutchman stationed in Tamsui district successively and built a defensive castle [1] in the mouth of Tamsui river as a stronghold for the commercial trade and mission. Now, the castle is named as Fort San Domingo [2]. This district was included into the Chinese Qing Dynasty in the 18th century and it is officially opened as a trading port in 1860. At that time, it became the largest port in north Taiwan. There were many large merchant ships from China to transport goods and engage in commercial activities.

This area is rich in history and humanities. In addition, it is close to the Datun mountain such that there are many natural resources and ecological landscapes. It is common to see different species of birds that inhabit [3], such as swallows, herons, goshawks, and so on. When in the spring, there are many swallows returning to their old nests to feed the little ones, especially on the campus of Tamsui Shuiyuan elementary school [4]; moreover, we can see some crested serpent eagles (spilornis cheela) flying in the sky around the campus of Tamsui Jhongtai elementary school [5].

Regardless of human history or natural ecology, these are the local characteristics of the Tamsui district and as a result, it has become a popular tourist town in the northern Taiwan today. In order to inherit these cultures, we attempt to design two e-storybooks in this project to record the "mountain" and "river" stories in Tamsui district. The two picture books are suitable for children so that more and more children in this area can know their hometown. In addition, the two picture books that we design integrate with information technology to become e-books. This way can make the e-storybooks more interactive and interesting to achieve the purpose of cultural immersion.

Figure 1. Tamsui Sampan Boat [6]

Storybook Design

Tamsui river was once the only river in Taiwan with inland waterways. In the era of inconvenient transportation, there were many ships sailing on that river. A sampan boat (舢舨船) [6] is one of them. It is still a tool now used by fishermen to fish. In the early days that there were lots of trade in Tamsui, many sampan boats were used to transport goods. For such boats, the speed was the necessary condition. However, its hull structure is simple and there is no way to face strong winds and waves, so it is more suitable for sailing in rivers, not in the ocean. Because of the estuary sedimentation, later, fishermen use it for fishing. A sampan boat is mainly painted in blue as shown in Figure 1. And, each ship will be painted with eyes whose direction is different. There are three directions in total as shown below. The eyes of fishing boats are usually painted as "looking forward", while that of merchant boats are painted as "looking up" or "looking forward".

(1) Looking "forward": represents to track the enemies and to make them feel threatened.
(2) Looking "up": represents to observe the weather and to sail safely.
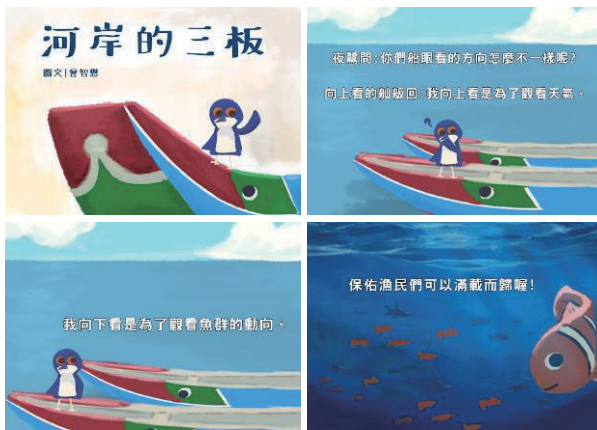(3) Looking "down": represents that the fish and shrimp are full and to pray for a bumper harvest.

Figure 2. Book of "Sampan on the River Bank"

Figure 4. Book of "Missing courage"

In order to present these characteristics of Sampan boats, we design a children's book, which is called "Sampan on the River Bank" (河岸的三板) shown in Figure 2. In it, there are four roles, which are three boats and a night heron. This book story mainly describes the meaning of different eye directions of Sampan boats in Tamsui. Children can understand the Tamsui culture when they read this book. In terms of natural ecology, in addition, we have observed that the barn swallows in Tamsui Shuiyuan elementary school return to their nests every spring and leave to fly south in the fall, as shown in Figure 3. Since 2008, that school has set up surveillance camera equipment, so that children can observe the processes of nesting, hatching, feeding and young birds leaning flying from a computer. It is quite full of life education. Therefore, we also design a picture book for the school, named "Missing courage" (遺失的勇氣), as shown in Figure 4. This book describes the process of swallow growth by the interaction of four young birds, so that children can care about the ecology of swallows. In addition, this book is also used on the class to encourage young students to try hard and not be afraid of difficulties.

Figure 3. Swallows in the elementary school

Storybook Practice

Media education in the digital age are necessary. In order to make the reading of the foregoing two books more interesting, we use computer technology to turn their form from paper-book into electronic-book. Here, we utilize the software of "Scratch". Scratch is a visual program environment that lets users create interactive and media-rich projects [7] including games, animated stories, music projects, and so on. During the process of project production, users can also learn computer programming without the knowledge of debug and syntax. It provides a user-friendly block command interface, hence an elementary school student can use it easily. A few months ago, we worked with several students from the sixth grade of Shuiyuan elementary school to complete the sound recording and animation of the e-book, shown in Figure 5.

Figure 5. Sound recording and animation of an e-book

Figure 6 is the picture of two e-books created using "Scratch" software, which we use object click to change the background and roles of e-books to achieve the purpose of turning pages. Finally, the finished products including physical books and e-books were presented in a two-day exhibition on November 17 and 18. The people who visited at that time came from Tamsui residents and tourists. Figure 7 shows the visitors reading the two picture books in the exhibition. Some parents read them with their children. These parents also gave feedback in the end, as follows.

Figure 6. Practice of our e-books

a. The books is novel and rich. It is suitable for the public reading.
b. After the introduction of the college students, I realized that the eyes of sampan boat have different meanings.
c. This exhibition is very good, and the college students are very attentive.
d. It's interesting and great!
e. Attentive and creative. Children like it.
f. Great technology.

Conclusions

In this paper, we design two children's picture books to introduce Tamsui culture and nature. One is to show the sampan boats on Tamsui river, and the other is to describe the ecology of barn swallows in the mountain. In order to make the learning of young students more interesting, we change the book form into an interactive and media-rich e-book by using a visual programming language. Our e-books integrate Tamsui humanities with computer technology to enable children engage in interactive learning while reading. At the same time, it also achieves the purpose of cultural immersion through media education.

Acknowledgment

Figure 7. Exhibition of picture books

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