

An Analysis of Research Trends in Chinese Preschool Education for Sustainable Development

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Abstract

This study aims at investigating the research trends in Chinese preschool education for sustainable development (CPESD), understanding its developmental trends, grasping the areas of neglect, and propose the future research direction. In order to achieve these research objectives, this study collected 163 papers concerning CPESD from 1992 to June 2017, including 149 academic papers and 14 dissertations, and analyzed the research trends in CPESD from four research aspects, namely period, method, content, and research type. The analysis showed that, from 1992 to 2017, CPESD research was initially rare, followed by first moderate and then, most recently, sharp growth. During this period, CPESD research has been primarily of the literature type, followed by mixed research, quantitative research, and qualitative research, with a lack of scientific and systematic research. The analysis of research content revealed the following themes, in descending order of frequency: “preschool ESD”, “preschool green education”, “preschool environment education”, and “preschool environmental protection education”, and the three common content types were “educational strategies discussion”, “practical experience introduction”, and “concept and theory introduction”. Finally, the research type was mainly in the form of academic papers, with most of the research conducted in kindergartens.

Key words: children; China; early childhood education; environmental education; sustainability.

Introduction

The world faces climate change, habitat destruction, global inequalities, excessive consumption, energy supplies and other complex problems. We have the responsibility for sustainable development and life in harmony with the Earth.

The Evolution of SD and ESD

Education for sustainable development (ESD) has its roots in the history of two distinct areas of interest of the United Nations - education and sustainable development (SD) (UNESCO, 2005, p. 25). From the education aspect, the Declaration of Human Rights (1948) states, "Everyone has the right to education". From the SD aspect, SD has its roots in the United Nations history of the environmental movement (UNESCO, 2005a, p. 25). Many milestones have marked the journey towards SD including the landmark 1972 UN Conference on Human Environment in Stockholm, which led to the establishment of many environmental protection agencies and the United Nations Environment Programme (UNEP) (UNESCO, 2005a, p. 26).

In 1997, UNEP organized the world's first Intergovernmental Conference on Environmental Education and declared one of the most important documents in environmental education called "Tbilisi Declaration". Environmental education should be provided for all ages, at all levels and in both formal and non-formal education. Moreover, it must adopt a holistic perspective which examines the ecological, social, cultural and other aspects of particular problems, and involves learning from the environment as well as about the environment (UNESCO, 1978, p. 12).

In 1987, the Brundtland Commission defined SD as "development that meets the needs of the present without compromising the ability of future generations to meet their needs" (WCED, 1987, p. 43), which was widely acknowledged by international community, and which makes the ESD carried out widely around the world. In 1991, The World Conservation Union (IUCN), UNEP, World Wide Fund for Nature (WWF) co-published the book titled "Caring for the Earth: A Strategy for Sustainable Living", that defines SD as improving the quality of human life while living within the carrying capacity of supporting ecosystems (IUCN, UNEP, & WWF, 1991, p. 10). The WCED emphasizes in the definition of SD that it meets the needs of humanity and respects intergenerational responsibility. IUCN, UNEP and WWF emphasize protecting the Earth's regenerative capacity and increasing the quality of human life. These two definitions can help people understand SD, and it means that SD is not only beneficial to humans but also to ecological environment (Qian, 2005, p. 11).

In 1992, UNCED were opened in Rio, the conference concluded with the Earth Summit, where leaders of 105 nations gathered to demonstrate their commitment to SD. In 1994, UNESCO proposed "Education for Sustainability", promoted the combination of environmental education, development education and population education, and established environment, population and development programs (EPD), and started to change the direction of environmental education into sustainable development (Qian, 2005, p. 11).

In 2005, "The UN Decade of Education for Sustainable Development (DESD 2005-2014)" launched by UN, summarized the key role of education in promoting SD. "DESD aims to integrate values, activities and principles that are inherently linked to sustainable development into all forms of education and learning, and help usher in a change in attitudes, behaviors and values to ensure a more sustainable future in social, environmental and economic terms" (UNESCO, 2005b, p. 5).

The United Nations 2005 World Summit Outcome document refers to the three “interdependent and mutually reinforcing pillars” of sustainable development as “social development”, “economic development”, and “environmental protection” (Blatchford, 2009, p. 14). All sustainable development programs must consider the three spheres of sustainability – environment, society and economy – as well as an underlying dimension of culture (UNESCO, 2012, p. 1).

