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## Environmental Literacy:

### Raising Awareness through Chinese Primary Education Textbooks

Running head: Environmental Literacy  
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#### Abstract:

This article examines environmental literacy topics in Chinese language textbooks used in elementary school education nationwide in China. Published by People's Education Press, the textbooks serve as the core teaching material for literacy education of primary school children. Informed by language socialisation and literacy studies, this paper examines what texts and topics are included in textbooks that introduce child-readers to environmental literacy, how child readers are positioned as (ir)responsible environmental actors and what text-types and features are used to socialise children to become environmentally conscious individuals. To understand the ideological constructs of environmental literacy, *intertextuality* is employed to analyse how meaning is derived by revealing the interconnectedness of text production with the broader socio-political issues. Through content analysis, the article examines particularly how text features such as texttypes, lexical choices, grammatical elements and generic structures are used in the textbooks to reflect environmental issues and develop children's awareness. The ideological orientations serve as a framework for socialising children into environmentally conscious individuals. The article enhances our understanding of the role textbooks play in literacy education, as they not only provide materials for literacy learning and teaching, but also entail a socialisation process that shapes individuals' environmental perception of the world.

**Keywords:** environmental literacy, consumer behaviour, deforestation, environmental awareness, intertextuality, literacy education

**Words:** 8461

#### Introduction

Millions of people demonstrated across the world on Friday the 20<sup>th</sup> September 2019, demanding urgent action to tackle global warming, air pollution, toxic and plastic waste and

other environmental problems (Lewis, 2019). This collective event shows a strong awareness of the significant impact the environmental crisis has on human health and on all kinds of life on earth. China, as one of the world's most polluting countries (UNHCR, 2017), is facing a tremendous challenge, fighting against environmental problems. Although the government has set up various regulations and strong enforcement to tackle environmental issues, little is known about what measures have been taken in schools for environmental literacy education and how teaching materials have been used for raising awareness.

This paper examines environmental literacy elements in language and literacy textbooks for primary education in China. Over the past decades, Chinese textbooks for primary literacy education have focused on ideological doctrines, such as national identity, patriotism, respect for authority and conformity (Curdt-Christiansen, 2008; 2017; Liu, 2005), but little attention has been paid to environmental concerns despite the severe threats we have encountered. Although education has been recognised as one of the most powerful tools for imparting environmental knowledge and influencing people's attitudes towards participating in environmental conservation and protection (Clayton et al., 2019; Ehrlich & Ehrlich, 2013; Krasny et al., 2015), how textbooks serve as resources regarding environmental issues for children to be engaged in literacy education needs critical investigation. It is particularly important to examine what texts and topics are included in textbooks that introduce child-readers to environmental literacy.

In this paper, I adopt the definition of environmental literacy used by the North American Association for Environmental Education (NAAEE). It defines environmental literacy as comprising various components, including competencies, knowledge, dispositions, skills, and environmentally responsible behaviour (Hollweg et al., 2011). In other words, environmental literacy includes knowledge about environment and ecology,

ethics and positions on environmental issues, cognitive skills for analysing environmental problems and behavioural patterns protecting the environment (Simmons, 1998; Negev et al., 2008). The analysis of environmental literacy elements/contents has important implications because texts not only provide resources for literacy education, they also serve as instrumental frameworks for child readers to construct various forms of social meaning (Curdt-Christiansen, 2017; Risager, 2018) which can help them to become environmentally responsible individuals.

### **Literacy Education, Environmental Literacy and Textbook Analysis in China**

In China, compulsory education (nine years) begins with primary Grade One. Chinese children spend the first three years learning to read and write. As Chinese script is a logographic one which does not have grapho-phonetic correspondence like alphabetical languages, the initial literacy education relies heavily on teaching and teaching materials (Lueng & Ruan, 2012; Taylor & Taylor, 1995). Literacy skills are typically taught using a series of graded textbooks. The contents of the textbooks not only contain progressing linguistic units, but also sociocultural knowledge and ideological beliefs. These knowledge and ideologies, in turn, shape the learners' worldview and socialise them into socioculturally acceptable and politically (ir)responsible individuals (Apple, 2004; Curdt-Christiansen, 2017; Duff, 2015).

In education, textbooks have been considered the cornerstone for literacy education, socialisation and knowledge construction throughout the history of literate culture (Duff, 2015; Luke, 2018). Even in the current globalised digital era, textbooks still serve as important teaching and learning resources in many parts of the world. The contents of textbooks are particularly important because they are the products of political decisions,

educational beliefs and priorities, and sociocultural realities. As they always undergo a selective process, they “constitute a form of social, ideological and intellectual *control* as well as a source of potential *opportunities* for personal enrichment, development and imagination” (Duff, 2015, p. xii). Becoming an educated individual, thus, entails a process of socialisation and “ideological becoming” (Bakhtin, 1981), where individuals use the ‘selective’ texts as framework to develop and construct their worldview. The process of ideological becoming or ideological engagement does, however, also require individuals to take a critical stance to understand how they are positioned, how knowledge is selected and what particular curriculum agenda is represented (Curdt-Christiansen & Weninger, 2015; Canale, 2016; Gray, 2010; Risager, 2018).

