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Implementation of Education for Sustainable Development at Pre-School Level

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Abstract

The aim of introduced PhD research is to analyse the process of top-down and bottom-up implementation of Education for Sustainable Development at pre-school level. The research has been conducted at a Czech and German university in order to compare the process of implementation in both countries and to search for examples of good practice of Education for Sustainable Development there.

1. Introduction

In this paper, the process analysis of implementation of a new educational concept and strategy named Education for Sustainable development is described. The process of its implementation is observed from two directions: top-down and bottom-up implementation - two ways which, in an ideal case meet in the real everyday sustainable life. Education for Sustainable Development is implemented on political as well as pedagogical level. The implementation in educational policy works in the top-down direction, involving producing documents, describing the goals and means of Education for Sustainable Development. The top-down implementation affects from central decision makers towards educational practitioners. The top-down direction includes suggestion of methodologies, preferred issues and providing courses and further education as a part of pre-graduate and lifelong learning of educators. This can be offered mostly through state institutions, local municipalities, research centres and universities.

Pedagogical implementation of Education for Sustainable Development works in top-down as well as in bottom-up direction. In the bottom-up direction, Education for Sustainable Development is implemented either from the individual initiative of particular educators, or via programmes of professional stakeholders (programmes of profession associations, networks or NGOs). In the centre of all these initiatives stands the child – curious and active, learning from every moment of its early life.

The main question of the conducted research is how the commitment of Education for Sustainable Development in both observed direction of implementation turns into the 'sustainable life' in focus on the pre-school facilities. The comparison of German and Czech process shows the key moments and conditions for successful implementation of Education for Sustainable Development.

2. Concept of Education for Sustainable Development

Agenda 21, a concluding document from the 1992 Earth Summit in Rio de Janeiro, was signed by 180 countries, committing themselves to the promotion of sustainable development through a variety of means, including education. One of the main goals of Agenda 21 is to bring sustainable thinking and action into practice.

Following Agenda 21 and the 2002 World Summit on Sustainable Development in Johannesburg, the United Nations Decade of Education for Sustainable Development (shortly 'Decade') came into existence in 2005. The Decade presents the first level of implementation of Agenda 21's goals on the international political level. The Decade Implementation Scheme (2005) defines the goal of Education for Sustainable Development as following (UNESCO, 2005, p. 15):

The overall goal of the Decade is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations.

There are many issues of concern that emerge from the concept of Education for Sustainable Development, e.g. transport, biodiversity, health, democracy, cultural traditions etc. When implementing the concept of Education for Sustainable Development into curricula, it is impossible and meaningless to include all issues of Education for Sustainable Development (Tilbury et al., 2002). The quantity would be overwhelming. Instead, communities should select locally relevant issues, which are exemplary of the principles of sustainability and reality for the community.

A red thread of the conducted research is created by principles establishing key competencies of sustainable thinking and action. The reason for choosing key competencies as analytical categories is based on their complex and goal specific character. According to the Definition and selection of key competencies 'a competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a particular context' (OECD, 2005). A definition such as this, exactly matches the character of Education for Sustainable Development, i.e. interdisciplinarity, diversity and holistic approach. There are many concepts of key competencies directly or indirectly connected with sustainable thinking and action (e.g. Bormann & de Haan, 2008; UNECE, 2008). These were compared and selected to correspond with the aim of the content analysis.

2.1 Background of implementation process in Czech Republic and Germany

The comparison of the implementation processes in Germany and the Czech Republic shows the cause of differences in Education for Sustainable Development in both countries over past twelve years. In Germany the implementation process started in 1998 with 'Orientation Framework of Education for Sustainable Development' (1998). The character of this document is rather pedagogical. There are four key competencies stressed in this document: interconnected thinking, ability to reflection, anticipation and

participation. These show the coherence with active citizenship, the issue of the Barcelona CiCe conference.

Germany's next step for the implementation of Education for Sustainable Development is the National Action plan (2005-2014). This document is mostly addressed to politicians and decision makers, pointing out the strategies of implementation, e.g. broadly spread good practices, increase public visibility of education for sustainable development, strengthen international co-operation. Last but not least according to the German National Plan 'sustainability must be established as a subject for lifelong learning' (ibid., p. 10).

The situation of Education for Sustainable Development in the Czech Republic reflects the fact, that the first official document is the National Strategy of Education for Sustainable Development, was adopted in 2008. Among the main principles of Education for Sustainable Development, the development of competencies is mentioned. These should strengthen free democratic decision making in correspondence with principles of sustainability. The pre-school level is directly specified in the National Strategy of Education for Sustainable Development of the Czech Republic. There the informal learning in nature is stressed to develop competences, in regards to health care, nature conservation and handling of resources.