UNESCO holds the view that the choice of education represents a person’s choice of social life, and SD takes the change of personal attitudes and values as the goal, which is ultimately a problem of education. Education is an essential tool for achieving a sustainable future (Hopkins, 1999, p. 25). Whether we view SD as our greatest challenge or a subversive litany, every phase of education is now being urged to declare its support for ESD (Vare & Scott, 2007, p. 191).

In order for SD to be realized, it needs to deal with the relational problems of different layers, including people and nature, people and society, economic growth and environmental protection, the balanced development of social systems, social development and human development, the development of modern people and the development of future generations, in order to deal with various conflicts, crises and challenges in current society. And, it all depends on the function of education (Ma, 2001).

The Importance of Preschool ESD

The early childhood years are the period of the greatest and most significant developments in a person’s life, and are generally regarded as the foundation upon which the rest of their life is constructed (Rutter, 2002). Many of the most fundamental values of tomorrow’s society are also being formed in early childhood contexts today. Early childhood education therefore has a major role to play in achieving sustainable development (Blatchford, 2009, p. 9). The ESD of children is not just about environmental education, but also needs to help children establish a democratic attitude and approach, and induce children’s interest in nature, environment, natural science, and so on.

Samuelsson (2005) divided the Swedish kindergarten education practice of sustainable development into the following three aspects: 1) The sustainable development of environment, taking the nature and the environment as research object, developing an emotion towards nature; 2) The sustainable development of society, challenging traditional gender roles and gender mode in the process of game and learning, paying attention to the influence and participation of young children, and ensuring the activities based on equality, rights, possibility, and obligations; 3) Sustainable development of the economy, making sure that each child’s learning and development receive support and challenge and help young children become responsible citizens.

Compared with education in other stages, ESD in early childhood started later. However, with the in-depth development of ESD for preschool education in each country, ESD in preschool education has been gradually incorporated into the vision of ESD in each country and has become a new perspective in the field of preschool education.

The Evolution of Chinese Preschool ESD

Chinese preschool ESD (CPESD) started from environment education. In the late 1970s, China began to formally incorporate environmental education into the plan and teaching outline for primary and secondary school education. Beginning in the 1980s, on the basis of performance tests the importance of popularizing environmental science and knowledge education in primary and secondary schools and kindergarten, and incorporate environmental education into the modern children's science education system. In the 1990s, there was a tendency in preschool education to pay more attention to the function of environmental education, but in educational practice, due to the knowledge infusion habits of traditional exam-oriented education, environmental education was artificially marginalized. Preschool environmental education can only be understood simply as environmental protection, teaching of other relevant knowledge and the cultivation of habits, and new, more open vision as theory guidance, the reason is that the child environmental education theory research is outdated, and there is lack of a scientific environmental education theory system (Wu & Zhang, 2005).

After the 1992 Rio Earth Summit, the debates surrounding SD began to emerge and became integrated with the field of environmental education in China (Yuan & Zuo, 2013). Since then, various efforts in the field of ESD have been undertaken at different educational levels. In November the same year, the first national environmental education work conference was held in Suzhou, with the conference aim to “cultivate and improve the environmental awareness of youngsters and children through environmental education in primary and secondary schools and kindergartens” (Xu, 1992).

In 1997, WWF cooperated with the State Education Commission to entrust several universities to undertake a senior seminar of *green education action in primary and secondary schools*. There was no uniform standard of the concept and basic connotation of green education, and many experts referred to green education as environmental education. Zhou (2000) in his book “Green education - the practice and understanding of middle school environmental education”, proposes that green education aims at protecting the environment, realizing the sustainable development of humans and the environment, and it is necessary to carry out environmental education, make everyone consciously care for the green and purified environment. So, people named environmental education as green education vividly. Since 1998, green education has been on the rise in China, the core idea of green education is the green civilization education, and “peace and development”, and “environment and development” are important topics in the 21st century which the international community must focus on. Green environmental education is the main content to realize human sustainable development, which is also the basic task of school education (Li, 2001).

In 2007, OMEP began to actively promote sustainable development education in children's early education stage, and held an international workshop named “The contribution of early childhood education to the sustainable society” in Gothenburg.

Experts on child education came from around the world to perform broad and deep discussions about the relationship between “ESD” and “preschool education” (Wang, Wu, & Li, 2014). With the ESD becoming the main topic in the world, China has gradually increased the attention to children’s ESD.

