The New Systems Theory of Early Childhood Education and Preschool as a Frame of Reference for Sustainable Education

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Abstract
In this paper the philosophers/pedagogues’ educational thinking is analysed in historical aspect. It is pointed out that their thinking is of systems character and it is modelled. After that the early childhood education definitions from Finnish preschool textbooks are given a closer look. They are analysed and problematic issues are pointed out, while a new preschool definition and a theoretical frame of reference are created. This theory is based on history’s great philosophers/pedagogues’ systems-oriented educational thinking.

Sustainable education can be included into the new preschool model as a part of early childhood education and preschool. The model gives education four central dimensions, according to which the following aspects must be considered, while developing sustainable education: a) practice, b) research, c) contents of teaching, and d) educational thinking. The real contents of sustainable education give these processes their substance. In early childhood education and preschool the substance of sustainable education must be integrated with the processes of a) taking care, b) educating, and c) teaching children.

This paper is a continuation of the author’s presentation, delivered in Daugavpils in 2002. The theory makes it possible to extend logical adjustment to all central issues of early childhood education and preschool – like sustainable education, as it can be seen in great philosophers’ and pedagogues’ course of thinking.

Key words: early childhood education; preschool, primary education; sustainable education; systems theory; philosophers; pedagogues; Friedrich Fröbel; Alexander Neill.

Introduction
In Finland preschool is understood as an early childhood education for the six years old. The newest national preschool curriculum was adopted in 2000. Early childhood education means care, education and teaching for children from birth to seven years of age. The school-going age in Finland is seven years.

Early childhood education in Finland is based on Fröbelian pedagogy, but in addition to that several other philosophers/pedagogues have had considerable impact as well, Alexander Neill being one of them. It is important to study the thinking of the philosophers/pedagogues, because they speak of the education and teaching phenomenon more sensible, including not only development as it is in developmental psychology. Their educational thinking is comprehensive and productive also today.
For the past 30 years in Finland several textbooks on early childhood education and preschool have been published. They include developmental psychology knowledge (Piaget, Vygotsky, Bronfenbrenner), references to philosophers/pedagogues’ thinking, new research information on specific phenomena and definitions on early childhood education and preschool. In these books it can be seen what kind of definitions the authors have conceived about early childhood education and preschool.

Sustainable development is a global goal, set in order to ensure the survival and continuation of life on earth. “Sustainable development is development in which real long term needs of both present and future human generations are met as optimally as possible. This means that not only the basic individual biological needs, but also real economical, cultural and social needs ought to be met” (Åhlberg, 2003). Åhlberg writes that “there are three strands in Environmental Education: 1) education and learning about environment, 2) education and learning in environment, and 3) education and learning for environment. The last one comes nearest to Education for Sustainable Development. In addition to ecology, economics, quality improvement, organisation development, peace education, population education, human rights education, etc. are important aspects of Education for Sustainable Development. Education for Sustainable Development, when it is best, is integrating best theories and practices, testing constructed new theories both theoretically and empirically when it is possible. I agree with Åhlberg in these ideas and I understand sustainable education as education for sustainable development (see Åhlberg & Filho, 1998).

One aim of sustainable education and training is also to prepare teachers, who are sensitive to environmental issues. Children can also learn this sensitivity at an early age, if only the adults and teachers knew how to bring them to this sensitivity and support their own aspirations. After studying the question scientifically, the conclusion is that there is a need for theories of education and training. The theories should be versatile and extensive in order to be applied to the issues in question.

Developmental theories, learning theories and the mere general didactics alone are not sufficient in educating preschool children and training their teachers.

This study is aimed at finding out about the contents and the structure of humanity’s great philosopher/pedagogues’ educational thinking. A question is also asked about the definitions of early childhood education and preschool, which are used by the authors of Finnish early childhood and preschool textbooks. The questions asked are, in this way, furnished with answers and they are assembled in this article, emanating from different studies. The purpose is, firstly, to point at the systems character of the new early childhood education and preschool theory and, secondly, to note that in education it is necessary to outline practice and theory as well as the subjects and contents of our thoughts.