In recent years, research into textbook analysis have paid particular attention to sociocultural and subject knowledge embedded in textbooks across different disciplines, such as mathematics (O’keeffe & O’Donoghue, 2015), history (Shin & Sneider, 2012), social studies (Roberts, 2014; Terra & Bromley, 2012), science (Khine, 2013) and language studies (Canale, 2016; Curdt-Christiansen, 2008; 2015; 2017; Liu, 2005; Risager, 2018). These studies have focused on various ideological elements in textbooks including gender, war, humanity, racism and nationalism. With regard to Chinese textbook analysis, researchers have found a strong and explicit relationship between ideology and education (Curdt-Christiansen, 2008; 2017; Liu, 2005; Qiao, 2015). Ideological teaching in primary education through literacy textbooks is a common practice and often reflects the contemporary sociocultural and political agenda of the Chinese government. Liu (2005), for example, studied a set of Chinese language arts textbooks used for primary school children nationwide in China in the 1990s and early 2000s. He focused particularly on the discursive construction of cultural knowledge in these texts. By analysing narrative structures, story grammar and textual

devices in the textbooks, he pointed out that “the selective versions of cultural values and beliefs are constructed in a manner congruent with the interest of the government and its cultural elite” (Liu, 2005, p. 29) emphasising the value of patriotism and compliance and omitting readings that might encourage children’s curiosity. Curdt-Christiansen (2008) studied a set of textbooks used for literacy education of primary school children in a Chinese heritage language school in Montreal, Quebec. Her analysis revealed similar sociocultural elements as in textbooks used in China. Concepts such as obedience, diligence, respect for authorities and elders, modesty, perseverance, and filial piety were found in stories, fairy tales, fables and other text genres in the textbooks.

While these studies highlighted the critical elements shaping our ideological perspectives on social, cultural, scientific and political issues, studies on environmental issues embedded in textbooks are scarce. Most studies on environment education focus on students’ awareness, behaviour and the different dimensions of environmental knowledge of students (e.g., Bissinger & Bogner, 2018; Clayton et al., 2019; Negev et al., 2008).

Awareness includes sense of responsibility, sensitivity to environmental issues and affection for nature. Behaviour refers to the students’ consumption patterns, individual conservation and environmental activism. Knowledge is the most fundamental element in environmental protection as it provides students with the theoretical underpinnings for understanding environmental issues (Negev et al., 2008). While the focus on these issues in education curricula can develop in-depth understanding of environmental systems among students, many centred on higher education or secondary education in science education.

Arnon, Orion and Carmi (2015), for example, studied 1147 college students in one of the public Israeli college across all departments in their different phases of studies regarding their environmental knowledge, environmental values and attitudes and pro-environmental

behaviour. They found that the general level of environmental values and attitudes was high, but the level of environmental knowledge was low. They suggested that environmental education needed to be translated into effective contents (what) and practices (how) on teaching and learning environmental literacy.

Clayton et al. (2019) examined environmental literacy and nature experience of 1433 children and adults in Chengdu, China. Using a survey, they found that while younger children were very positive about nature and the need to protect nature, their knowledge about environment protection was moderate. They concluded that knowledge about environment and nature increased with age, while environmental concerns decreased. The study suggests that environmental knowledge was not linked to environmental concern or behaviour because education does not sufficiently stress the implications of environmental issues. Similar studies have been conducted among school children across different parts of the world, such as Israel (Negev et al., 2008), Korea (Chu et al., 2007), Hong Kong (Cheng & So, 2015), Turkey (Erdogan & OK, 2011) and the US (McBeth & Volk, 2009).

While these studies illustrate the importance of implementing environmental education in formal school curricula, it is critical that environmental education is integrated into literacy education when children begin schooling. Most importantly, environmental knowledge should be embedded in literacy textbooks as literacy education is the fundamental stage of formal education. In this regard, becoming literate is not only about acquiring reading and writing skills, but also about learning to read and write with a critical stance to have responsibility for social, political and environmental issues in our society (Weninger & Kiss, 2013). The global environmental crisis calls for urgent action to develop an awareness of ecology and instil in children awareness and knowledge during initial

literacy education. Textbooks, by their very nature, contain not only subject knowledge but also sociocultural values and ideology which influence personal behaviours on environmental protection. This paper, thus, addresses the following questions:

1. What types of environmental literacy (environmental topics) are included/excluded in the textbooks?
2. What texttypes and features are used to socialise children to become environmentally conscious individuals?
3. How are these child readers positioned as environmentally (ir)responsible individuals?

## **Methodology**

*义务教育课程标准实验教科书 Standard Primary Language Arts Textbooks for Compulsory Education*

In China, the primary school is divided into lower primary (grades 1-3) and upper primary (grades 4-6). On lower primary level, five subjects are taught: moral, language arts, maths, physical education and arts. Among these subjects, language arts or Chinese (小学语文) is the core subject throughout the six-year basic education. In 2015, the *Curriculum*

*Guidelines* state:

小学语文是义务教育阶段一门基础学科，对于培养学生的思想道德品质、科学文化素养，对于学生学习其他学科和继续学习，对于弘扬祖国的优秀文化和吸收人类的进步文化，提高民族素质，都具有重要意义。

Primary Language Arts is a foundational core subject in compulsory education. It has vital importance for developing children's moral and ethical principles, as well as scientific and cultural knowledge. It is the building block for the study of other school subjects and academic continuation. It provides the children with important tools for promoting and transmitting Chinese culture, acquiring human knowledge, and strengthening the national character. (MOE, 2015)

In this curriculum policy, Chinese language arts is established as the most important core subject in basic education. The government emphasises the link between literacy education



and character building. This link points explicitly to an inherent relationship between basic literacy education and enculturation (Curdt-Christiansen, 2017). As such, textbooks should expose student readers to culturally and ideologically embedded content knowledge that prepares them to become competent members of society and patriotic citizens of the Chinese nation. While the curriculum policy emphasises the importance of developing moral and ethical principles, what texts and contents should be included to reflect these values needs further scrutiny.

The *Standard Primary Language Arts Textbooks for Compulsory Education* consists of 12 textbooks for pupils from grade one (7 years old), with one book each term (a-first semester; b-second semester), through grade six (12 years old). Published by People's Education Press, which used to be the only MOE publishing house in China for school textbooks, they are developed by *Centre for Primary Language Arts Material Development*. On the last page of each book, the publisher states that the series is based on the *National Curriculum Guidelines*, has been tested in several provinces and is approved by the National Teaching Materials Development Committee.

