

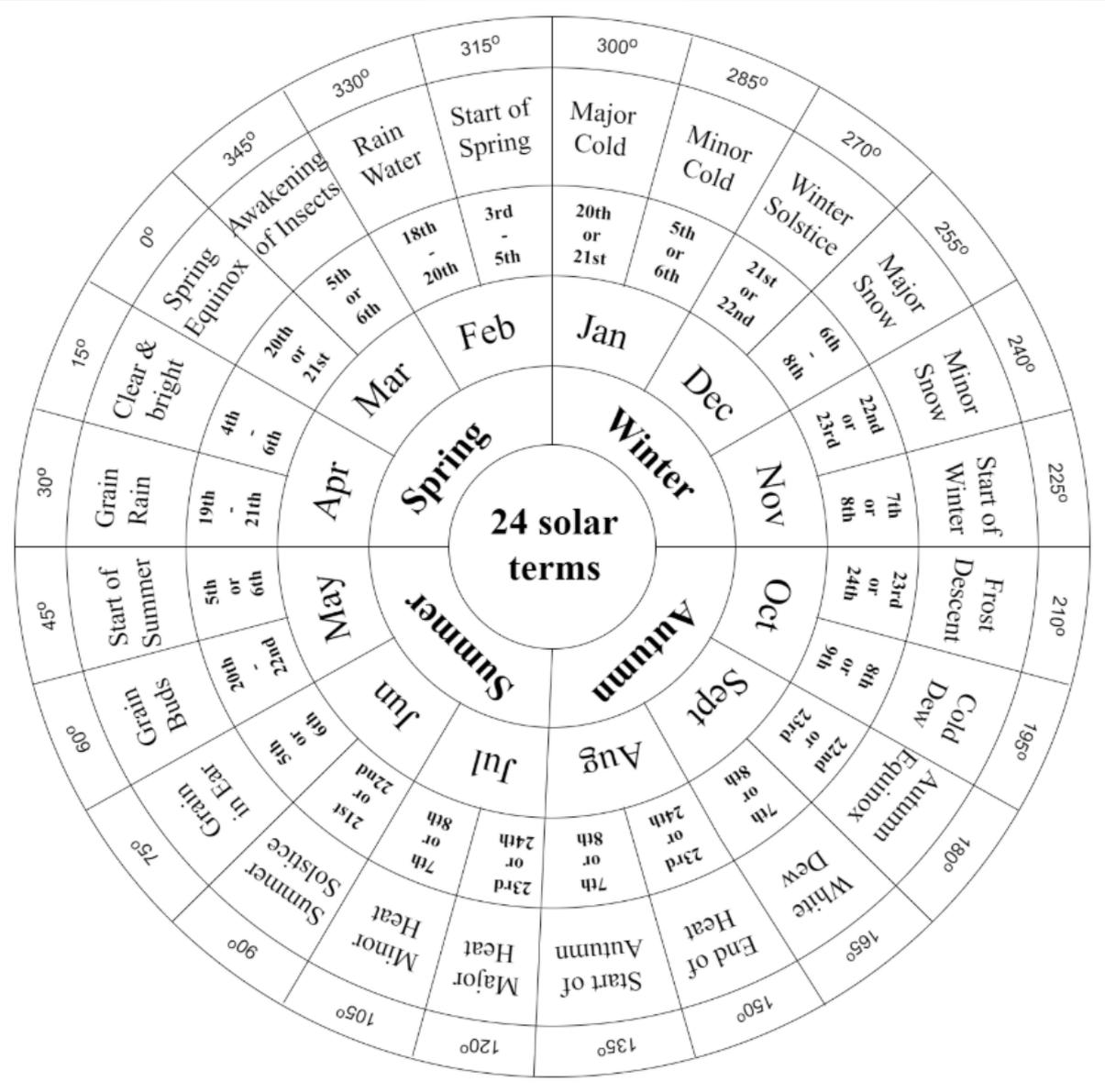
Cross-cultural Learning in Science through the Nature Notes Reciprocal Learning Program