This article is not focused on the specific issues of environmental education or sustainable education. The aim is to develop such a theory of early childhood education and preschool, which would serve as the theoretical frame of reference for them. Therefore, while developing the theory, not all the details are analysed in relation to environmental education or sustainable education. The article features a model of the systems theory and underlines its significance to environmental education or sustainable education on a quite general level.

The author has been working for a long time on developing a new early childhood education systems theory. That is why there are numerous references to the author’s studies.
Methodologically, the principles of objective hermeneutics are implemented (Oevermann et al., 1979; Oevermann et al., 1983; Puolimatka, 2002). The texts are considered as been generated from evolution-developed objective reality. The texts are interpreted subjectively, but, according to the so-called realistic assumption, the interpretation can help to reach the reality reflected by social grammar. Social grammar is the hidden logic of social interaction. The texts are interpreted through the prism of content analysis and principles of semiotics. The ideas of pedagogical philosophers are taken and interpreted from the textbooks on the history of pedagogy and some from their original texts. These sources are much more difficult to understand than the brief and clear textbook definitions provided by the modern education experts. The author has acquainted with a number of historical sources so that the texts could be compared and more definite results reached. Moreover, miscalculations are dispelled by the extensiveness of classification categories of philosophers/pedagogues’ texts. The definitions, owing to their nature, reveal their contents and field of operation through the terms used (Härkönen, 1996a: 90-114, 246-261)

On the Early Childhood Education Philosopher/Pedagogue
Friedrich Fröbel's Educational Thinking

This chapter is devoted to the ideas of a well-known philosopher of education and practical educator. He is the German Friedrich Wilhelm August Fröbel (1782-1852). Fröbel has had a great impact on the education of the very smallest of children. Fröbel has even been called ‘the Father of the kindergarten’ as he is the founder of the kindergarten. Fröbel has influenced education in Finland as well. The Finnish kindergarten pedagogy rests soundly on Fröbel’s ideas and his methodology is well known in Finland to this day. But his influence was at its best in Germany (Barrow-Bernsdorff et al., 1977; von den Driesch & Esterhues, 1964; Fröbel, 1951; Günther et al., 1973; Sandström, 1975; Thier-Schroeter, 1977). Below, the author brings Fröbel’s pedagogical categories, referred to in her research, and gives a concise description of each (Härkönen, 1983; 1988; 1991; 1996b).

World outlook. Fröbel’s world outlook included the ideas on certain laws: the eternal law, the law of contradictions, and the law of mediation. All these laws outline the world. It was understood that everywhere there was an aspiration toward harmony and unity. Everything rests with God. The purpose of everything is the appearance of godliness and development in everything.

Concept of man. Human beings were thought to possess the spark of godliness. Humans had also the instinct for action. Humans act in interaction with the nature and then the external becomes the internal and the internal - the external. Humanity’s task is to understand unity and abide by the laws that outline the world.

Concept of society. Fröbel had an aspiration for a bourgeois-democratic and humanistic society and educating all people. It was thought that people could change the society through consciousness.

Concept of knowledge generation. Fröbel thought that acting leads to observation and observation will make it possible to generate knowledge. Action had great significance attached to it in learning and procuring knowledge.

Concept of education. According to Fröbel, education is the unchaining of the godly spark in person, independently facing the phenomena of the outside world by relying on exercising the instinct for action.
Main method of education. Fröbel called the acting on person’s own initiative the main method of education.

Practical pedagogical process. Fröbel has said a lot about practical education. Central categories here are play (Spiel), hobby crafts (Beschäftigung), work (Arbeit), educator (Erzieher) and teaching (Unterricht). In addition to this, the pedagogical theory includes the views on some other topics that can be related to the category of ‘other’. All these things had philosophy-based theories attached to them. For example, the Fröbel’s bricks embody the important philosophical notion of the universe.

As a researcher of work education (Härkönen, 1983; 1988), the author has specifically studied the contents of work category in Fröbel’s practical pedagogical process. Its sub-categories are the following: principles of work education, goals of work education, work education forms of activity and work education realisation principles. Besides, the work education theory offers views on several other topics that can here be referred to the category of ‘other’. There is abundant theoretical support to all categories.

