

The Design of Picture Books for Children from Tales of Amphawa Fireflies

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Abstract—The research objective aims to search information about storytelling and fable associated with fireflies in Amphawa community, in order to design and create a story book which is appropriate for the interests of children in early childhood. This book should help building the development of learning about the natural environment, imagination, and creativity among children, which then, brings about the promotion of the development, conservation and dissemination of cultural values and uniqueness of the Amphawa community. The population used in this study were 30 students in early childhood aged between 6-8 years-old, grade 1-3 from the Demonstration School of Suan Sunandha Rajabhat University. The method used for this study was purposive sampling and the research conducted by the query and analysis of data from both the document and the narrative field tales and fable associated with the fireflies of Amphawa community. Then, using the results to synthesize and create a conceptual design in a form of 8 visual images which were later applied to 1 illustrated children's book and presented to the experts to evaluate and test this media.

Keywords—Children's illustrated book, Fireflies, Amphawa.

I. METHOD AND REASON

FIREFLIES, small nocturnal insects that produce light from the lower abdomen, are winged beetles. They are of the Lampyridae family of the beetle order Coleoptera. Light produced by fireflies is a chemical reaction called bioluminescence processing in light-emitting organs which are on the firefly's lower abdomen. The enzyme luciferase acts on the luciferin and oxygen to produce light [1].

About 2,000 species of fireflies are found in temperate and tropical environments but not in deserts. They can be found in Europe, Asia and America. The female fireflies are flightless, thus they are called glowworms. In the America, fireflies are called lightning bugs. In Thailand, there are about 100 species of fireflies found in deciduous forests and freshwater swamp forests, especially where there are cork trees. Provinces where cork trees are in a high density are Samut Sakorn, Petchaburi, Prachuab Kirikhan and Surat Thani. Four species of fireflies are found in abundance in the freshwater swamp forests in the Mea Klong River, Ampawa district, Samut Songkram. Those four species are *Luciola japonica* Thung, *Luciola cingulata* Oliver, *Luciola circumdata* Motsch and *Pteroptyx valida* Oliver [2].

Fireflies are called differently in different areas. For example, in Bangkok they are called Malang Thing-Thuang.

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In Ayudhya and Chainat, they are called MangKaRueng. In Supanburi, they are called Mang Sang. Moreover, these areas have their own stories about fireflies, according to their beliefs and wisdoms. These stories are often related to local philosophy, religions and morality [3].

Stories, folklores, local literatures and fables are cultural heritage that can well exhibit local identities. Children's literatures can be in different forms, such as novels, tales or literatures that are suitable for children. Children's literatures should be entertaining and giving knowledge other than textbooks. Tales in the form of picture books can help children, in their early childhood, learn about their own society and culture and help with their imagination and creativity and their learning development in areas such as nature and environments, and natural conservation [4].

Pictures, attracting children's interests, make children interested in books. Therefore, books containing suitable and beautifully designed pictures will attract even more interests from children. The picture on the front cover and pictures in the book should be of the same characteristic and if the story is also interesting, the book will make children want to read the story. Eventually, children will learn to love reading and develop it into a habit. Picture books can also help with learning history or local occurrences. Although children have not been taught those stories before, picture books can make children see what happened in the past and understand the stories. Thus, pictures make the story in the book more interesting to children [5].

Therefore, this research aims to develop suitable styles for picture books for children. The researcher explored and analyzed Ampawa's stories and fables about fireflies and then synthesized and designed a conceptual design on a suitable style of a picture book for children aged 6 – 8 years old to develop the ability to learn about nature and environments and natural conservation, and to be imaginative and creative. Thus, this research will help with cultural heritage preservation and natural conservation which will in turn help conserve the local identities.

II. OBJECTIVES

- 1) To explore Ampawa's stories, tales and fables about fireflies and then synthesize and design a picture book for children.
- 2) To design and produce a storybook suitable for children of early childhood to motivate them to learn about nature and to develop their imagination and creativity.

3) To promote Ampawa’s identities and cultural conservation and dissemination.

III. METHOD

A. Population of Study

30 students in early childhood aged between 6-8 years-old, grade 1-3 from the Demonstration School of Suansunandha Rajabhat University.

B. Research Tool

8 visual images which were later applied to 1 illustrated children’s book.