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Canada



University
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The Nature Notes Project

- ▶ Students went out to the nature. They observed, studied, and recorded the nature in a poster format
 - ▶ Integration of text and drawing
 - ▶ Share works through video conferencing between sister schools
- 



The Nature Notes Project

- This project is a part of the reciprocal learning program between Canadian and Chinese teacher education and school education funded by the Social Sciences and Humanities Research Council (SSHRC).
 - It is not designed to compare students' academic achievements, but to explore the impact on teachers and students who participated in this unique exchange program.
- 



Project Participants

- ▶ Chinese school: a middle school affiliated with a key university in Chongqing, China
 - ▶ Canadian school: a public elementary school located in a low socioeconomic community with students coming from diverse ethnic backgrounds.
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Research Questions

- What impact does the nature notes project bring to teachers and students in the Chinese-Canadian sister schools, and what did they learn from each other?
- Were there any challenges that both sides encountered and how did they handle those challenges?



Theoretical Perspective

- Traditionally, comparative and international education mainly focuses on one-way knowledge transfer (Cowen, 2006). Our project moves from static approaches to dynamic approaches which address the mutual learning experiences in the context of interactions (Lewis, Sellar, & Lingard, 2016).
- With a guide from the concept of reciprocal learning, our project contains two key elements: cross-cultural collaboration and mutual learning (Zhou, et al 2019).



Theoretical Frameworks

- Project-based learning
 - Informal learning
 - Community-based learning
 - Education in environment
- 



Research Design

- This is a participatory qualitative research, and the researchers were among the key members who designed, coordinated and implemented the project.
- Participants included grade 7 and 8 students and three teachers from a Canadian elementary school, and grade 7 to 11 students and science teachers from a Chinese secondary school.



Data Collection

- ▶ The project lasted for three school years.
- ▶ Many kinds of data were accumulated, including
 - ▶ documentary data (meeting notes, student works, and teacher notes)
 - ▶ interview data with teachers and students.
- ▶ The Miles and Huberman's (1994) inductive approach was adopted to analyse the qualitative data. It included three concurrent flows of action: data reduction, data display, and drawing and verifying conclusion.

Chinese Student Work

黑眶蟾蜍“新发现”

——重庆市渝北区物种新纪录

Discover (发现)

① 时间: 2017.7.10 晚 20:00-21:00
 ② 地点: 柏溪湿地公园-沿路旁的水沟上
 ③ 发现过程:
 那天傍晚, 我和爸爸去柏溪湿地公园散步, 在路过沿路旁的水沟时, 爸爸突然发现了一只“黑眶蟾蜍”, 我和爸爸赶紧过去, 仔细观察, 但爸爸好像不认识它, 它也不叫。爸爸说: “宝贝, 你快去看看, 它是我见过的最大的, 你快去看看它是什么?”
 请问这个黑眶蟾蜍是什么???



Discover (发现)

① 时间: 2017.7.3
 ② 地点: 渝北区工业园广德科技园
 ③ 事件:
 I: 今天爸爸带我去科技园玩, 我们走到科技园的广德科技园, 爸爸突然发现了一只黑眶蟾蜍, 我和爸爸赶紧过去, 仔细观察, 但爸爸好像不认识它, 它也不叫。爸爸说: “宝贝, 你快去看看, 它是我见过的最大的, 你快去看看它是什么?”
 II: 上午爸爸带我去科技园玩, 我们走到科技园的广德科技园, 爸爸突然发现了一只黑眶蟾蜍, 我和爸爸赶紧过去, 仔细观察, 但爸爸好像不认识它, 它也不叫。爸爸说: “宝贝, 你快去看看, 它是我见过的最大的, 你快去看看它是什么?”
 III: 昨天晚上, 我和爸爸去科技园玩, 我们走到科技园的广德科技园, 爸爸突然发现了一只黑眶蟾蜍, 我和爸爸赶紧过去, 仔细观察, 但爸爸好像不认识它, 它也不叫。爸爸说: “宝贝, 你快去看看, 它是我见过的最大的, 你快去看看它是什么?”