Fröbel revered nature. In his opinion children’s work in natural surroundings enhances their esteem towards nature. Also Fröbel’s philosophy of society is closely linked with sustainable theory today, though Fröbel didn’t use this kind of concepts.

On the Educational Thinking of the Early Childhood Education Philosopher/Pedagogue A.S. Neill

The other philosopher/pedagogue under scrutiny is the Englishman Alexander Sutherland Neill (1883-1973). His Summerhill Education has become widely known. Neill’s ideas of free education (Neill, 1969; 1970a; 1970b) spread in Finland in the 1970s to all spheres of education. Summerhill still carries on. The Internet websites (www.google/search/summerhill, 8.3.2003) inform that Summerhill is the first school in England where inspectors have to take into account children’s opinions in the evaluation of the school.

Below the author brings her (Härkönen, 1991; 1996b) findings in reference to Neill’s educational thinking categories and gives a short description of their contents.

World outlook. According to Neill, the purpose of life is happiness and it means affection and goodness. The opposite is war, violence and oppression. He says that religion and foremostly, the notion of original sin bar humans from freedom and happiness. He saw that there is a conflict within religion – a clash between believers and non-believers. Neill thought that love would save humanity, not violence or faith.

Concept of man. According to Neill, the human nature is good and the original sin does not exist. The child is good, sincere, wise and realistic by the virtue of birth. The child is self-regulating by nature and only a child knows a child best. Love is important to the child.

Concept of society. Neill criticised the consequences of the 20th century industrial revolution in England. He thought that the society is patriarchal, culture is conservative and hostile to freedom. He believed the world social consciousness is still primitive and that people think that they are free, but they are sprockets in the
wheel and submissive at that, Neill wanted to educate people, who would not give in to the society, but liberate it.

**Concept of knowledge formation.** According to Neill, humans acquire knowledge and the concept of transformability of knowledge through freedom-based self-regulating activities.

**Concept of education.** Education is the natural impact of biological, psychological, and social reality on the child’s self-regulating development.

**Main educational method.** Neill’s main educational method was freedom. He said that ‘freedom is efficient’.

**Practical pedagogical process.** In his books Neill has told about practical educational work. In my studies, pointed out as central categories are the following: free play (meaning a prolonged childhood), free work, hobbies and arts, school education (only for the eager, but without teaching religion; sexual instruction obligatory), and the teacher category (the teacher must be a free human). In addition to that the pedagogical theory should include visions about some other topics that could be referred to the category of ‘other’. All these issues were substantiated by a theory in line with Neill’s educational philosophy. For example, if children break a window, they will suffer from cold and have to correct their mistake. Freedom teaches responsibility.

As a scholar of work education (Härkönen, 1983; 1988), the author has paid special attention to the contents of the work category of Neill’s practical pedagogical process (Härkönen, 1991). It has the following sub-categories: principles of work education, goals of work education, forms of work education activities and principles of work education realisation. In addition to that, the work education theory includes references to some other topics that could be referred to the category of ‘other’. There are lots of theories pertaining to all the categories.

Neill spoke not only about an individual’s freedom, but also his or her sense of responsibility and obligation, in regard to the environment.

**The Discovery of the Systems Character of the Philosophers/Pedagogues’ Educational Thinking**

The discoveries made through the analysis of Fröbel’s and Neill’s educational ideas were the following: 1) the perception of general categories of educational thinking in literal texts, even though in no text were the issues presented in this order and arranged according to a common logic, 2) the contents of the categories became evident only placing the issues in their classes, 3) the connection between the categories was observed after finding the inter-connection between different contents, 4) the systems character of the entity was discovered.