Fig. 3 Pictures in pages 2-3

“Tonight, lights from fireflies are blinking like meteors over the cork trees along the Ampawa canal. Two siblings, Pang and Poon, and their daddy are cruising along the canal to see the fireflies. The old man who is paddling the boat has lived here in Ampawa for a long time.”

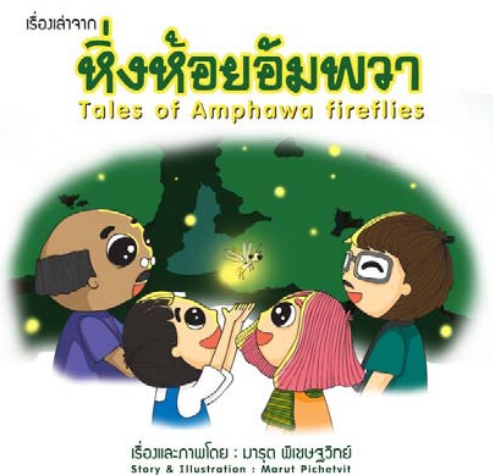


Fig 1 The front cover of the Ampawa Fireflies picture book



Fig. 4 Pictures in pages 4-5

“A little firefly comes close to Poon’s face blinking light. The boy catches it with his hand. Puzzling, he asks the old man, “Why is light coming out from this insect’s abdomen, Grandpa?”



Fig. 2 Inside cover

“Little fireflies emitting light at night inspired imagination which led to the story of Ampawa Fireflies.”



Fig. 5 Pictures in pages 6-7

“The old man smiles and starts telling them the story, “In Ampawa, there is a tale passed down from generation to generation. In the old days, a mangrove used its long twigs to bully local people. This mangrove also fell for a beautiful cork tree in Ampawa”.”



Fig. 6 Pictures in pages 8-9

“The cork tree did not love the mangrove and indifferently refused him. The mangrove got very angry so he grew his roots in an attempt to climb to sit on the lap of the cork tree. That is why mangroves have long roots coming out of their trunks to support them.” The old man says.”

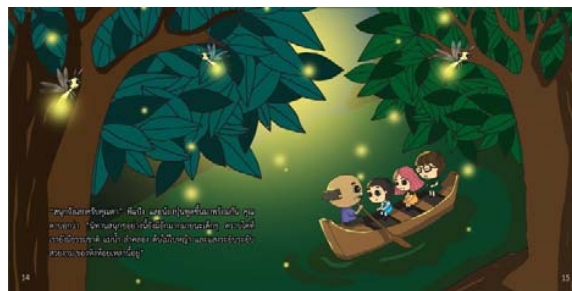


Fig. 9 Pictures in pages 14-15

“The story was fun, Grandpa. “Pang and Poon say simultaneously. The old man then says, “There are lots of fun stories like this one as long as we still have the nature – rivers, canals, trees and beautiful lights of these fireflies.”



Fig. 7 Pictures in pages 10-11

“The cork tree knew what the mangrove tried to do so she grew her roots into pointed sticks on the ground around her to prevent the mangrove to come to her. The mangrove could not come to the cork tree so he found a new way.”



Fig. 10 Pictures in pages 16-17

“It is a beautiful wonder that can endlessly inspire imagination for everyone. Therefore, we need to protect the nature so it can stay with us for a long time”, their daddy says. Pang and Poon smile. Then Poon opens his fit and lets the firefly fly back to his friends at the cork trees. The light from the firefly is blinking beautifully.”



Fig. 8 Pictures in pages 12-13

“The mangrove asked fireflies to fetch the cork tree for him. A lot of fireflies then flocked around the cork tree and tried very hard to pull her out but still they could not pull the cork tree out because they were very small. They pulled and pulled... until lights came out of their abdomens. And they still try until today.”



Fig. 11 Pages 18-19: Inspiration

“Grandma Tongchup Ninwong, 82 years old living at 24/11 Moo6 , Bang Chang sub-district, Ampawa district, Samut Songkranm, who told the story of fireflies in Ampawa.”

There are many versions of tales about fireflies. For example:

Tale1 : A male cork tree had a firefly lover. A female red mangrove fell for the cork tree. The cork tree had no interest in the red mangrove and wanted to leave with the firefly. So

the red mangrove extended her roots to catch the cork tree, thus, preventing the cork tree from leaving.