Observed (观察)

① 时间: 2017.7.11
 ② 地点: 柏溪湿地公园
 ③ 事件:
 I: 早上我和爸爸去柏溪湿地公园散步, 爸爸突然发现了一只黑眶蟾蜍, 我和爸爸赶紧过去, 仔细观察, 但爸爸好像不认识它, 它也不叫。爸爸说: “宝贝, 你快去看看, 它是我见过的最大的, 你快去看看它是什么?”
 II: 上午爸爸带我去科技园玩, 我们走到科技园的广德科技园, 爸爸突然发现了一只黑眶蟾蜍, 我和爸爸赶紧过去, 仔细观察, 但爸爸好像不认识它, 它也不叫。爸爸说: “宝贝, 你快去看看, 它是我见过的最大的, 你快去看看它是什么?”

Sampling (采样)

地点: 渝北区工业园广德科技园
 时间: 2017.7.10
 地点: 2017.7.10
 地点: 2017.7.10
 地点: 2017.7.10

日期	地点	数量	性别	体色
2017.7.10	柏溪湿地公园	1	雌	黄色
2017.7.11	柏溪湿地公园	1	雌	黄色
2017.7.12	柏溪湿地公园	1	雌	黄色
2017.7.13	柏溪湿地公园	1	雌	黄色
2017.7.14	柏溪湿地公园	1	雌	黄色
2017.7.15	柏溪湿地公园	1	雌	黄色
2017.7.16	柏溪湿地公园	1	雌	黄色
2017.7.17	柏溪湿地公园	1	雌	黄色
2017.7.18	柏溪湿地公园	1	雌	黄色
2017.7.19	柏溪湿地公园	1	雌	黄色
2017.7.20	柏溪湿地公园	1	雌	黄色

Balance (平衡)

① 时间: 2017.7.2
 ② 地点: 柏溪湿地公园
 ③ 事件:
 I: 今天爸爸带我去科技园玩, 我们走到科技园的广德科技园, 爸爸突然发现了一只黑眶蟾蜍, 我和爸爸赶紧过去, 仔细观察, 但爸爸好像不认识它, 它也不叫。爸爸说: “宝贝, 你快去看看, 它是我见过的最大的, 你快去看看它是什么?”
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 III: 昨天晚上, 我和爸爸去科技园玩, 我们走到科技园的广德科技园, 爸爸突然发现了一只黑眶蟾蜍, 我和爸爸赶紧过去, 仔细观察, 但爸爸好像不认识它, 它也不叫。爸爸说: “宝贝, 你快去看看, 它是我见过的最大的, 你快去看看它是什么?”