The book series has a structural syllabus and is thematically based. The structural focus of the first three sets highlight *word recognition*. The contents are organised by eight units of *word recognition*. In the remaining textbooks, contents in each book are organised in eight units, each unit has 4-5 texts followed by 3-4 exercise activities. These are: oral practices, read and write practices and extra readings.

For this paper, I focus on the first six books for lower primary grades (1-3), partly because most of the environmental literacy texts are included in these textbooks, partly because texts on upper primary levels are lengthy and devoted to socio-historical-political contents. As indicated in the curriculum guidelines, the objectives of literacy education are

to “[instil in pupil] patriotism, socialist ideological beliefs, and scientific and objective worldviews”, most texts are dedicated to these ideological doctrines. Although a scientific worldview is included in the objectives, texts containing environmental elements are not included in all textbooks across the grades. Table 1 shows the amount of the texts that contains environmental literacy.

**Table 1: Themes and Texts**

| *Theme<br>Texts n    | patriotism | conformity/respect<br>for authority | filial<br>piety | ENVIRONMENT |                                      | scientific<br>knowledge | others |
|----------------------|------------|-------------------------------------|-----------------|-------------|--------------------------------------|-------------------------|--------|
|                      |            |                                     |                 | NUMBER      | TOPIC                                |                         |        |
| 1a -14               | 7          | 6                                   | 4               | 2           | Love of nature,<br>general knowledge | 0                       | 1      |
| 1b -25               | 9          | 5                                   | 4               | 4           | Behaviour                            | 2                       | 0      |
| 2a -25               | 9          | 4                                   | 5               | 4           | Behaviour: love of<br>animals        | 1                       | 1      |
| 2b -32               | 8          | 4                                   | 4               | 2           | Love of nature                       | 2                       | 1      |
| 3a -32               | 9          | 5                                   | 5               | 2           | Love of nature,<br>general knowledge | 2                       | 2      |
| 3b -32               | 8          | 4                                   | 4               | 4           | Behaviour                            | 3                       | 1      |
| <b>Total<br/>160</b> |            |                                     |                 | 18          |                                      |                         |        |

\***Theme:** these thematic topics can be overlapping; **1a:** grade 1, textbook a; **1b:** grade 1, textbook b

As shown in Table 1, there are a total of 160 texts of different lengths. These texts can be thematically grouped as: patriotism, conformity, filial piety, environment, scientific knowledge and others. As this article focuses on environmental literacy, only texts related to environmental issues will be discussed and analysed.

### *Data coding and analysis*

Data coding and analysis is guided by the framework of *intertextuality* (Lemke, 1992; Curdt-Christiansen & Sun, 2016) which refers to the relationality and interconnectedness of texts with broader sociocultural and sociopolitical contexts. While the intertextual relations emphasise the nature of texts as multi-voiced and containing textual features of other texts, I focus in this article on three levels of relations, 1) thematic, 2) orientational, and 3)

organisational relations. The thematic relations examine the topics emerged from the texts. Orientational relations look at the ideological orientations, such as love for nature, personal consumption or willingness to act. Organisational relations examine the text structures, such as story grammar, cause and effect construction, as well as patterns of language use in linguistic structures, such as semantic functions, lexical choices between and within texts.

Following an inductive approach, the coding of the texts is guided by topics related to environmental issues. All texts containing environmental elements are carefully studied and further categorised, based on the definitions of environmental literacy, which include: knowledge (ecological principles), attitudes (ethics, sense of responsibility, affection), behaviour patterns (consumption, conservation) and cognitive skills (analytical ability to solve problems).

In what follows, I present the findings and the analysis of the texts based on the three levels of intertextual relations. I first present those thematic topics that are included in the textbooks to understand the selective purposes and concerns. Following that, I discuss the ideological underpinnings of these thematic topics through representative texts. Linking the texts to the sociocultural development over the past decades, I contextualise the discursive construction of environmental issues in China through orientational intertextual relations. The third step is to look at the organisational relations, where I examine how textual structures, semantic features, lexical choices, and linguistic forms are used in the texts to present environmental issues to student-readers. In analysing the organisational intertextual relations, I apply, in particular, story grammar to unveil the causal relations between consumer behaviour and environmental damage. Story grammar is a cognitive literacy learning framework for primary school children to process reading comprehension

(Curdt-Christiansen, 2008; 2020). The framework has a predictable organisational structure that contains elements of story-telling, including characters, setting, conflict/problem, resolutions and synopsis. Based on children's experiences with stories, fictions and real experiences, the structure serves as a strategy which facilitates children's reading comprehension. Putting the three levels of analysis together, the intertextual relations of thematic, orientational and organisational analysis can enhance our understanding of how environmental problems are introduced to child-readers and how child-readers are positioned to deal with these problems.

## **Findings**

There are 18 out of 160 texts in the three sets of language arts textbooks that are identified with environmental related topics. While there is a thematic unit with four texts that are dedicated to environmental topics in 1b, 2a and 3b, there is in the rest of the textbooks no clear thematic units that specially focus on environmental topics. The topics identified in 1a, 2b and 3a are embedded in other thematic units, such as patriotism, conformity and respect for authority. Although these texts cover different aspects of environmental literacy as indicated in table 1, they tend to focus on behaviour patterns and the concept of love for nature. Based on the definition of environmental literacy, they can be categorised as awareness (affection for nature and animals), attitude (willingness to protect nature), and behaviour pattern (cleaning garbage, not littering, helping animals). These aspects construct an ideological orientation to encourage child readers to protect the environment by observing behaviours such as littering, hurting little animals and damaging the environment for personal enjoyment. In the following sections, I present a few representative texts that contain the recurrent examples of the aforementioned topics to illustrate how

environmental knowledge and literacy are constructed and presented to child readers, and how child readers are positioned through narratives and fictional characters to act upon environmental issues and problems.