The Purpose and Significance of the Study

CPESD has been developing over the years, and it will be an important research direction in the field of preschool education in the future. For better development in the future, it is necessary to understand research trend of CPESD, and propose the development direction for future research.

Research Problem

This study aims to understand research trends of CPESD in the research period, research method, research content and research type. Four research questions were formulated:

1. What is the research trend of CPESD with respect to the research period?
2. What is the research trend of CPESD with respect to the research method?
3. What is the research trend of CPESD with respect to the research content?
4. What is the research trend of CPESD with respect to the research type?

Methods

Research Papers for Analysis

This study adopts the content analysis method, and the papers were retrieved from the Chinese academic search engine “China National Knowledge Infrastructure” (CNKI). In China, prior to the proposal of the concept of ESD, the concepts related to ESD included “environmental education”, “environmental protection education”, “green education” and others, therefore, the search terms used in this study combined “preschool”, “child”, “children” with “ESD”, “green education”, “environmental education”, and “environmental protection education” to search the papers, and to sort and analyze the results. Choosing the period from 1992 to June 2017 (when this study was conducted), this study analyzed the research trends in the period covering 26 years, i.e. from 1992 to 2017. The content of this final analysis comprises 163 papers, including 149 academic papers and 14 dissertations.

Analysis Criteria

Classification Criteria for the Research Period

Of all the papers that were collected, the paper titled “The child environmental education is the need of children’s intelligence development”, conducted by the Child Environmental Education Experimental Group in Gansu Province in 1982 is the earliest research in the field of Chinese preschool ESD (CPESD), but there was only one related research in 10 years from 1982 to 1992: “The primary research of childhood environmental protection education” (Zhang, 1992). Therefore, in order to analyze the

research trends of CPESD more clearly and accurately, this study excluded the only paper in 10 years, and took 1992 as the starting point. CPESD gradually developed and two obvious advances occurred in 1998 and 2007. Since 1998, green education gradually rose (Li, 2001), and after 2007, OMEP began to actively promote ESD in children's early education stage, and under the influence of international education ideas, China further promoted preschool ESD.

Therefore, in this study we took the landmark year of CPESD as the classification criterion for the research period. The research period can be divided into three periods, the initial phase 1992-1997, the second phase 1998-2006, and the third phase 2007-2017.

Classification Criteria for the Research Method

The classification criteria for the research methods in this study refers to the classification criteria of Seo and Cho (2015). Given the characteristics of the papers, this study integrates and segments the classification criteria of Seo and Cho (2015) in two aspects: in the classification of the qualitative research, because only a few of the papers used qualitative research method, we integrated the detailed classification, treating the qualitative classification as a whole. Secondly, Seo and Cho (2015) classified content analysis research as an unsegmented single category, only mentioning that the content analysis research methods include content analysis investigation, analysis, evaluation, and suggestion. However, the vast majority of the papers used in this study adopted the content analysis research method using one of the four approaches. Therefore, this study divides the content analysis method into the four categories of literature investigation, literature analysis, literature review, and proposal, in order to analyze the research trends of CPESD more accurately. The classification criteria for research methods of this study are shown in Table 1.

Table 1
Classification criteria for research method

Research method	Content
Quantitative research	Experiment research Investigation research
Qualitative research	Deep interviews and observation, case study
Content analysis research	Literature review
	Literature analysis
	Literature evaluation
Mixed research	Proposal
	Mixed-method research

Classification Criteria for Research Content

Prior to proposing the concept of ESD in China, there had been some studies related to the topic, mainly to environment-based SD areas, such as "green education", "environment education", and "environmental protection education". In order to grasp

the research trends of CPESD, this study classified the research content by theme into four categories, “preschool ESD”, “preschool green education”, “preschool environment education”, and “preschool environmental protection education”.

Based on the content classification by research theme, in order to perform a more detailed analysis of research content of the collected papers, and subsequent to discussion and analysis with a preschool education professor, the contents were divided into 11 types: “practical experience introduction”, “concept and theory introduction”, “educational strategies discussion”, “current situation and strategies research”, “introduction of foreign experience”, “experimental study”, “teacher construction”, “revealing existing problems”, “curriculum development”, “children’s moral cultivation”, and “combination with art, sports and other fields”. Some studies contained only one type, and some studies contained a variety of types.