Chinese Student Work

西大附中
初一(1)班
王施伊
指导教师 陶永辉

不离不弃

时间: 2016年7月10日, 地点: 家里

这是, 我又哭又闹

让妈妈给我买的一对小鹦鹉。



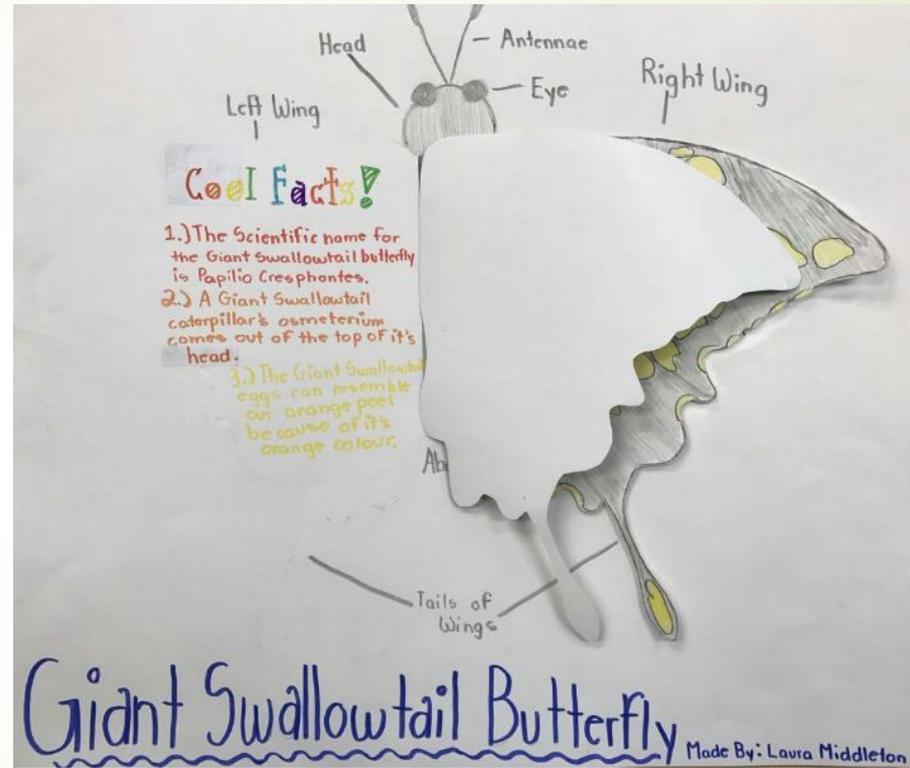
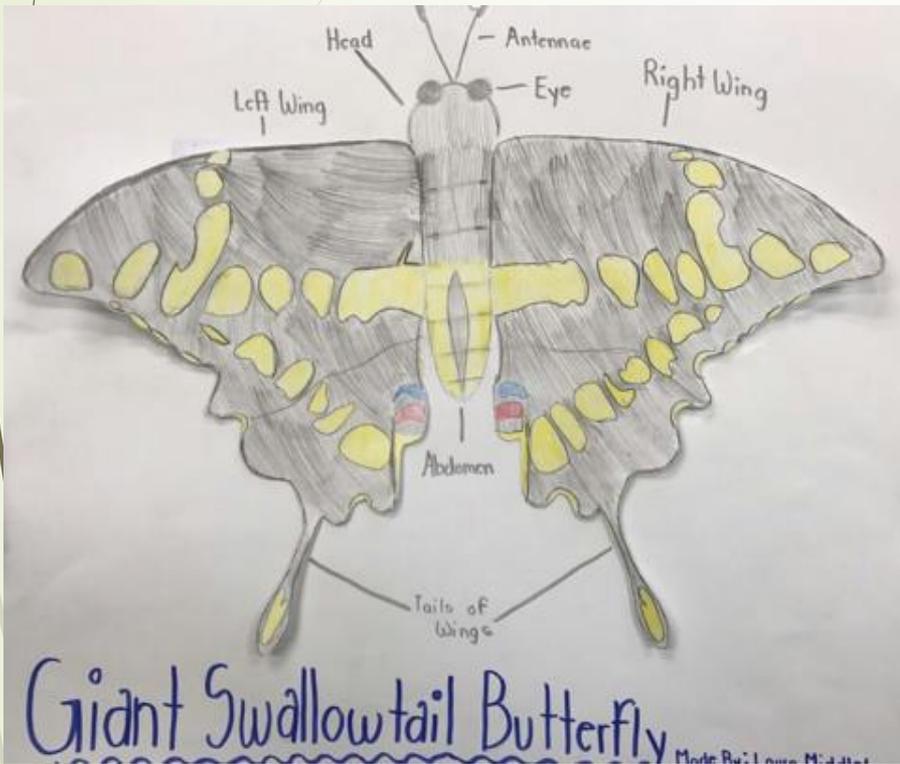
今天, 我放学回家, 看见了令我震惊的一幕: 笼子里, 只剩下一只鹦鹉在用嘴啄着放食物的小门, 可笨拙的它, 无论怎么啄, 也没能顶开小门。而, 另外一只鹦鹉, 显然, 已经从小门逃出笼子了, 但它没有走, 它立在笼子旁边的栏杆上, 没有飞向身后的蓝天, 而是一直望着笼子里的鹦鹉, 那么专注, 那么深情。