*Awareness: Love of the planet earth*

Environmental awareness is one of the most common themes included in the textbooks written in different text-types/genre. The following short text is taken from grade 1b (p. 36) in unit 3 of *word recognition* which has a general focus on nature and the planet. The text is an introduction to the unit.

(All texts are reproduced by typing the Chinese version and with a translated English version presented below).

我们生活在美丽的地球上。地球是我们共同的家园。我们大家都爱她。

We live on the beautiful *planet earth*. The planet earth is our shared *home*. We all love her.

In this very short text, the *theme*, planet earth, is established for the unit dedicated to environmental issues. It consists of four texts of different texttypes, including a poem, two fantasy stories, and a short narrative story. From the orientational analysis perspective, the unit emphasises the concept of environmental protection as the contents of the texts address issues of behaviour patterns, such as littering and damaging the ecological balance for personal pleasure. At the level of operational analysis, the non-fiction introductory text has several metaphors which make the ideological beliefs a personal matter and conceptually acceptable for child readers. The metaphor of ‘planet earth’ as ‘home’ in “the planet earth is our shared home”, the collective pronoun ‘we’ in “we all love her” and the personification of ‘planet earth’ as ‘her’, highlight the importance of a collective action. A

cause and effect relationship is also established because 'planet earth' is 'our home', therefore, 'we' need to 'love her'.

As an introduction to the unit, the text does not, however, provide the reader with cognitive reasoning for 'love her' and actions about how to 'love her'. Although 'planet earth' is personified as a 'shared home' with a female touch, it entails a notion of patriarchy. The 'love', in this case, could be interpreted as obedience, devotion and commitment. The personification is different from the metaphor of 'mother earth', a notion emphasising the mother-nature's generosity in giving and nurturing. In this regard, 'planet earth' places the child reader as a passive compliance without understanding why 'mother earth' needs to be loved.

Whether it is a 'planet earth' or 'mother earth', the ideological emphasis is on the 'solidarity pledge'. The construction of a loving member of the family is followed by two fantasy stories, 美丽的小路 (A Beautiful Little Path), and 失物招领 (Lost and Found) which call attention to behaviour patterns. Similar stories also appear in other units throughout the series. For this article, **A Beautiful Little Path** will be analysed below as an example.

*Behaviour patterns: A beautiful little path*

### 美丽的小路

鸭先生的小屋前有一条长长的小路，路上铺着花花绿绿的鹅卵石，路旁开着五颜六色的鲜花。

兔姑娘轻轻地从小路上走过，说：“啊，多美的小路啊！”

鹿先生慢慢地从小路上走过，说：“啊，多美的小路啊！”

朋友们都喜欢在美丽的小路上散散步，说说话。可是过了不久，小路上堆积了许多垃圾，苍蝇在小路上嗡嗡地飞来飞去，美丽的小路不见了。

兔姑娘又从小路上走过，皱起了眉头，说：“呀，美丽的小路怎么不见了？”

鹿先生又从小路上走过，捂着鼻子，说：“呀，美丽的小路哪儿去了？”

鸭先生也叫起来：“天哪！我的美丽的小路呢？”

他看着看着，突然一拍脑袋，说：“我明白了！这都怪我！我一定要把美丽的小路找回来！”

鸭先生推来一辆小车，拿来一把扫帚，认真地清扫小路上的垃圾。兔姑娘和鹿先生看见了，也赶来帮忙。他们提着洒水壶，给花儿浇浇水，给小路洗洗澡。没过多久，一条干干净净的小路又出现了。

兔姑娘说：“美丽的小路好香啊！”

鹿先生说：“美丽的小路好亮啊！”

鸭先生对朋友们说：“让美丽的小路和我们一直在一起吧！”

### **A Beautiful Little Path**

In front of Mr Duck's little house lies a long narrow path with colourful pebbles. There are many beautiful flowers on either side of the path.

Miss Rabbit quietly passes the path, saying: “oh, what a beautiful path!”

Mr Deer slowly strolls through the path, saying: “oh, what a beautiful path!”

Everyone loves to walk and stroll along the beautiful little path, chatting and having a good time. But before long, the beautiful little path is full of garbage with flies bussing around. The beautiful little path has disappeared.

Miss Rabbit walks through the little path again, she wonders: “how come the beautiful little path is gone?”

Mr Deer passes through the little path covering his nose, he wonders: “where is the beautiful path?”

Mr Duck cries out: “Dear me! where is my beautiful little path?”

He searches and searches. Suddenly he pats his head saying: “I understand! This is all my fault! I will get the beautiful little path back!”

Mr Duck finds a wheelbarrow and brings brooms. He starts cleaning up the garbage. Miss Rabbit and Mr Deer come over to help. They water the flowers and bathe the pebbles. Before long, a clean and beautiful path appears again.

Miss Rabbit says: “the beautiful little path is so fragrant!”

Mr Deer says: “the beautiful little path is so bright!”

Mr Duck says to all his friends: “let the beautiful little path be together with us forever!”

In this fantasy story, the predictable organisational structure (story grammar) sets the story in a beautiful little path with three animal characters, Mr Duck, Miss Rabbit and Mr Deer.

The beautiful little path has undergone changes through a sequence of events instantiated by the three personified characters. Like all stories, the sequence of events is realised through actions taken and remarks articulated by the three main characters as problems are arisen and solved.

First, the little path is constructed as a 'shared property' enjoyed by everyone who takes pleasure and relaxation from the "colourful pebbles" on the path and "the beautiful flowers on either side". The enjoyment is presented through the repetitive marvel of Miss Rabbit and Mr Deer, "oh, what a beautiful little path!". The repetitive structure enables the acquisition of the adverbial phrase (walks through the path), adverbs (quietly, slowly), and the exclamatory sentence (what a beautiful little path!). The choice of the adverbs quietly and slowly establishes a relationship with the exclamatory sentence "what a beautiful little path!". It seems to suggest that "the beautiful little path" as a shared property should be carefully treated by them all with gentleness and love.