The systems character of Fröbel’s and Neill’s educational thinking can be seen in the fact that 1) educational philosophy forms internally logical entity, 2) educational philosophy in general influences the educational practice in general, moulding it in accordance with philosophical principles, 3) each part of philosophy influences others, 4) each part of educational practice influences others, 5) all parts of the entity influence all others, 6) influence of part has a certain direction, 7) the direction of influence reveals a certain hierarchy of the parts, 8) as a rule, more general category influences more particular one, wider one – narrower one, more
valued one – a less valued one (evidently), more theoretical one – more concrete one, etc., 9) the system entity holds inside it’s philosophy and a number of different “theories” of educational practice, 10) by means of philosophy and “theories” it is possible to conduct an analysis of Fröbel’s and Neill’s entire educational thinking and through its contents rediscover its systems character and possible internal contradictions in their thinking.

The mentioned educational thinking systems principles remain true, even if the historical era, social circumstances and stages of development are different.

In their philosophy there are differences in principal ontological and epistemological approaches. In the implementation of practical educational process there are differences as well. But, there are points of convergence too, and a great number of them. Similarities and differences can be explained through the categories of content analysis. The common nominator is the systems character of thinking. A central finding was to notice that between educational thinking and educational activities there was both unity and separation (Härkönen, 2002a: 29).

Both Fröbel’s and Neill’s ideas have already at their time been related to environmental education. At the beginning Fröbel was a natural scientist and applied his knowledge to education. Both men attach great importance to work, the nature and protection of life.

The author has studied the educational ideas of several other philosophers/pedagogues as well (Barrow-Bernsdorff et al., 1977; von den Driesch & Esterhues, 1964; Günther et al., 1973; Sandström, 1975), using the same research methods. Adding also Fröbel and Neill to this common list, drawn up by the year of birth, we meet the following personalities: Johann Heinrich Pestalozzi (1746-1827), Friedrich Fröbel (1782-1852), Georg Kerschensteiner (1854-1932), John Dewey (1859-1952), Rudolf Steiner (1861-1925), Maria Montessori (1870-1952), Alexander Neill (1883-1973), Helen Parkhurst (1887-1959), Célestin Freinet (1896-1966), Vasili Suhomlinski (1918-1970) and Loris Malaguzzi (1920-1994). Historically we move from the 18th century to our days. The results of research authenticate the mentioned above, so the credibility and validity of results has been verified on several occasions (Härkönen, 1983; 1988; 1991; 2002a; 2003a). Based on pedagogues’ thinking it is possible to create a theoretical background also for sustainable education and environmental education.

The General Systems Model of Educational Thinking

Great philosophers/pedagogues have presented the contents of their educational thinking in written form in several works. Researchers and educators later have given their evaluations of these ideas.

The author has determined the general categories of educational thought. Separate contents of thinking may differ from each other. Speaking in modern terminology, it is the question of the philosophers/pedagogues’ concepts. Concepts encompass assessments, scientific information, commonplace wisdom, beliefs and other factors. The concepts are subjective, but they take shape within a sociocultural context (Härkönen, 1996a). Concepts relate to both philosophical principles and elements of educational practice. The educational thinking systems model is presented in Figure 1. It has been drawn up on the basis of the philosophers/pedagogues’ educational ideas and complemented with certain categories of edu-
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cational practice (like basic activities, celebrations and outings) and important branches of science together with a mention of curricula. In Figure 1 the model of educational thinking refers namely to early childhood education and preschool.

Figure 1. General systems model of educational thinking

The usefulness of the model (Figure 1) covers the following aspects:

- It is a systems model that underlines the nature of education and educational thinking.
- It is an educational model for describing its object – an education.
- It asserts the presence of educational thinking.
- It refers to different educational thinking contents that in this model are referred to through the concepts.
- Concepts of teaching, childcare, other methods and factors become components of a wider educational entity.
- The model is applicable to the analysis of educational concepts related to the children of preschool age.
- It points out the existence of different scientific points of view and allows the other different views to come forth as well.
The model refers to a constructivist interpretation of educational thinking. It makes it possible to empty the contents and re-build them through creative thinking. The model can be used for the analysis, comparison and building of parts of education. The model is helpful in reflecting upon, comparing and developing subjective visions. The model allows not only for the individual, but also for the community to study and develop ideas in historical perspective.

