

Explore the notion of education for sustainable development in early childhood education in China

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Abstract

Education for sustainable development (ESD) has been a worldwide topic in educational sectors, which aims to create a sustainable world. This paper examines the ways that the notion of ESD emerging from early childhood practices in China. Findings were reported from a qualitative case study, which involved seven participants from two kindergartens in China. Evidence from multiple methods was used to demonstrate teaching practices related to ESD and understand teachers' responses. The findings revealed that environmental education as an aspect of ESD had been included in the kindergarten curriculum in China, which was conducted through teacher-initiated group activity and daily routines. However, not much attention had been paid to the social dimension and especially the economic dimension. This paper argues that the implementation of ESD in kindergartens in China should involve more dimensions to equip children with the knowledge of sustainable development of the environment, society, and economy.

Keywords: education for sustainable development; early childhood education; teaching practice; China

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Introduction

Education for sustainable development has been a worldwide topic in educational sectors as a response to the United Nations' initiative The Decade of Education for Sustainable Development (2005-2014). As stated, it was expected that through this educational effort, "everyone has the opportunity to benefit from education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation" (UNESCO, 2005, p. 6). Previous research has already revealed that early childhood education (ECE) plays a key role in developing young children's environmental awareness and attitudes and leading to changes in action to finally achieve a sustainable society (Davis, 2009; Hägglund & Pramling Samuelsson, 2009; Pramling Samuelsson, 2011). This paper aims to explore whether the notion of ESD has been applied and in what ways it is revealed from teaching practices in kindergartens in China.

Understanding of ESD

Hedefalk, Almqvist, and Östman (2015) reviewed literature about ESD in early childhood education. They identified two definitions of ESD, "as a threefold approach to education based on questions concerning education about, in and for the environment" and "as an approach to education that includes three interrelated dimensions (economic, social and environmental)" (p. 978). The difference between the two definitions, as Hedefalk, et al. noted, was that the first definition focusing on environmental education whilst the second one involving a wider focus beyond the environment. This extended definition aligns with the three dimensions of sustainable development goals proposed by The United Nations in the Agenda 2030.

Some researchers discussed the issue of globalisation and localisation in early childhood education inspired by ESD (Liu & Liu, 2008; Pearson & Degotardi, 2009; Ritchie, 2010). The shared understanding is that local culture or indigenous views should be incorporated in education to sustain its development. Liu and Liu (2008) associated the concept of sustainable development with the *harmony* which is the philosophy of traditional Chinese culture. Being addresses by the local understanding, they concluded that ESD should build

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harmonious relationships between people, nature, and society. Ritchie (2010) identified Māori ecological principles that informing and enhancing the philosophy of sustainability through qualitative research. Drawing on the findings, she argued for a recognition of inter-connectedness and inter-dependence with nature by considering indigenous people and the environment in early childhood pedagogies in Aotearoa New Zealand.

Pearson and Degotardi (2009) criticised the global spread of dominant European and American notions on early childhood practices, which overlooked local educational practices. They noted that the ESD approach acknowledged diverse social, cultural, and physical environments to which children belong. Consequently, the notion of ESD “provides room for interpretation of ‘place’ and ‘responsibility’ and therefore has the potential to promote global commitment within early childhood to sustainable practices that reflect local concerns” (p.107).

Implementation of ESD

By reviewing the literature, Hedefalk, et al. (2015) summarised two approaches to the implementation of ESD, including the potential and the performance approach. The potential approach emphasised how could be done, focusing on children’s participation in making decisions and solving problems. This accords with teachers’ understandings of ESD in terms of developing children’s critical thinking. In practice, this approach can be observed from a discussion on environmental issues between a teacher and children. The performance approach reported how had been done by attending to children’s questions or teachers’ plans within ESD. Using either approach, ESD can be child-initiated or teacher-initiated.

A context-based ESD has been discussed, which aims to sustain the development of early childhood education that is embedded in diverse contexts. Norddahl (2008) suggested that involving children in real-life problems is a useful approach to understand their environment and communities, which is able to empower children to find solutions for the issues facing by the local community. Liu and Liu (2008) also noted that ESD should be embedded in children’s daily life and play. They further proposed three ways to ESD in early childhood education: integrate the ideas of ESD with a curriculum that caters to

children's needs and interests, develop questions from real life, and make their own toys.