The peaceful and enjoyable 'shared property', however, is destroyed by littering. Using a transitional phrase "but before long", the story grammar presents the problem through the subsequent sentence "the path is full of garbage with flies\_bussing around". To reinforce the effect of this problem or demonstrate the consequence of the problem, a parallel pattern of rhetorical questions is asked. The rhetorical questions, reiterating the problem-consequence pattern as a literary device, enable child readers to enact the reading process of self-referential and self-reinforcing. The orientation of the story, thus far, highlights the consequences of irresponsible behaviour and careless conduct towards the 'common property'. The story does not, however, condemn such irresponsible behaviour, neither does it challenge the child reader to question the source of such behaviour.

In the subsequent sections, following the structure of a story grammar, the solution to the problem is a series of actions, initiated by Mr Duck and followed by Miss Rabbit and Mr Deer through "cleaning up the garbage", "water the flowers and bathe the pebbles". Through these actions built up by the story grammar, child readers are positioned to understand the ideological orientation (Risager, 2018; Liu, 2005) towards environmental



protection through the process of reading comprehension. The story goes on with other repetitive marvels of Miss Rabbit and Mr Deer illustrating the results of the ‘environmental protection’ behaviours. With a happy ending, the value of an action-oriented ideology is established as concluded by Mr Duck “let the beautiful little path be together with us forever!”. The established ideology, however, does not emphasise any individual responsibility for littering the little path.

#### *Behavioural patterns: Deforestation and material consumption*

Throughout the texts, consumption behaviour is one of the major topics. In 3b, unit two is dedicated to the thematic topic by including four narratives and a writing project highlighting local environmental issues in the pupils’ respective cities, towns or villages. While the writing project has great relevance to develop children’s cognitive ability on environmental issues, it does not require children to take actions for investigating and evaluating issues in their ecological contexts. The orientational ideology is constructed through fictions and narratives emphasising the consequences of human behaviour towards animals and plants. Using story grammar to structure the operational intertextual relations, the ideological conceptualisation is realised through a temporal-causal chain of events aiming to socialise children into environmentally responsible individuals. The narratives in the unit of 3b include: 翠鸟(Kingfisher), 燕子专列 (The Swallow Express), 一个小村庄的故事 (The story of a Little Village), and 路旁的橡树 (The Roadside Oak). In the following section, I introduce the **Story of a Little Village**

#### *Individual consumption: deforestation/ ecological knowledge*

### 一个村庄的故事

山谷中，早先有过一个美丽的小村庄。山上的森林郁郁葱葱，村前河水清澈见底，天空湛蓝深远，空气清新甜润。

村里住着几十户人家。不知从什么时候起，家家有了锋利的斧头。谁家想盖房，谁家想造犁，就拎起斧头到山上去，把树木一棵一棵砍下来。就这样，山坡上出现了裸露的土地。

一年年，一代代，山坡上的树木不断减少，裸露的土地不断扩大……树木变成了一栋栋房子，变成了各式各样的工具，变成了应有尽有的家具，还有大量的树木随着屋顶冒出的柴烟消失在天空了。

不管怎样，家家户户靠着锋利的斧头，日子过得还都不错。然而，不知过了多少年，多少代，在一个雨水奇多的八月，大雨没喘气儿，一连下了五天五夜，到第六天黎明，雨才停下来。可是，小村庄却被咆哮的洪水不知卷到了何处。

什么都没有了——所有靠斧头得到的一切，包括那些锋利的斧头。

### **A Story of a Village**

In a deep valley, there used to be a beautiful village. Deep green trees were growing on the mountains, a see-through river ran through the village, the sky was always blue, and the air was so fresh and clean.

The village had twenty families. It was not clear when every household started owning sharp axes. If anyone wanted to build a house or make a plow, they just went up to the mountain and cut the trees. Just like that, bare land appeared.

Year after year, one generation after another, the trees were getting fewer and fewer, bare earth grew larger and larger...the trees turned into houses, became tools, became furniture. A large amount of the trees also turned into smoke through the chimneys.

In any case, every household, by using their axes, had created a comfortable life. But then, one rainy August, the rain continued for five days and five nights, by the dawn of the sixth day, it finally stopped. But the little village was also swallowed up by the rain (flood).

Nothing was left, everything gained by the axes, including the axes themselves, was gone.

In this story, a causal relationship between deforestation and disappearance of the village is established. It is conveyed through a story grammar that sets up the setting (In the deep valley, there is a beautiful village), followed by an initial event (every household started owning sharp axes), problems (went up to the mountain and cut the trees) and the consequence (bare land appeared). The first causal relation is established through the

introduction of a new vocabulary, 裸露 (bare). This sets up the attention of the child-readers for a continuation with a following event.

The time frame for the second event is a long time-span. Using temporal phrases “year after year, one generation after another”, the text emphasises the gradual changes of the environment with “the trees were getting fewer and fewer, bare earth grew larger and larger”. The repeated comparatives indicate a progressive, gradual, ever-increasing rate of deforestation, which is intensified by the contrastive adverbs, “fewer” and “larger”. The choice of these semantic devices and the language use build up the suspense of the narrative leading to the climax of the story, which follows in the third event.