鹦鹉的不离不弃深深地打动了, 我打开了笼子, 放出了另外一只鹦鹉。它们迅速地展翅高飞, 飞向了自由。透过窗子, 它们俩越飞越远, 但始终紧随着彼此, 不离不弃。



它们, 让我想到了人们。虽然, 人们也组建了家庭, 相依相随。丈夫对妻子不离不弃, 父母对子女不离不弃。但人们, 也会因为各种诱惑而背叛, 抛弃。我的那对小鹦鹉, 它们没有, 它们放弃了自由和生命, 唯一保留着对彼此的忠诚。其实, 你用心去发现, 去感受, 大自然的万物, 皆有情感, 而且往往比世界的主宰——人类, 还要丰富, 还要动人。我相信, 我的那对小鹦鹉, 现在正在世界的某处幸福的生活, 风雨无阻, 不离不弃。

Canadian Student Work



Canadian Student Work



Canadian Student Work



Canadian Student Work



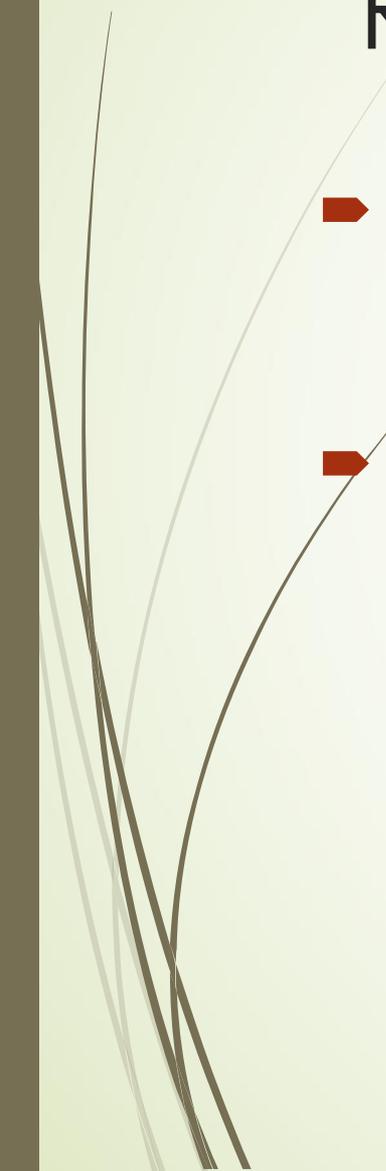


Student Work Differences between Two Schools

- Chinese student works have a universal format due to teachers' requirement
 - Canadian students demonstrated more freedom in their project: 3D posters, models, booklet, etc
 - Chinese student works often included a life lesson from the nature, which inspired Canadian teachers
- 



Results and Discussion

- ▶ Positive experiences: Teachers and students from the two sister schools highly valued the project.
 - ▶ Teachers and students experienced the cultural differences and increase understanding of each other
- 



Results and Discussion

- ▶ Students develop stronger sense of environment and environmental protection
- ▶ Students were motivated to learn about the nature and connect themselves with the nature.
- ▶ Teachers appreciated the different ways of conducting the projects in different educational context.
- ▶ The Chinese students and teachers learned the Canadian ways of presenting their work



Challenges



- Time difference between two countries
- Weather difference
- Family resources
- Curriculum contexts



INTERCULTURAL RECIPROCAL LEARNING IN
CHINESE AND WESTERN EDUCATION

Science Education and International Cross-Cultural Reciprocal Learning

Perspectives from the
Nature Notes Program

Edited by
George Zhou · Yuanrong Li · Jian Luo



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