Classification of Research Type

The research type of CPESD was classified as academic papers and dissertations, and they were also classified by research institutions. The specific criteria are shown in Table 2.

Table 2
Classification criteria for research type

Type	Classification criteria
Research results type	Academic paper
	Dissertation
	University
	College
Research institution type	Kindergarten
	Research institute
	Government agency

Results

The Research Classified by Research Period

This study divided the research period into three phases: the first phase 1992-1997, the second phase 1998-2006, and the third phase 2007-2017.

Table 3
Research classified by research periods

Period	First phase (1992-1997)	Second phase (1998-2006)	Third phase (2007-2017)
Amount	6	38	119
Percentage	3.7%	23.3%	73.0%

As shown in Table 3, in the first phase (1992-1997), there was little research on preschool education in SD, accounting for only 3.7% of the total papers. Zhang (1992) analyzed preschool environmental protection education in terms of the meaning, content and manner. This paper was published in November 1992, and the first Chinese national environmental education work conference was held in Suzhou City, Jiangsu Province from November 1 - 4, 1992 with the goal of “cultivating and improving the environmental awareness of youngsters and children through environmental education in primary and secondary schools and kindergartens” (Xu, 1992). The conference signaled that preschool ESD was receiving attention in China. In the second phase (1998-2006), the number of research studies increased, accounting for 23.3% of all papers. This increase showed a direct link with the nationwide rise in green education ideology beginning in 1998, when green education became a basic task of school education in China (Li, 2001). Although preschool education is not compulsory, it is contained in the Chinese educational system, and is the beginning of basic education. In the third phase (2007-2017), papers on preschool ESD increased dramatically, accounting for 73.0% of all papers. The main influential factors came from international education thought, and from OMEP beginning to actively promote ESD in early education in 2007 (Wang, Wu, & Li, 2014, p. 5). With ESD becoming mainstream throughout the world, China was in line with international standards, and increased the focus on this field.

The Research Classified by Research Methods

This study divides research methods into four categories: quantitative, qualitative, literature, and mixed, and further subdivides each category. The proportions of each type are shown in Table 4.

Table 4
Research classified by research methods

Research method (percentage)	Content	Amount	Percentage
Quantitative research (5.0%)	Experimental research	4	2.5%
	Investigation research	4	2.5%
Qualitative research (1.8%)	Deep interviews and observation, case study	3	1.8%
	Literature review	10	6.1%
Content analysis research (87.1%)	Literature analysis	28	17.2%
	Literature evaluation	1	0.6%
	Proposal	103	63.2%
Mixed research (6.1%)	Mixed-method research	10	6.1%
Total		163	100%

As can be seen from Table 4 there are various methods of CPESD research, but content analysis method has a dominant position, accounting for 87.1% of all studies, whereas the other three research methods account for only 12.9% (5.0% quantitative research,

1.8% qualitative research, and 6.1% mixed research). The research trends of the four research methods are analyzed as follows:

A. In the research adopting quantitative research methods, experimental research (Bai, 1995; Lin, 2008; Su, 2015; Wang, Ding, & Cao, 2014) and investigation research (Chen & Xie, 2015; Cui & Yu, 2010; Peng, Peng, & Tan, 2015; Sun, Hao, & Liu, 2013) occupy the same proportion, 2.5%, while there was no research on the correlation between variables. Statistics show that in quantitative research, the fundamental investigation research and practical experimental research is at present rare.

B. The research that adopted qualitative research method combined case studies and action research (Zhou, 2014), adopted action research method (Chen, 2005) and combined observation and interview method (Chen, 2012).