Starting the sentence with an adverbial conjunction “in any case”, the narrator links the event with the previous results of transformation of trees into material goods, such as tools, houses, and furniture. The conjunctive adverbial functions in a neutral way giving concession to the deforestation with the immediate gratification by describing the villagers’ life as in “every household, using their axes, created a comfortable life”. Following this “comfortable life”, the contrastive conjunction “but then” is used to indicate a change of results. The dramatic move from the “comfortable life” to the disappearance of the entire village is established by “a rainy August”. The elaboration on the actual duration of the rain, “five days and five nights”, is in contrast to the time frame established in the second event. The contrast illustrates the difference of environmental effects on human existence. While the deforestation may take “year after year, one generation after another”, the effect of such deforestation can wipe out a village in “five days and five nights”. The ideological orientation is implicit, but not a difficult one to infer. The ideology (synopsis) of the story is further reinforced and extended by the last paragraph, where the moral lesson is to be learned: overconsuming for immediate gratification can lead to the extinction of human

existence. While the ideological implication is clear and the orientation also supported by the story grammar, the cause of the environmental consequences of deforestation is not discussed in the story. The ending, thus, positions the child-readers to interpret and make inference by scientific reasoning about deforestation.

### *Love of nature*

Affection for nature is another core theme represented by six texts. These texts are intertextually related, in terms of theme and orientation, to provide children with general knowledge about nature. The following text (2b, p.83), using children's familiar experience, illustrates the overlapping orientations of love of nature and general knowledge.

#### 最大的“书”

一天，爸爸带川川去爬山。爬到半山腰，看见一位地质勘探队员，正趴在一块大石头上看着什么。川川走过去，奇怪地问：“叔叔，您在看什么？”

“我在看‘书’呢！”

“哪里有书啊？”

“岩石就是书啊！你看，这岩石一层一层的，不就像一册厚厚的书吗？”

川川认真地问：“这上面有字吗？”

“有。你来看，这是雨点留下的脚印，叫雨痕；这是波浪的足迹，叫波痕；还有这些闪光的，透明的，是矿物。它们都是字呀！”

川川又问：“这上面有图画吗？”

叔叔说：“有。你看，这儿有树叶，有贝壳，那儿还有一条小雨哩！”

“这能说明什么呢？”

“它告诉我们，在很久很久以前，这里是一片长满树木的陆地。后来，陆地沉下去了，这里就变成了大海。又过了很多很多万年，海底慢慢上升，这里又变成了高山，就是我们脚下的这座山。”

“读了这本岩石书有什么用呢？”川川总爱刨根问底。

叔叔说：“用处可大哩！它能告诉我们哪里埋着煤炭，哪里藏着铁矿。。。把这本书读懂，就能为祖国找到更多的宝藏！”

“太好了，太好了！”川川高兴地说，“我长大了，也要读懂这本最大的‘书’！”

#### The Largest “Book”

One day, father took Chuanchuan to hike. Up in the middle of the mountain, they saw a geological explorer examining something on a big rock. Chuanchuan went over, curiously asked: “uncle, what are you reading?”

"I am reading a 'book'!"

"Where is the book?"

"The rock is the book! Look at the layers of the rock, don't they look like (pages in) a thick book?"

Chuanchuan enquired seriously: "are there characters in it?"

"Yes! Come and see, this is traces of rain drops, called rain-marks; this is a footprint of waves, called wave-marks; and those shining, transparent things are minerals.

They are all characters!"

Chuanchuan asked again: "are there any pictures and drawings in the book?"

The uncle responded: "yes. Look, there are leaves here, and shells here, and even a little fish there!"

"What does it tell?"

"It tells us that long time ago, this was a piece of land full of trees and woods. Later on, the land sank, then it became a sea. Millions of years passed, the sea level rose, then it became a mountain, which is the one we stand on."

"What can we do after we read this rock book?" Chuanchun persisted with his question.

The uncle said: "many things! It tells us where we can find coal mines and iron mines.... If you understand this book, you can help our motherland to locate many more treasures!", "That's wonderful, wonderful!", exclaimed Chuanchuan, "when I grow up, I also want to read and understand this biggest 'book'!"

In this story, Chuanchuan's hiking experience turns into a geological exploration through a story telling with a structured pattern, realised by the question-answer interactions between Chuanchuan and the geologist, Uncle. 'Uncle' is used in general by children in China to address male adults whom they may or may not know, similar to the title of Mr in English. The interactions, resembling a real-life conversation, enable child readers to activate their schema to associate with their real-life experiences, evoked by curiosity about the world, through a string of questions. The text has two levels of ideological intention, the child as inquisitive individual and a nature full of treasures worthy of children's love.

The first level of ideological intention is realised through the question-response structure throughout the text, where Chuanchuan is portrayed as an inquisitive and intelligent boy. His inquisitiveness about the rock illustrates his personal affection and positive attachment to nature through a series of questions, such as "are there characters in

the book?”, “are there any pictures and drawings in the book?”, “what do they tell?”, and “what can we do after we read the book?”. These questions follow the textual structure of an informational text with an identification of the ‘rock book’, followed by features of the rock book, detailed information of the book, and end with the usage and functions of the rock book. They align with the structures of story grammar functioning like factual comprehension questions in reading practices often asked by teachers. These questions draw children’s attention to facts and details found in the responses from the ‘uncle’.

The second level of ideological orientation is realised through the uncle’s answers to Chuanchuan’s questions which map the question and answer relationship in a story grammar. The descriptive texts of the rock, the detailed information of the geological changes of the mountain, and mostly the treasures hidden in the rock book and mountain establish a logic for the child reader to have a positive perception of the nature. In this respect, the logical textual organisation (resolution in a story grammar) with the linguistic device position the child reader to have a strong attachment to the nature by Chuanchuan’s last exclamation “That’s wonderful, wonderful!”, “when I grow up, I also want to read and understand this biggest ‘book’!”. While the ideological orientation is about the love for nature, the love seems to be heavily influenced by the functional and instrumental values of the nature. The fundamental concept of love for nature is not for protecting the environment, but for using it to serve our ‘motherland’. Actually, it seeds the danger of ‘destroying’ the nature.