The ten-year gap between political implementation of Education for Sustainable Development in Germany and the Czech Republic is notable on the pedagogical level of implementation, and situation in the pre-school practice. In Germany, the Education for Sustainable Development is already being practiced in many pre-school facilities and pre-school educator's further education. In the Czech Republic the revision of Czech Framework programme for pre-school education is being planned and the first Action plan of Education for Sustainable Development is in progress. Nevertheless the practice is already affected by local projects mostly conducted by non-governmental organizations.

3. Methodology

To analyse the process of implementation of Education for Sustainable Development, a combination of two research methods were used:

- qualitative content analysis (according to Mayring, 2000, 2001)
- case study (according to Yin, 2003; Stake, 2006)

The top-down implementation was analysed within a qualitative content analysis, whereas Examples of Good Practice of Education for Sustainable Development represent the bottom-up implementation researched by the method of case study. Both approaches are connected through analytical categories representing principles of Education for Sustainable Development.

The first methodological step involves the seeking of the principles of sustainable thinking and action in implementation documents. By means of qualitative content analysis the material is to be devised into so called content analytical units. To create

these units a model of inductive category development (Mayring, 2000) was used. Within this process a number of essential strategic documents of Education for Sustainable Development relevant for the pre-school level were compared. Pedagogical framework documents for pre-school education in Germany and the Czech Republic were analysed by means of developed analytical units (categories). On the local level of implementation the educational plans of particular kindergarten were analysed. In all documents the articulation of each category was searched for and then marked as 'explicit,' 'implicit,' or 'missing' from the perspective of Education for Sustainable Development.

The analysis of bottom-up implementation should be a process oriented research, which requires a model of consecutively running steps. Therefore a model, 'Eco-Audit,' was created and was further developed into a 'Sustainability Audit' (Stoltenberg, 2008). This model was adapted for the case studies of kindergartens as Examples of Good Practice of Education for Sustainable Development (see attached Scheme). The steps of 'Sustainability Audit' were evaluated through participatory observation, questioning teachers and kindergarten directors and qualitative content analysis of the kindergarten educational plans.

4. Results

4.1 Analytical units

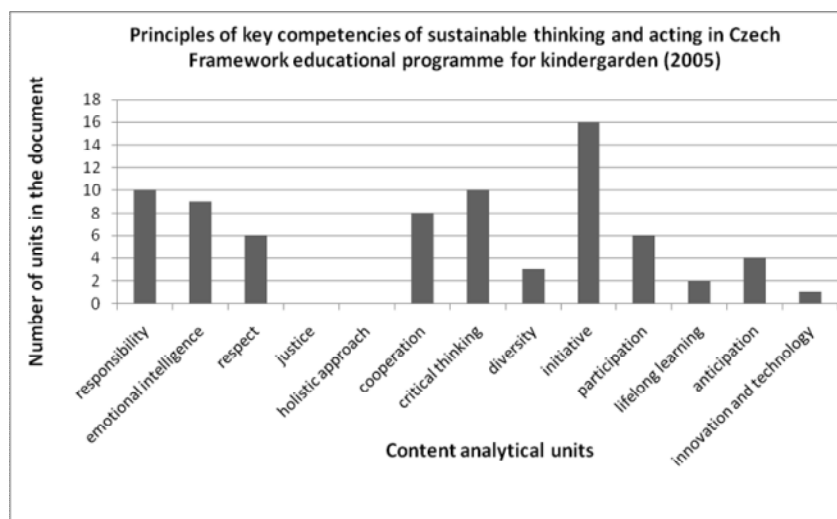
As a result of an inductive category development within the qualitative content analysis, the following principles of key competencies of sustainable thinking and action have been identified. These competences are relevant both, for the comparison of Czech and German implementation process, as well as for the analysis of pre-school level documents.

- 1) Ethical principles of sustainable thinking and action: responsibility for the environment of one's life, emotional intelligence, respect, justice;
- 2) *Retinity* (interconnected thinking and action): holistic approach, interdisciplinarity, cooperation, critical thinking, diversity;
- 3) Motivation for future: initiative, participation, lifelong learning, anticipation, innovation and creativity, methodology and technology.

4.2 Analysis of framework educational documents

The content analysis of framework educational documents for pre-school education in Germany and the Czech Republic, affirms the above described background of the process of the implementation of Education for Sustainable Development in both countries. In German Federal pre-school education framework document (2004) Education for Sustainable Development is explicitly mentioned and integrated as one of six educational realms. Among the defined competencies there appears mostly the category of motivation for future – participation and lifelong learning. Also the responsibility is explicitly mentioned in the meaning of sustainable development of the society.

The Czech Framework programme for pre-school education (2005) however does not explicitly include the term Education for Sustainable Development. As a supplement of the content analysis, the presence of implicit categories was quantified (see Graph 1). The quantification is based on the number of identified categories, expressed by key words. The quantification is not comparable to the German document because both are structured differently and both the Czech and German language use key words much differently. However, a method as to how to solve this problem is being sought.