C. In the research that adopted content analysis research method, the proposal content analysis research (Che & Liu, 2015; Chen, 2002, 2009, 2015; Cheng & Yang, 2000; Cui, 2012; Ding, 2008; Feng, 2012; Feng, 2014; Feng, 2015; Gao, 2001, 2016; Gao, 2016; Gao & Zhang, 2005; Gu, 2008; Guangzhou Taoyuan kindergarten, 2000; Han, 2014; Hao, 2013; He, 2004; He & Xu, 2016; He, 2013; Hu & Xu, 2006; Huang, 2008; Ji, 2001; Jia, 2016; Jin, 2016; Jin, 2013; Li, 1999; Li & Liu, 2011; Li, 2014; Li, 2001; Li, 2009; Li, 2010; Li, 2003; Li, 2008; Liao & Wang, 2015; Lin, 2007; Lin, 2005; Liu, 2008; Liu & Zu, 2013; Liu, 2013; Lu, 2011; Lu, 2009; Ma, 2001; Mao, 2011; Meng, 2008; Peng, 2011; Qiu, 2014; Qiu & Yun 2012; Rao, 1999; Shen & Shen, 2012; Shen, 2011; Shi, 2012; Shi, 2005; Sun, 2003; Tan, 2004; The kindergartens of the government organs of the outside District of Harbin, Heilongjiang, 2015; Tian, 2015; Tian, 2011; Wan, 1996; Wang, 2009; Wang, 2008; Wang, 2010; Wang, 1994; Wang & Wu, 1997; Wang, Huo, & Cui, 2015; Wang, 2008; Wang & Liu, 2011; Wang, 2012; Wei, Yang, & Yang, 2004; Wei, 2011; Wei, 2011; Wu & Zhang, 2005; Wu, 2002; Wu, 2006; Wu, 2012; Xi, 2003; Xia, 2012; Xiao, 2006; Xiao, 2010; Xu, 2004; Xu, 2010; Xu, 2008; Yan, 2013; Yang, 2008; Yang & Shi, 2009; Ye, Teng, & Zhang, 2005; Yin, 2011; Yu, 2009; Yu, 2010; Yuan, 2006; Zhai, 2005; Zhang, 2007; Zhang, 2016; Zhang, 2006; Zhang, 2010a, 2010b; Zhang, 2012; Zhe & Liu, 2014; Zheng, 2009; Zhou, 2014; Zhou, 2014; Zhu, 2012) that focused on proposing ways of implementing and improving CPESD accounted for 62.7% of the total research with content analysis research, followed by literature analysis (18.1%, Dong, 2015; Dou, 2012; Gao, 2013; Guangdong Shuijungang kindergarten, 1994; Hai, 2010; Huo, 2014; Jin & Yu, 2013; Li, 2013; Li, Wang, & Ma, 2012; Li & Wang, 2002; Li, 2016; Li, 2010; Li & Xie, 2003; Liu & Liu 2007; Liu, 2010; Me, 2008; Meng, 2010; Peng, 2007; Wang & Lu, 2007; Wang, 2008; Wu, 1998; Wu, 2011; Xing & Li, 2012; Yang & Tang, 2010; Yu, 2016; Zhang & Zhang, 2016; Zhang, 1992; Zuo & Li, 2010), literature review (6.1%, Fu & Song, 2011; Huang, 2015; Li & Chen, 2013; Wang et al., 2014; Wang, 2006; Wu, 2014; Xiong & Lu, 2005; Xu, 2013; Yang & Xu, 2014; Zhou, 2012), and literature evaluation (0.6%, Zhang, 2013), suggesting that the research of CPESD depends mainly on content analysis research, and mainly adopts content analysis research to put forward proposals.

D. Among the content analysis research, the number of the proposal studies is large, thus we focus on that content analysis research here. We found that the proposal literature research can be divided into two categories: the first summarizes research topic concepts, definitions, principles, and characteristics through the content analysis research, and puts forward some suggestions for education and practical advice, we refer to this kind of research as “proposed systematic content analysis research”. Papers in the second category lack a research methods section and propose the researcher’s view directly, meaning it can only be speculated that the research is based on content analysis research, here we refer to it as “proposed content analysis research lacking scientific, systematic nature”. The statistical data for the two categories of literature studies are given in Table 5.

Table 5
Content analysis research classified by the content of proposal

Classification of research methods	Detailed classification	Amount	Percentage
Proposal literature research	Proposal literature research that is systematic	48	46.6%
	Proposal literature research that lacks scientific, systematic nature	55	53.4%
Total		103	100%

As shown in Table 5, 103 papers were classified as proposal literature research, with the “proposal content analysis research that lacks scientific, systematic nature” accounting for 53.4% of all the proposal content analysis research, which shows that almost one-third of CPESD research has the flaw of lacking a scientific, systematic nature.

Finally, there are ten papers that adopted mixed methods (Cen, 2014; Li, 2011; Liu, 2005; Shang, 2008; Sheng, 2015; Tang, 2004; Xu, 2010; Yang, 2011; Yang, 2003; Zhao, 2014), and all the mixed-method studies are dissertations.