### **Discussion and conclusion**

In this article, I have examined the environmental literacy contents in a set of six textbooks used for lower primary literacy education in China. These texts demonstrate how

environmental awareness is institutionally constructed and how environmental attitudes are ideologically developed. While environmental literacy encompasses related aspects, such as ecological knowledge, ethical positions on environmental issues, and cognitive skills for solving environmental problems, the texts used in the series focus mainly on consumer behaviour and love for nature. The findings indicate that children's environmental knowledge and attitude development can be limited by the contents and topics included in the textbooks for literacy education in at least three aspects.

Firstly, overemphasising consumer behaviour is a re-active strategy, not a pro-active measure for environmental protection. The majority of the texts contain elements of children's 'inappropriate' behaviour towards plants, animals and habitats. There is an element of 'condemning' of these kinds of behaviour, either through children's self-realisation and self-referencing or by teachers' or adults' reprimanding them. Child readers, in this respect, are positioned as actors whose 'irresponsible' behaviour causes damage to the environment. Few texts position them as pro-active actors who take actions to preserve wildlife, recycle waste, reduce energy consumption, and prevent pollution. Such literacy texts may not prepare children to become responsible citizens, well informed about environmental issues. The findings indicate that there is a gap in literacy education for developing children's environmental knowledge, such as why deforestation can contribute to climate change and global warming, and what consequences it will have on our ecosystem and wildlife. The findings are consistent with research conducted on children's environmental knowledge development in Korea (Chu et al., 2007), Turkey (Erdogan & Ok, 2011) and Israel (Negev et al., 2010).

Secondly, there is an inconsistency between attitude (love for nature) and behaviour, as indicated in the text of "the biggest book". On the one hand, children are

encouraged to love nature because of its beauty and take an interest in geological evolution. On the other hand, they are told that nature is a treasure trove that can be exploited to human advantage. The concept of environmental protection is wrongly perceived and incorrectly developed. The texts may, consequently, fail to socialise the children into behaviours that are responsive to environmental issues. They are, on the contrary, socialised into the belief that exploiting nature is acceptable if it serves 'the motherland'. The 'love for nature' seems to align with an ideology of patriotism.

The third aspect is the limited content on cognitive skills aimed at developing the children's ability to investigate and evaluate problems and take actions to solve them. Acquiring these cognitive skills, although maybe challenging for young children, can encourage children to become sensitive to environmental issues and conscious consumers. Texts of this nature can have a long-term effect on children's attitudes and behaviour development. Previous studies on children's environmental behaviour have demonstrated that development of cognitive skills is one of the most underdeveloped areas in school curricula and environmental literacy education (Clayton et al., 2019).

The findings from this textbook analysis illustrate the shortcomings of environmental education through primary literacy teaching in China today. As development of reading and writing is a socio-educational endeavour, textbooks containing environmental topics can provide children with opportunities to participate actively in environmental protection. The analysis indicates that texts can not only influence children's attitudes and develop their awareness through reading process, they can also impart environmental knowledge to children. The latter is essential for changing consumer behaviours and instilling affection for nature.



## References

- Apple, M.W. (2004). *Ideology and curriculum*. New York: Routledge.
- Arnon, S., Orion, N., & Carmi, N. (2015). Environmental literacy components and their promotion by institutions of higher education: An Israeli case study. *Environmental Education Research*, 21 (7): 1029–55. <https://doi.org/10.1080/13504622.2014.966656>.
- Bakhtin, M.M. (1981) *The Dialogic Imagination: Four Essays*. Michael Holquist. Trans. Austin and London: University of Texas Press.
- Bissinger, K. & Bogner, F. X. (2018). Environmental literacy in practice: Education on tropical rainforests and climate change. *Environment, Development and Sustainability*, 20 (5), 2079–94. <https://doi.org/10.1007/s10668-017-9978-9>.
- Canale, G. (2016). (Re)searching culture in foreign language textbooks, or the politics of hide and seek. *Language, cultural, and Curriculum*, 29(2), 225-243.
- Cheng, I. & So, M. (2015). Teachers' Environmental Literacy and Teaching - Stories of Three Hong Kong Primary School Teachers. *International Research in Geographical and Environmental Education*, 24 (1), 58–79. <https://doi.org/10.1080/10382046.2014.967111>.
- Chu, H.E., Lee, E., Ko, H., Shin, D., Lee, M., Min, B.M., & Kang, K. (2007). Korean year 3 children's environmental literacy: A prerequisite for a Korean environmental education curriculum. *International Journal of Science Education*, 29 (6), 731–46. <https://doi.org/10.1080/09500690600823532>.
- Clayton, S., Bexell, S., Xu, P., Tang, Y.F., Li, W., & Chen, L. (2019). Environmental Literacy and nature experience in Chengdu, China. *Environmental Education Research*, 1–14. <https://doi.org/10.1080/13504622.2019.1569207>.
- Curdt-Christiansen, X.L. (2020). The reading process. In Wong, R.Y.L. (Ed.), *Developing literacy in the English classroom* (pp. 23-34). Singapore: Pearson.
- Curdt-Christiansen, X. L (2017). Language socialization through (language) textbooks. In P. Duff, & S. May (Eds.), *Encyclopedia of language and education (Vol. 8), Language socialization* (pp. 195-210). Springer. : [doi:10.1007/978-3-319-02327-4\\_15-1](https://doi.org/10.1007/978-3-319-02327-4_15-1)
- Curdt-Christiansen, X.L. (2015). Striking a balance: Cultural conflicts or cultural adaptation. *Journal of European Applied Linguistics and TEFL*, 4(2), 73-92.