Graph 1: Number of implicit principles of key competencies of sustainable thinking and action in Czech Framework programme for pre-school education (Vošahlíková, Kindlmannová, 2009).

Among the categories the most stressed one is the initiative in context of the ongoing events in the child's environment and active response to it. Another strong represented category is critical thinking meaning the reflection of positive and negative effects of concrete decisions and the ability to express one's own opinion. Both mentioned categories represent implicit presence of the principles of key competencies of sustainable thinking and action.

Both mentioned competences should be developed in educational practice, e.g. through hands-on methods. For example, it makes a difference to talk with children how to buy an apple, sitting in the kindergarten or, to visit a shop and let the children express their initiative – what apple they prefer and why. This includes a discussion about the advantages and disadvantages of buying a more expensive bio local apple or a cheaper apple from the opposite part of the world. There are many occasions in everyday life to develop the competences for sustainable thinking and action. The educators need to identify the situations and take the advantage of them.

As a part of the mentioned revision of the Czech Framework programme for pre-school education, the missing principles, i.e. justice and holistic approach, are to be strengthen and a methodology of Education for Sustainable Development should be discussed.

4.3 Sustainability Audit in exemplary kindergartens

For the case studies, three German kindergartens were chosen to present examples of good practice. All three are involved in the programme 'Kita 21' which presents a network of oriented pre-school facilities in Hamburg, Germany. This network implements Education for Sustainable Development within a non-government organization Save Our Future and under the supervision of Institute of Integrative Studies, *Leuphana Universität Lüneburg*. A common feature of these kindergartens is their strong cooperation (with other kindergartens, parents), organizing of regular field trips as a methodical approach of Education for Sustainable Development and hands-on approach initiating active learning process. Also the environment in the kindergartens supports development of sustainable life, i.e. open spaces, flexible timing reflecting the needs of children and families, regular outdoors, local and seasonal food etc.

Site specific key competencies of sustainable thinking and action occur as an essential part of projects of Education for Sustainable Development in all the three chosen exemplary facilities. The process of bottom up implementation starts with the intention to analyse the situation of sustainable development in the kindergarten and, consecutively, the plan to improve its quality. Following step includes the formulation of a programme of Education for Sustainable Development which involves specific goals (can be specified as particular key competencies to be reached), key themes, preferred educational methods and evaluation directories. Then, the most rewarding work in the implementation process starts: *i.e.* the realisation of particular steps of the programme in practice. After a certain time period the progress is evaluated and a new situation of sustainable development of the kindergarten is analysed to rebuild a new strategy and programme of Education for Sustainable Development.

In the Czech Republic there has yet to be developed Kindergartens appropriately and deliberately dealing with the concept of Education for Sustainable Development. This confirms the statement, that the implementation is not as advanced as in Germany.

5. Conclusion

The progress of top-down implementation in Germany and the Czech Republic demonstrates the conditions that caused the differences between both countries. In Germany the implementation is supported on the political (strategic documents) as well as educational (research, further education) level. In Czech Republic the process started considerably later so the effect of the implementation has not yet reached the local level.

The process of top down implementation of Education for Sustainable Development was analysed as linear – from the international, over the national, towards the regional and local level. However the real implementation process is *cross-sectoral* due to the interdisciplinary character of Education for Sustainable Development. The EU policy of lifelong learning and the European expression of key competencies present a great example of that. These European strategies were discussed together on September 2009 in Lund, Sweden. The conclusion of the conference showed coherence and articulated 'mutual understanding by creating joint action to reorient European education and

training from the perspectives of Education for Sustainable Development.’ The identified principles of key competencies of sustainable thinking and action present a possible way of describing the sustainable life in an educational facility. To understand this complex issue, a ‘sustainable audit according to Stoltenberg (2009) has been developed. It shows what steps are to be undergone to improve the quality of an educational facility towards sustainable development. The case studies from German kindergartens present concrete examples of good practice.

6. Further Work

The identified principles of key competencies of sustainable thinking and action present a possible way of evaluation of programmes of Education for Sustainable Development on any level of education, especially pre-school. Such evaluation should be a part of a supervision from a professional organization (university, association etc.).

According to the findings of the content analyzes, the Czech framework educational programmes are going to be revised by the Pedagogical Research Institute in Prague. It indicates that Education for Sustainable Development empowers the curriculum reforming processes, including lifelong learning.

The case studies will be presented in further education of Czech educators to help them to understand the sustainable life in kindergarten. Therefore the ‘sustainable audit’ can be helpful for orientation in the process and for logical planning of progressive steps of the bottom-up implementation of Education for Sustainable Development.

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