Owing to the fact that the above model can be used for the analysis of parts of education, for their comparison and building, it is also applicable to the analysis, planning and evaluation of sustainable education. Nevertheless, it is the question about a model of thinking and therefore it is still the question about clarifying the issue of realistic educational practice and realistic teaching contents. What can we think about them?

Modern Preschool Ideas and Discussion

The author has studied the general early childhood education, early childhood pedagogy, preschool textbooks and a number of articles printed in Finland over the past thirty years which have been written by specialists of early childhood education. In these works the author’s attention was focused on the definitions of early childhood education. In all works preschool was included into early childhood education. The early childhood education concept in every definition was modelled. These models were then used as the basis for the ensuing concept of preschool models. It is the question of concept analysis and interpretation of meaning.

The results of author’s research regarding the concept of early childhood education have been reported to the Daugavpils Conference (Härkönen, 2002c) and described in two articles (Härkönen, 2002b; 2003a). Here only the preschool concept is discussed through the prism of six different models. The models are listed by letters from A to F with a reference to a corresponding work. Early childhood education is abbreviated as ECE.

The work A concept of preschool can be transformed into the two-dimensional model of the concept of preschool. The first dimension: preschool as a part of the ECE field of science. It consists of theory and research. The other dimension: preschool as a part of ECE practice. It comprises three areas, namely the care, education, and teaching. The dimensions are interactive amongst themselves.

The work B concept of preschool can be transformed into the one-dimensional model of the concept of preschool. The dimension is called Preschool as a part of ECE practice. It comprises care, education, and teaching.

The work C concept of preschool can be transformed into the traditional three-dimensional model of the concept of preschool. The first dimension: preschool as a part of ECE research area. The second dimension: preschool as a part of ECE subject. The third dimension: preschool as a part of ECE practice. It includes care, education, and teaching. No interaction between the three dimensions has been observed.

The work D concept of preschool can be transformed into the modern three-dimensional model of the concept of preschool. The first dimension: science-based
preschool as a part of science-based ECE. It covers one area – research. The second dimension: preschool as a subject and as an area of teaching shapes a part of an ECE subject and a teaching area. The third dimension: preschool as a part of ECE practice. It includes three factors that are care, education, and learning. The definition assumes interaction between the first and the second dimension.

The work E concept of preschool is based on three dimensions that can be called the newest model similar to the one in question. The first dimension: academic preschool as a part of an academic ECE. It includes two clear points: as a part of a field of an academic ECE science, and as a part of a field of an academic ECE research. The second dimension: preschool as a part of an ECE subject. The third dimension: preschool as a part of an ECE practice. It has three components that are care, development and growth in interaction with education; and learning in interaction with teaching. The definition carries no reference to any interaction between the three dimensions.

The work F concept of preschool is based on three dimensions and an administrative aspect. The first dimension is that of science, more exactly, the field of pedagogy and didactics. The second dimension: preschool and primary education as a subject in teacher training. The third dimension: preschool as didactics and didactical practice, including, among other things, care and education, as well as teaching, studying, and learning.

In general, it can be said that in all preschool definitions preschool has been understood as having three dimensions: practice and science and beginning with the 1980s – a subject. The contents of the dimensions reflected in different definitions have suffered gradual changes. Preschool, the dimensions and their contents have always been defined as parts of early childhood education and their changes have been in line with the changes in early childhood education. Preschool practice and preschool as a subject have always been distinct phenomena, though preschool does not exist as a separate field of science. Preschool is seen clearly as a part of early childhood education science, though in Finland the latter is often thought to be just an element of pedagogy, not a separate field of science.

The changes in preschool definitions reflect the shift of focus in the theories of pedagogy, psychology and developmental psychology, as well as the fashionable currents. In the spirit of constructivism and child-centeredness there is more talk about development, growth and learning than education and teaching. At the same time there has been a shift in inter-science ratings, not to say ‘confusion’. It is more demanding to define the connection between different factors than to see the distinctions.