- Curdt-Christiansen, X.L. (2008). Reading the world through words: Cultural themes in Heritage Chinese Language textbooks. *Language and Education*, 22(2), 95-113.
- Curdt-Christiansen, X.L. & Sun, B. (2016). Nurturing bilingual learners: Challenges and concerns in Singapore. *International Journal of Bilingualism and Bilingual Education*, 19 (6), 689-705.  
<http://dx.doi.org/10.1080/13670050.2016.1181606>
- Curdt-Christiansen, X. L. & Weninger, C. (2015)(Eds.). *Language, ideologies and education: The politics of textbooks in language education*. London and New York: Routledge.
- Duff, P. (2015). Foreword. In X. L. Curdt-Christiansen & C. Weninger (Eds.), *Language, ideologies and education: The politics of textbooks in language education* (pp. xi–xiv). London/New York: Routledge.
- Erdogan, M. & Ok, A. (2011). An assessment of turkish young pupils' environmental literacy: A nationwide survey. *International Journal of Science Education*, 33 (17), 2375–2406.  
<https://doi.org/10.1080/09500693.2010.550653>.
- Ehrlich, P. & Ehrlich, A. (2013). Can a collapse of global civilization be avoided? *Proceedings of the Royal Society of London Biological Sciences* 280 (1754) 20122845. doi:10.1098/rspb.2012.2845
- Gray, J. (2010). *The construction of English: Culture, consumerism and promotion in the ELT global coursebook*. London: Palgrave MacMillan.
- Hollweg, K. S., Taylor, J. R., Bybee, R. W., Marcinkowski, T. J., McBeth, W. C., & Zoido, P. (2011). *Developing a framework for assessing environmental literacy*. Washington, DC: NAAEE.  
 Retrieved from  
<http://www.naaee.net/sites/default/files/framework/DevFramewkAssessEnvLitOnlineEd.pdf> •
- Hungerford, H. R., William J. B., Ramsey, B., & Volk, T. (2005)(Eds.). *Essential readings in environmental education*. 3rd ed. Stipes Pub Llc.
- Karatekin, K. (2012). Environmental literacy in Turkey primary schools social studies textbooks. *Procedia - Social and Behavioral Sciences*, 46, 3519–23.  
<https://doi.org/10.1016/j.sbspro.2012.06.096>.
- Khine, M. (Ed.). (2013). *Critical analysis of science textbooks: Evaluating instructional effectiveness*. New York/London: Springer.
- Krasny, M., Carey, J. DuBios, C., Lewis, B., Fraser, J., Fulton, K., Spitzer, B., et al. (2015). *Climate chane and envrionmental education: framing perspectives*. Civi Ecology Lab Report. Niew York: Cornell University.

- Lemke, J. L. (1992). Intertextuality and Educational Research. *Linguistics and Education*, 4, 257–267.
- Lewis, A. (2019-09-20). More than 100,000 have gathered in Melbourne as the world begins climate demonstrations. [CNN](#). Retrieved 2019-10-20.
- Liu, Y. (2005) The construction of culture knowledge in Chinese language textbooks: A critical discourse analysis. In Y. Nozai, R. Openshaw & A. Luke (Eds.), *Struggles over difference: curriculum, texts, and pedagogy in the Asia-Pacific* (pp. 99-116). Albany, NY: State University of New York Press.
- Lueng, C. & Ruan, J. (2012) (Eds.). *perspectives on teaching and learning Chinese literacy in China*. New York and London: Springer.
- Luke, A. (2018). *Critical literacy, schooling and social justice: The selected works of Allan Luke*. New York: Routledge
- McBeth, W. & Volk, Y. (2009). The National environmental literacy project: A baseline study of middle grade students in the United States. *Journal of Environmental Education*, 41 (1), 55–67. <https://doi.org/10.1080/00958960903210031>.
- MOE (Ministry of Education). (2015). 义务教育小学语文课程标准. [*National Standards for Compulsory Chinese Curriculum*]. Beijing: Beijing Normal University Press.
- Negev, M., Gonen S., Garb, Y., Salzberg, A., & Tal, A. (2008). Evaluating the environmental literacy of Israeli elementary and high school students. *Journal of Environmental Education*, 39 (2), 3–20. <https://doi.org/10.3200/JOEE.39.2.3-20>.
- O’Keeffe, L. & O’Donoghue, J. (2015). A role for language analysis in mathematics textbook analysis. *International Journal of Science and Mathematics Education*, 13(3), 605–630.
- Qiao, P. (2015). Ideologies in primary English textbooks in China. In X. L. Curdt-Christiansen & C. Weninger (Eds.), *Language, ideologies and education: The politics of textbooks in language education* (pp. 163-180). London/New York: Routledge.
- Risager, K. (2018). *Representations of the world in language textbooks*. Bristol, UK: Multilingual Matters.
- Roberts, S. (2014). Effectively using social studies textbooks in historical inquiry. *Social Studies Research and Practice*, 9, 119-126.
- Simmons, D. (1998). Education reform, setting standards, and environmental education. In H. Hungerford, W. Bluhm, T. Volk, & J. Ramsey (Eds.), *Essential readings in environmental education* (pp. 65-72). Cambridge, IL: Stipes.

- Shin, G. & Sneider, D. (2012). *History textbooks and the wars in Asia: Divided memories*. London and New York: Routledge.
- Taylor, I. & Taylor, M. (1995). *Writing and Literacy in Chinese, Korean and Japanese*. Amsterdam, The Netherlands: John Benjamins.
- Terra, L. & Bromley, P. (2012.) The globalization of multicultural education in social science textbooks: cross-national analyses, 1950–2010. *Multicultural Perspectives*,14(3), 136-143,DOI: [10.1080/15210960.2012.696980](https://doi.org/10.1080/15210960.2012.696980)
- UNHRC (April 2017). China is the world's most polluting country. <https://eacnur.org/blog/cuales-los-paises-mas-contaminantes/>.
- Weninger, C., & Kiss, T. (2013). Culture in English as a foreign language (EFL) textbooks: A semiotic approach. *TESOL Quarterly*, 47(4), 694–716.