The Research Classified by Research Content

This study divides research content into two categories, the first based on the theme of the research content, divided into “preschool ESD”, “preschool green education”, “preschool environment education”, and “preschool environmental protection education”. The proportions of research classified by research content are shown in Table 6.

Table 6
Research classified by content theme

Theme	Preschool ESD	Preschool green education	Preschool environment education	Preschool environmental protection education	Total
Amount	11	15	101	36	163
Percentage	6.7%	9.2%	62.0%	22.1%	100%

Table 6 shows that the theme of the CPESD research mainly concerned children's environmental education, which accounts for 62.0%, while the research that named ESD was rare, only 6.7%, which shows an insufficient connection with international ESD.

In order to further understand the CPESD classified by research content, the research on each theme was identified by research phase. The researchers counted the number of studies on each theme in each research period and the results are shown in Table 7.

Table 7
Research themes classified by research period

Research period/ Period theme	First phase (1992-1996)	Second phase (1997-2006)	Third phase (2007-2017)
Preschool ESD	0	4	7
Preschool green education	0	5	10
Preschool environment education	5	25	71
Preschool environmental protection education	0	5	31
Total	5	39	119

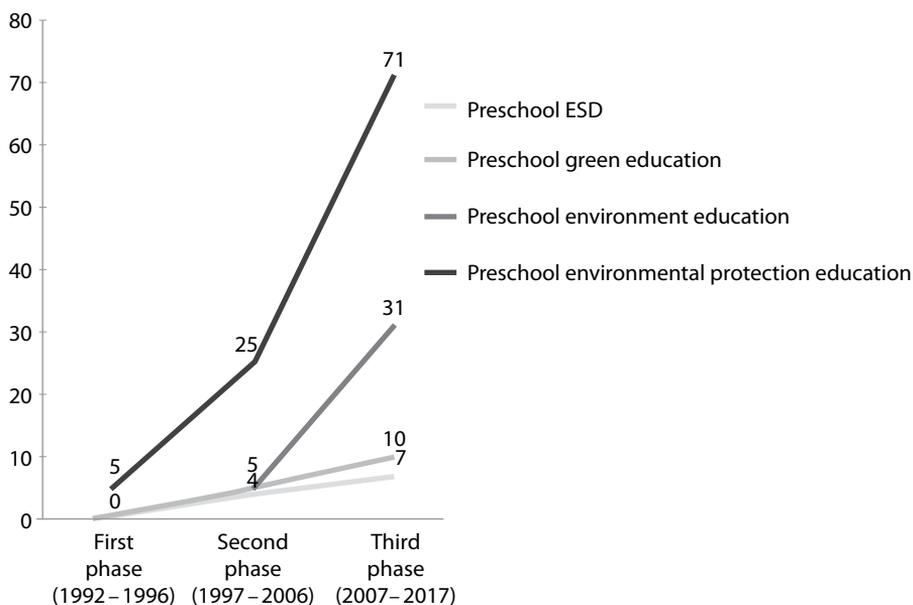


Figure 1. The trend divided by research theme

As shown in Figure 1, the four themes had relatively similar growth from the first phase to the second phase, with preschool environment education growing much faster. All four themes had significant growth in the third phase, but preschool ESD grew the least, while preschool environment education again grew the most.

The second major content category of this study is divided into 11 types, “practical experience introduction”, “concept and theory introduction”, “educational strategies discussion”, “current situation and strategies research”, “foreign experience introduction”, “experimental study”, “teacher construction”, “revealing existing problems”, “curriculum development”, “children’s moral cultivation”, and “combination with art, sports and other fields”, some research studies contain only one type, while some include various types. The distribution of the research content type is shown in Table 8.

Table 8
Research classified by research content type

Content type	Amount	Percentage	Rank	Content type	Amount	Percentage	Rank
Practical experience introduction	48	22.7%	2	Concept and theory introduction	41	19.4%	3
Educational strategies discussion	76	36.0%	1	Current situation and strategies research	12	5.7%	4
Foreign experience introduction	6	2.8%	6	Experimental study	2	1.1%	10
Teacher construction	4	1.9%	8	Revealing existing problems	6	2.8%	6
Curriculum development	5	2.4%	7	Children’s moral cultivation	3	1.4%	9
Combination with art, sports and other fields	8	3.8%	5				

As shown in Table 8, of the 11 types, three types, namely “education strategy discussion”, “the practice experience”, and “concept and theory introduction” predominate while the remaining types total fewer than 15 papers. This distribution shows that CPESD research emphasizes theory and the concept of exploration while also focusing on the summary of practical experience. This in turn reveals an overall concern in the field with taking theoretical study as fundamental, and then proposing implementation strategies.