The definitions of preschool and its models do not solve the issue of mutual unity of different dimensions, but leave them separated. The eternal questions are as follows: why do theory and practice never come together and how does a subject relate to science and practice? Are we insensitive to our noblest spiritual aspirations? It is not beneficial either for sustainable education if theory and practice remain separated. The philosophers/pedagogues teach us, if only we are ready to learn.
The Fourth Dimension of Preschool

The philosophers/pedagogues’ educational thinking features such a concept as educational thinking. In the definitions, elaborated by the early childhood education specialists of our time, there is an idea of concepts, leading further to understandings and meanings. Lately, it has become trendy to study any person’s or group’s subjective understandings and traditional understandings of different things. These lines of departure push to the forefront of educational thinking or in the case of preschool – preschool thinking.

Educational thinking is an activity of human mind and in pedagogy it must be focused on the contents of thinking. The contents of thinking about education may be any person’s traditional thinking, subjective opinions, impressions, beliefs, doubts, etc. It can be developed or undeveloped thinking.

Educational thinking takes place in connection with educational practice, while planning educational activities, fulfilling educational functions or later on. Thinking while acting has been left without due attention. The contents of thinking about education also covers subject planning, whether it happens on the basis of science or practice or both. The contents of thinking, touching upon philosophical knowledge, scientific knowledge, theories or research, belong also to educational thinking.

Nevertheless, educational thinking must be split off into its own dimension, while, on the other hand, it unites all other dimensions. The transformation of educational thinking from traditional thinking into a scientific category is characterised by the problems that have been mentioned above. Next, there is the new four-dimensional systems theory model as applied to preschool (Figure 2).

![Figure 2. Systems theory four-dimensional model of the concept of preschool](image-url)
The thinking of philosophers/pedagogues points to the **systems character** of educational thinking. According to Gochman (1968: 489), every concept is a system. Thus, the preschool concept is a system. Every dimension deducted from the definitions and their contents is a system. In relation to the preschool system they are its part-systems and part-systems’ part-systems. Part-systems form different one-factor entities or two, three or four-factor combinations. The numerous intercombination relationships can be studied. The numbers in Figure 2 refer to these combinations. Scientific research may be focused on all these factors as well as on itself. In Figure 2 this has been illustrated by the concept ‘life’.

**The Usefulness of the Systems Definition for Sustainable Education**

Preschool is a part of early childhood education, but it is vitally connected to primary education. In any case, preschool can be defined as a phenomenon too. This is based on 1) the analysis of psychological theories on early development, learning theories and didactic theories, 2) the ideas of philosophers/pedagogues, and 3) modern early childhood education specialists’ preschool definitions analysis that allows to present a new systems definition of preschool. Preschool is a preschool practice, preschool-oriented science, preschool subject and preschool thinking united in a comprehensive system. The systems model facilitates the determination of an object for research, helps to develop preschool theory, plan preschool teaching, develop preschool practice and outline preschool thinking. The new dimension of the preschool concept – preschool thinking – will be a link between theory, practice and the subject in a way that will exclude any contraposition between them. The problems that will be observed within the mentioned phenomena can be solved through the contents of thinking, because thinking influences all other dimensions.

While working on new visions and practices it is worthwhile to study the old models, like the thoughts of philosophers/pedagogues, and extract their precious gist to serve as a starting point for something new. Thinking will allow coming to a transforming and changing, creative and sustainable preschool. Old definitions remind us that, for example, preschool encompasses three important pedagogical elements: 1) teaching, 2) education, and 3) care, even if nowadays some scholars have dropped them from their texts. Teaching alone is not sufficient, even though the school didactics is just about that.

Sustainable education can be placed in the centre of the systems model of preschool (pos. 4) and it must be discussed:

- What is the function of sustainable education in preschool practice?
- What is sustainable education as science, related to preschool?
- What is sustainable education in the preschool subject in teacher training?
- What does sustainable education mean as the contents of thinking in each separate dimension?
- Is it possible to plan how scientific research can be focused on any of specific model-based combinations according to the needs emerging from the issues of sustainable education?
The context of life allows to include into the picture the historical, social, community, and personal dimensions. All this supposes that an analysis has to be made of the actual phenomenon with its side effects that lies in the background of the need for sustainable education. The goals as well must be analysed. Only then will it be possible to create a credible picture of the future that is worth to aspire for.

References


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