Tale 2: Firefly was a spirit of a man with a lantern looking for his lover, called “Lumphu” (cork tree), who drowned into the river. Therefore, fireflies always cling to cork trees because they believe that those trees are spirits of their lovers.

Tale 3: Phya Firefly fell for the daughter of Phya Lumphu (cork tree). So Phya Firefly brought his partisan fireflies over to ask for Phya Lumphu’s permission to marry his daughter. To impress Phya Lumphu, Phya Firefly decorated the cork tree with lights from the partisan fireflies



Fig. 12 Page 20: Specific Information

“Hinghoi: Fireflies’ adult males have wings. Some species of adult females have wings, some species do not and some have very short wings. Those adult females that are flightless look like worm. Fireflies can produce light in all three stages – larvae, pupa and adult. However, only eggs of some species can produce light.

Lamphu: Cork trees are shrub-like. Their trunk is quite round and their branches grow vertically. Their leaves are small, green, and single, with smooth trims and arranged in pairs opposite one another. Leaf stems are so pink that can be spotted from afar. Their flowers are single flowers coming out at the top of the stems. Cork trees have pointed cone shaped roots coming out from the ground around them. These roots enable cork trees to breath so they can stand floods for a long time.

Kongkang: Mangroves are big trees of the height of 22-35 meters. They have a taproot with aerial roots coming out of their trunks, 3–8 meters above ground. Aerial roots grow disorderly and nearly orthogonally with the trunk and then bend orthogonally again to the ground to support the trunk. The top of the tree has the up-side down narrow cone shape.”



Fig. 13 The Back Cover

C. Questionnaire

The researcher used a questionnaire, consisting of two parts, to survey opinions of the sample students who read the manuscript of the Ampawa Fireflies picture book. The first part was to survey students’ understanding of the story. The second part was to survey students’ satisfaction to the design. The rating scales were divided into five levels; most, above average, average, less and least. The data were then analyzed by using the Descriptive Statistics method. The percentage, means, and standard deviations were analyzed by using a statistical package. To interpret the data, the criteria were determined by the average means as follows: [6].

IV. RESULTS

The 30 sample students, after reading the Ampawa Fireflies picture book, answered the questionnaires and the result can then be shown in the following tables as below;

TABLE I
PERCENTAGES OF STUDENTS HAVING UNDERSTOOD THE STORY (N=30)

Figure Number	Understanding The Story (No. of Students/Percentage)				
	Most	Above Average	Average	Less	Least
1. Front Cover	7	9	8	6	
2. Inside Cover	(23.33)	(30)	(26.67)	(20)	
3. Story Pages 2-3		10	17		3
4. Story Pages 4-5		(33.33)	(56.67)		(10)
5. Story Pages 6-7	4	6	11	9	
6. Story Pages 8-9	(13.33)	(20)	(36.67)	(30)	
7. Story Pages 10-11		10	13	5	2
8. Story Pages 12-13		(33.33)	(43.33)	(16.67)	(6.67)
9. Story Pages 14-15		5	15	7	3
10. Story Pages 16-17		(16.67)	(50)	(23.33)	(10)
11. Inspiration Page		8	13	9	
12. Specific Information Page		(26.67)	(43.33)	(30)	
13. Back Cover		8	12	9	1
		(26.67)	(40)	(30)	(3.33)

From Table I, it was found that the sample population, 30 students studying in grades 1–3, understood the story as follows:

Figs. 1 and 2: 9 students or 30 percent of the sample students understood "Above average". 8 students or 26.67 percent of the sample students "Average" understood. 7 students or 23.33 percent understood "Most". 6 students or 20 percent understood "Less". And lastly, no students understood "Least".

Figs. 3 and 4: 17 students or 56.67 percent "Average" understood. 10 students or 33.33 percent understood "Above average". 3 students or 10 percent understood "Least". No students answered "Most" or "Less".

Figs. 5 and 6: 11 students or 36.67 percent "Average" understood. 9 students or 30 percent understood "Less". 6 students or 20 percent understood "Above average". 4 students or 13.33 percent understood "Most". And no students answered "Least".