The Research Classified by Research Type

This study divides the research into two kinds of categories. The first is “academic papers”, and “dissertations”. The second categorizes the research based on education according to the type of research institution: “university”, “college”, “kindergarten”, “research institute”, and “government agency”.

Of the 163 papers in this study, 149 are academic papers (91.4%), and 14 are dissertations (8.6%), as shown in Table 9.

Table 9

Research content classified by research results type

Type	Academic papers	Rank	Dissertation	Rank
Practical experience introduction	47	2	1	
Concept and theory introduction	41	3	0	
Educational strategies discussion	75	1	1	
Current situation and strategies research	6		6	1
Foreign experience introduction	5		1	
Experimental study	2		0	
Teacher construction	4		0	
Revealing existing problems	6		0	
Curriculum development	3		2	
Children's moral cultivation	2		1	
Combine with art, sports and other areas	6		2	
Total	197		14	

As can be seen in Table 9 academic papers dominated the research in CPESD, and dissertations were less concerned with ESD. The main focus of academic papers is on “education strategy discussion”, “practical experience introduction”, and “concept and theory introduction”, while the dissertations focus on “current situation and strategy research”.

Secondly, the statistical results of analysis of research trends classified by research institutions are given in Table 10.

Table 10

The research classified by research institution

Research institution	Amount	Percentage
University	48	29.5%
College	13	8.0%
Kindergarten	83	50.9%
Research institute	10	6.1%
Government agencies	9	5.5%
Total	163	100%

As can be seen in Table 10 more than 50% of CPESD research comes from kindergarten, and university studies account for 29.5%, while research conducted in colleges, the main channel to cultivate preschool teachers in China, accounts for only 8%.

Discussion and Conclusions

This study aimed to investigate the research trends in CPESD. For that purpose 163 papers concerning CPESD were collected for the period from 1992 to June 2017, including 149 academic papers and 14 dissertations, and the research trends of CPESD were analyzed from four aspects, i.e. research period, research method, research content, and research type. The conclusions are as follows.

Firstly, the Trend Analysis of the Research Period Shows That:

A. The research trend in CPESD is very clear; the three phases of the research periods are the first phase (1992-1997), the second phase (1998-2006), and the third phase (2007-2017). The change in the number of research studies over the three phases presents a “rare - steady growth - sharp growth”.

B. In 1992, at the first national work conference on environment education, the goal to “cultivate and improve the environmental awareness of youngsters and children through environmental education in primary and secondary schools and kindergartens” was advocated (Xu, 1992). After that, research interest in CPESD initially showed slow growth. Beginning in 1998, when green education was emerging across the country, the ESD of young children also developed, and the amount of CPESD research marked a steady growth. In 2007, with the increasing focus on preschool ESD around the world, OMEP proposed promoting children ESD in early education actively, and under the influence of the international trend, CPESD in China entered a stage of rapid development, with the research results revealing substantial growth.

Secondly, the Trend Analysis of the Research Method Shows That:

A. Until now, the method of CPESD research was largely content analysis research (87.1%), followed by mixed research (6.1%), quantitative research (5.0%), and qualitative research (1.8%).

B. The preponderance of the content analysis research proves that CPESD research continues to depend on content analysis research method.

C. Of the four categories of content analysis research, proposal was most frequent (accounting for 63.2% of all papers), followed by literature analysis (17.2%), literature review (6.1%), and literature evaluation (0.6%).

D. The proposal content analysis research that was based primarily on literature research, and on the basis of the analysis, proposed the suggestions for ESD for young children. It can be divided into two categories: “proposal content analysis research that is systematic” and “proposal content analysis research that lacks scientific, systematic nature”. The research lacking scientific, systematic nature represents almost one-third of CPESD research.

To sum up, this study proposes the problems of the research on CPESD in research methods as follows.

Problem 1: the research that adopted the content analysis research method but lacks scientific, systematic nature accounts for a high proportion of the research, and if such research continues to take place, it will hinder advances in the research on and the progress of CPESD. Scientific and systematic research methods should be promoted in the future.