Hedefalk, et al. (2015) found that no articles about ESD for children focusing on a larger social issue, such as hunger, well-being, and inclusive and equitable education. This argument also applies to the review of literature in this study. According to Pramling Samulesson and Kaga (2008), "inappropriate" could be the possible reason that why ESD was not a common topic in early childhood education, either because the topic might be too harsh or too big for young children. Another possible reason might relate to the sustainability awareness of teachers, which is highlighted in the implementation of ESD. For example, Croft (2017) reported that children "need the support and guidance of ecologically-aware teachers who engage in intentional teaching pedagogies that encourage children to engage with sustainability issues ..." (p. 55). This is also recognised by Pramling Samulesson and Kaga (2008), who argued that teacher education programs should firstly raise early childhood educators' awareness about sustainable development.

Context in China

Understanding of ESD in China previously related to environmental education. Shi (2003) noted that the development of ESD in China was evolved from environmental education. Wang, Wei, and Huo (2006) discussed the relationship between ESD and environmental education. They concluded that the two were interactive while environmental education was a part and also the foundation of ESD. In fact, environmental education has been used as an approach to ECE in China to develop children's awareness of environmental protection. Wang, Zhou, and Cui (2019) pointed out, as early as in the 1990s, environmental protection activities had already been included in the Chinese kindergarten curriculum.

The three-dimension definition of ESD has also been recognised and introduced in ECE in China. This can be revealed from the content analysis of early childhood curriculum documents in China (Li, et al., 2019). The analysis shows that the three dimensions have been addressed although limited attention goes to the economic dimension comparing with environmental and social-cultural dimensions. In addition, Liu and Liu (2007) regarded ESD as a new insight of ECE, which not only refers to environmental education but also

involves societal and economic development. In the same vein, Zhou (2012) commented that the notion of ESD provided a new perspective for ECE in China, which also brought challenges. To encounter the challenges, Zhou suggested establishing an educational system as well as designing a curriculum and pedagogy which targeted sustainable development in the environment, economic, and social culture.

Studies from Zhang (2019) and Wang, et al. (2019) demonstrate the efforts kindergartens in China put to achieve sustainable development. Zhang (2019) introduced the implementation of environmental education in a kindergarten, which was used as an entry point to sustain its development. In practice, thematic activities were conducted basing on the theme distributed each month, and the highlight was family involvement. These two practices could also be found from Wang, et al. (2019) action research in a kindergarten in Shanghai, which explored how ESD could be implemented. Different ESD practices including the two mentioned were developed. Also, the researchers pointed out the challenges or difficulties in the practices of ESD. This study examines the notion of ESD in a natural teaching context in China, which aims to answer questions: whether ESD has been implemented in kindergartens? If so, in what ways?

Method

A qualitative case study was adopted as the research method which enables researchers to keep the meaningful and holistic characteristics of real-life events (Yin, 2009). Furthermore, as Merriam (1998) noted, “Anchored in real-life situations, the case study results in a rich and holistic account of a phenomenon” (p. 41). This study focused on participant teachers’ practices and their perceptions of these practices. As such, the case was teaching practice that related to the notion of ESD, which was analysed to reveal in what ways ESD was happening in that practice.

A public and private kindergarten were selected as the research sites. The selection represented the two main categories of kindergartens in China. The public kindergarten was a mainstream one that mainly followed the curriculum guidelines; the private kindergarten, which was more flexible regarding curriculum and pedagogy, was a kindergarten providing

bilingual education (Mandarin and English) and boarding service. This study aimed to contribute to a thorough investigation of teachers' practices from different categories of kindergartens.

There were two criteria for the selection of participants. One was that participants should be employed as a full-time teacher, and the other one was that participants should hold a teaching certificate in early childhood education. Finally, four teachers (Maria, Linda, Claire, and Wendy) from public kindergarten and three teachers (Joy, Elin, and Zoe) from private kindergarten participated in the research. All of them received formal teacher education programs but came with various years of working experience. Linda was the teacher with the most teaching experience (17 years), following by Maria (6 years), Claire (3 years), and Wendy (4 months). The three teachers (Joy, Elin, and Zoe) of private kindergarten had 8, 10, and 12 years of working experience respectively. The ethical considerations of voluntary participation, informed consent, and confidentiality using pseudonyms were applied in this study.

The data of the study was obtained from interviews with participants, observing participants' teaching practices, and reviewing documents. Each participant had two interviews, between which three observations of each teacher's teaching practices were undertaken. Evidence from the three sources was analysed to understand teachers' teaching practices and responses. The definitions of ESD were used as the framework to identify themes. The analysis included searching recurring patterns from the observation data, categorising themes from teachers' interviews, and the analysis of documentation supplemented the data from observation and interviews.