Figs. 7 and 8: 13 students or 43.33 percent "Average" understood. 10 students or 33.33 percent understood "Above average". 5 students or 16.67 percent understood "Less". And 2 students or 6.67 percent understood "Least".

Figs. 9 and 10: 15 students or 50 percent "Average" understood. 7 students or 23.33 percent understood "Less". 5 students or 16.67 percent understood "Above average". 3 students or 10 percent understood "Least". No students answered "Most".

Figs. 11 and 12: 13 students or 43.33 percent "Average" understood. 9 students or 30 percent understood "Less". 8 students or 26.67 percent understood "Above average". No students answered "Most" nor "Least".

Fig. 13 Back cover: 12 students or 40 percent "Average" understood. 9 students or 30 percent understood "Less". 8 students or 26.67 percent understood "Above average". And 1 student or 3.33 percent understood "Least".

TABLE II
MEANS OF STUDENTS HAVING UNDERSTOOD THE STORY.(30=N)

Figure Number	Mean \bar{X}	Standard Deviation, S.D	Level Of Understanding
1. Front Cover	3.57	1.07	Above Average
2. Inside Cover			
3. Story Pages 2-3	3.13	0.86	Average
4. Story Pages 4-5			
5. Story Pages 6-7	3.17	1.02	Average
6. Story Pages 8-9			
7. Story Pages 10-11	3.03	0.89	Average
8. Story Pages 12-13			
9. Story Pages 14-15	2.73	0.87	Average
10. Story Pages 16-17			
11. Inspiration Page	2.97	0.76	Average
12. Specific Information Page			
13. Back Cover	2.90	0.84	Average
Mean	3.07	0.90	Average

From Table II, it was found that the average of the means was 3.07, the average of the standard deviations was 0.90 and the level of understanding was average. The details are as follows;

Figs. 1 and 2, the front cover and the inside cover pictures: the mean was 3.57. The standard deviation (D.S.) was 1.07. The level of understanding was "Above average".

Figs. 3 and 4, the pictures in pages 2-3 and 4-5: the mean was 3.13. The S.D. was 0.86. The level of understanding was "Average".

Figs. 5 and 6, the pictures in pages 6-7 and 8-9: the mean was 3.17. The S.D. was 1.02. The level of understanding was "Average".

Figs. 7 and 8, the pictures in pages 10-11 and 12-13: the mean was 3.03. The S.D. was 0.89. The level of understanding was "Average".

Figs. 9 and 10, the pictures in pages 14-15 and 16-17: the mean was 2.73. The S.D. was 0.87. The level of understanding was "Average".

Figs. 11 and 12, the pictures in the inspiration and the specific information pages: The mean was 2.97. The S.D. was 0.76. The level of understanding was "Average".

Fig. 13, the picture on the back cover: the mean was 2.90. The S.D. was 0.84. The level of understanding was "Average".

TABLE III
PERCENTAGE OF STUDENTS HAVING BEEN SATISFIED WITH THE DESIGN (30=N)

No. of Students	Satisfaction With The Design (No. of Students/Percentage)				
	Most (Percentage)	Above Average (Percentage)	Average (Percentage)	Less (Percentage)	Least (Percentage)
30	24 (80)	6 (20)			

From Table III, it was found that 24 students or 80 percent of the sample population, 30 students studying in grades 1-3, were most satisfied with the design. The other 6 students or 20 percent were very satisfied with the design.

TABLE IV
THE MEANS OF STUDENTS HAVING BEEN SATISFIED WITH THE DESIGN (30=N)

No. Of Students	Mean \bar{X}	Standard Deviation S.D	Level Of Satisfaction
30	4.80	0.41	Most

From Table IV, it was found that the average of the means of satisfaction to the design was 4.80, the average of the standard deviations was 0.41 and the level of satisfaction was most satisfied with the design.

V. CONCLUSION

From the researcher's observation, it was found that the sample students were interested and satisfied with the picture book. They asked questions and expressed their opinions to

the picture book. They could also relate to newly received knowledge and understanding. The conclusion is as follows;

1. For the understanding part, the average mean was 3.07. The average of the standard deviations was 0.90 and the level of understanding was average.
2. For the satisfaction to the design part, the average mean was 4.80. The average of the standard deviations was 0.41 and the level of satisfaction was most.

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