Problem 2: quantitative research is rare, and as a main research method in investigating the current situation, there is only one such paper that adopts qualitative research methods, which represents a weakness of understanding. In the future, there should be

more research investigating the current situation, for only a thorough understanding of the current situation can lead to significant development of CPESD.

Thirdly, the Trend Analysis of the Research Content Shows That:

A. Classifying CPESD research according to research topic reveals the following distribution: “preschool environmental education” (62.0%), “preschool environmental protection education” (22.1%), “preschool green education” (9.2%), “the preschool ESD” (6.7%), which reflects that in the Chinese preschool education field, the research topics related to ESD that occupy the mainstream still concern environmental education. There are obstacles to promoting preschool ESD, which remains bound by the traditional thinking pattern and has the tendency to be biased. Although environmental education is closely related to ESD, it is just a part of ESD. In 2002, the UN declared the DESD (2005–2014) and highlighted the difference between environmental education and ESD. Environmental education “is a well-established discipline, which focuses on humankind’s relationship with the natural environment and on ways to conserve and preserve it and properly steward its resources” (UNESCO, 2009). In order to help children better adapt to the development of future society, and in order to cultivate talents for a sustainable development society, it is necessary for China to follow the international trend as soon as possible and complete the transition from the preschool environment education research into preschool ESD research. CPESD is still weak, and it should enhance research in this field and accelerate the comprehensive transition to preschool ESD in future research.

B. Most research content (78.1%) consists of “education strategy discussion” (36.0%), “the practical experience introduction” (22.7%), and “concept and theory introduction” (19.4%).

C. The analysis of research content reveals another significant findings. Grasping and analyzing the present situation is essential for proposing an education strategy, and development strategy, but in the study of CPESD, there is little research on the present situation and countermeasures. Even if the study of concept and ideas is rich, it cannot analyze a suitable strategy for their own development. Future research needs to strengthen basic and practical research based on the present situation, and the research on CPESD should emphasize deep and substantial significant development and application research.

Finally, the Trend Analysis of the Research Type Indicates That:

A. Research CPESD is mainly in the form of academic papers, and there are only 14 dissertations.

B. The analysis of research types that practice experience summary (the introduction of the kindergarten’s practice experience) is the main strength of ESD research. Colleges, universities and research institutions should be the leading force in education research, but in the field of preschool ESD they have not played the leading role, which results in content analysis research methods that are not scientific and systematic. In the future,

university, college and research institutions should strengthen the study of CPESD and provide powerful theory and infrastructure guidance for teachers. CPESD should be a subject promoted by teachers and research institutions together, expanding the research scope, and quantity, while at the same time strengthening the depth, scientific and systematic nature and suitability of the research.

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Analiza istraživanja trendova odgoja za održivi razvoj u predškolskom obrazovanju u Kini

Sažetak

Ovaj rad bavi se istraživanjem trendova odgoja za održivi razvoj u predškolskom obrazovanju u Kini (CPESD), razumijevanjem trenda razvoja, načina razvoja i uočavanjem zapostavljenih područja, također nastojeći ponuditi daljnji smjer u istraživanjima. Za ostvarenje ciljeva istraživanja prikupljena su 163 rada vezana uz CPESD od 1992. do lipnja 2017., uključujući 149 znanstvenih radova i 14 disertacija. Analizi se pristupilo iz četiri aspekta istraživanja: razdoblje, metoda, sadržaj i tip istraživanja. Analiza je pokazala da su od 1992. do 2017. CPEDS istraživanja bila rijetka, uglavnom skromna, a odnedavno je primijećen nagli rast. U spomenutom razdoblju CPESD istraživanja bila su uglavnom vezana uz literaturu, zatim kombinirane metode istraživanja, kvantitativna i kvalitativna istraživanja, bez znanstvenog i sustavnog istraživanja literature. Analiza sadržaja otkrila je sljedeće teme u silaznom redoslijedu učestalosti: „predškolski odgoj i obrazovanje za održivi razvoj“, „predškolski zeleni odgoj“, „predškolski odgoj za okoliš“, „predškolsko obrazovanje za zaštitu okoliša“. A tri zajednička sadržaja su „rasprave o obrazovnim strategijama“, „uvod u praktično iskustvo“, i „uvod u koncept i teoriju“. Istraživanja su uglavnom provedena u vrtićima i imaju oblik znanstvenih radova.

Ključne riječi: djeca; Kina; rani i predškolski odgoj i obrazovanje, obrazovanje za zaštitu okoliša; održivost.