In the study, the validity refers to the extent to which a study's findings apply to other situations. Generalisability is another notion relevant to validity in a qualitative study. Merriam and Tisdell (2016) implied that whether the findings could apply to another situation depended on the reader or user. As such, they stated that "the researcher has an obligation to provide enough detailed description of the study's context to enable readers to compare the 'fit' with their situations" (p. 256). Consequently, a lengthy description of contexts and participants were collected in the present study.

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Findings

Two themes relating to ESD emerged from the findings, environmental education, and societal issues. The findings showed that ESD, particularly the aspect of environmental education, was revealed from planned teaching practices, emergent activity, learning centres, and routines involving six teachers. There were limited findings of the aspect of societal issues, which were demonstrated from two teachers' practices. The observations of another teacher did not indicate any idea of ESD, but which might happen beyond the data collection period.

Environmental Education

Practices from six teachers paid attention to education about, in, and for the environment, including discussing air pollution, creating a beautiful village, recycling materials, learning about herbs and seed-growing, and having an outdoor walk. These topics were derived from a real-life situation, integrated theme-based curriculum, reference books, and daily routine respectively. For example, Maria's teaching practice about smog happened because air pollution was bad during those days when I was collecting data in the public kindergarten. Maria explained that given air pollution was bad in real life, "the smog activity was emergent but also requested by the kindergarten. Children were expected to develop an understanding of smog and an initial awareness of environmental protection, which might inspire them to figure out what actions could be taken". Joy's art activity of children turning their imaginary beautiful village into a drawing was a part of an integrated theme-based curriculum, and the theme was *a beautiful village*. Claire also organised an art activity of drawing plants but which was based on a reference book. The above practices might be one-off depending on the (emergent) curriculum plan.

Some environment-related activities had already been integrated into the daily routines that were available for children every day. Linda used recycled materials in learning centres that were ready for children to use, such as the cardboards in the construction centre. Zoe and the children plant bean seeds in the pot and observed the growing progress each day. Elin had a daily outdoor walk with children which often came after dinner. This benefited

from a bigger learning community that the private kindergarten belonged to, where all the sectors shared the same campus and where there was a garden. According to Elin, the outdoor walk gave children the time to be close to nature.

The six practices were all teacher-initiated and organised through group activity and learning centres. However, Linda and Zoe mentioned that since they initiated the practice which later was integrated into daily life, children turned to the initiators who started conversations about recycling and seeds growing. In the group activities, a dialogic approach was adopted by Maria, Joy, and Claire in their practices. A vignette below shows the way that the dialogue happened between Maria and the children.

Maria: Today I would like to talk about the topic of smog. So what do you think if we have the smog every day?

Child: We can catch a cold.

Child: We may die.

Maria: I guess you mean the smog is bad for our health because it is toxic.

Child: Car crashes.

Maria: Oh, it can lead to traffic accidents. Then what causes the smog in our life?

Child: The waste from too many cars, and smokes from buildings.

Child: Smoking, not only pollutes the air but also is harmful to health.

Maria: What else can result in the polluted air?

Child: Barbeque.

Maria: Well done. I even do not think of this one. Regarding the barbeque, what do we use as fuel? It is charcoal. However, we will find the charcoal smells terrible after it is burnt.

Child: The firecrackers can pollute the air too.

Child: We should not ignite firecrackers or use less of them to celebrate the Chinese Spring Festival.

Maria: Ok. What can we do to protect ourselves from the smog?

Child: Wear masks.

Child: Wear hats.

Maria: Why do we wear hats?

Child: Because the head is cold.

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Maria: Hmm. But we use the nose and mouth to breathe, which means we need to protect these two parts.

Child: Stay at home.

Child: Wear a scarf.

Maria: You mean using the scarf to cover the mouth and nose?

Child: Yes.

As shown in the transcript, Maria said that she always discussed “what, why, and how” questions with children when teaching a similar topic. Joy used the same questions to stimulate children’s thoughts about creating a beautiful village. As she said, “Before drawing, we discussed about what a beautiful village looks like. Children said it should be clean, so I inspired them to think about how to make it clean...Children’s awareness of environmental protection may be developed”. The dialogic approach that the teachers used to unfold the topics involving children’s participation in problem-solving, which could be categorised as the potential approach to implementing the notion of ESD (Hedefalk, et al., 2015).

Societal Issues

The findings also revealed two teachers’ practices concerning societal issues. The practice from Maria was inspired by a song with its beautiful melody. After searching it online and finding it was a song about peace, Maria said she was touched and decided to share this song with children. She used the same approach initiating a dialogue with children first. The vignette reveals Maria’s expectation of this teaching practice:

I think children need to broaden their horizons under the current global circumstances. This enables them to know what life looks like for children living in other corners around the world. By acknowledging that, I hope they feel grateful for their life. That is because nowadays children have been spoiled by their family, who always take everything they can get for granted. However, I hope they come to realise that there are children still suffering from hunger and poverty.

Below is a vignette captured from Joy's art activity, showing a conversation between Joy and a boy. The boy invited Joy to have a look at the bomb that he was drawing.

Joy: If the bomb is touched by accident, it will...

Children: Explode.

Joy: If it explodes, some people will...

Children: Die.

Joy: If they die, their family will be very sad, won't they? Should we put dangerous things in our beautiful village?

Children: No.

Joy: Hmm. Please do not leave unsafe things in the beautiful village, will you?

The findings of Maria and Joy showed that their practices not only cared for the environment but also concerned about societal issues. Particularly, Maria organised an activity to deliver the idea to children, while Joy captured the opportunity to educate. Both demonstrated the teachers' sensitivity to societal issues.

Summary

This paper finds that topics of environmental education are more common in kindergartens comparing with societal issues. Environmental education has become a part of the kindergarten curriculum, which can be conducted through group activities or daily routines. Particularly, a dialogic approach is often used by the teachers in group activities as a way to invoke children's thoughts and reflections on environmental protection. In terms of teaching societal issues for ESD, it seems that the teacher's sensitivity and consciousness play an important role.

Discussion

Generally, the findings indicate that environmental education might still be the focus of the kindergarten curriculum in terms of ESD. As a component of the definitions of ESD, education about, in, and for the environment was the main finding in this study. This accords with previous research regarding developing children's awareness of environmental

protection. Also, it verifies that environmental education has been included in the kindergarten curriculum in China (Wang, et al., 2019). Besides the environmental dimension of ESD, the findings also involved the social dimension. Only the economic dimension was not mentioned by the teachers in this study. As the analysis result of early childhood curriculum documents in China shows, the economic dimension receives limited attention comparing with another two dimensions (Li, et al.,2019).

Some findings in this paper align with the advocate of a context-based ESD. For example, the outdoor walk developing into a routine in the private kindergarten benefited from and based on the kindergarten context. In the public kindergarten, concerning air pollution was included in the curriculum given the kindergarten was located in an area where the smog could be a serious problem in winter. Similarly, the environmental education programs in a Chinese kindergarten started from a problem in real life in that kindergarten (Zhang, 2019). These can be responses to what Norddahl (2008) and Liu and Liu (2008) suggested that ESD should involve children in real-life problems so that they can understand the local community and also attend to local concerns noted by Pearson and Degotardi (2009).

This study also found that language and art were the most occurred domains for integrating ESD activities with the current kindergarten curriculum, aligning with a previous study (Wang et al., 2019). A dialogic approach was often adopted by the teachers in the language domain to stimulate children's reflections on topics. In this study, the teacher was the initiator whether it was a language-based or an art-based activity or other activities occurring, and there was no evidence that children started an ESD activity. As Li, et al. (2019) pointed out, Chinese teachers "play much more active and leading roles in supporting children's all-around development" (pp. 451-452). However, they continued to note that children's individuality and learning approach were being paid more and more attention.

The teachers' responses demonstrated their recognition of the value of the environment to humans. Particularly, the findings of Maria and Joy revealed that whether they were aware or not, they had included a larger societal issue into their teaching. This may fill the gap pointed out by Hedefalk, et al. (2015) with respect to the lack of articles about ESD for children focusing on larger issues such as hunger. Also, the findings identified that not every early childhood educator thought the larger issues as not appropriate for children.

Even so, the teaching practices of most teachers in this study implied that learning about the environment or nature was the focus, which might indicate the necessity of raising early childhood educators' awareness about sustainability that has been emphasised in ESD (Croft, 2017; Pramling Samulesson & Kaga, 2008).

Conclusion

This paper illustrated whether and in what ways the notion of ESD was applied in practice by kindergarten teachers in China. First of all, environmental education was the aspect of ESD that found most from the teachers' practices. Second, concerning a larger societal issue emerged from two teachers' practices, which might highlight the significance of teachers' awareness and knowledge of sustainable development in ESD. Third, the teachers in this study mainly adopted teacher-initiated activities to implement ESD, which had been recognised as an essential approach in kindergartens in China. What should be attended though is that a lack of child-initiated activities. In doing so, children are expected to grow up as an environmentally friendly person who will contribute to the sustainable development of the environment, society, and economic. Finally, further investigation of each teacher can be conducted to understand their knowledge of ESD, which helps to justify their teaching practices.

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