

FOREST-RELATED EDUCATION FOR A SUSTAINABLE DEVELOPMENT. NEW CONCEPTS OF FOREST EDUCATION IN GERMANY

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ABSTRACT

The present publication analyses the demands forest pedagogy is confronted with within the discussion about "Education for Sustainable Development" and tries to point out the potential and deficits of forest-related educational work according to these demands.

Up to now, forest pedagogy aimed at generating forest-related knowledge and a positive attitude towards forest and forest use. The demands of ESD are far more comprehensive by postulating that "Gestaltungskompetenz (inducing transformation competency)" should be fostered. Forest-related educational work boasts a lot of topics and a large methodical-didactical potential to implement the approaches of ESD. Moreover, those who are active in educational work are prepared to deal with the ideas of ESD and to put them into practise.

Deficits manifest a) in understanding the term "sustainability" in its complexity, b) in being informed about the central issues of ESD and their implementation and c) in a continuous, interdisciplinary cooperation of educational actors according to the criteria of "Retinität (reticulation)". With regard to quality management, forest-related educational work should strive for preparing an interdisciplinary collection of teaching and learning material for forest-related ESD and should seek for cooperation within the existing structures of forest administration as an ideal multiplier and distributor.

Since 2005, when the UN proclaimed the decade of „Education for a sustainable development“ (ESD), the requirements and the implementation of "ESD" are being discussed and have become significant for environmental education in schools and other institutions. Focus and contents of scientific conferences¹ and journals² indicate that actors in the field of forestry are aware of this trend and prepared to meet its demands. The following contribution shall clarify which demands "forest pedagogy" has to face in the actual discussion about "education for a sustainable Development", which potential it has at its disposal, and which deficits can be made out, always referring to the actual state of forest pedagogy in Germany.

Forest Pedagogy

The term „forest pedagogy“ dates from the 1980ies and describes a broad spectrum of forest-related educational activities e.g. the well-known forest tour guided by the forester, forest-kindergarten and forest school camps, educational and experimental tracks as well as forest related exhibitions. (DUHR, 2006; STICHMANN, 2004). In the middle of the 1990ies in many federal states forest pedagogy was legally assigned as duty to the forest administrations³. This new task boosted the number of forest-related educational actors and resulted in a comprehensive supply of forest pedagogical education all over the country.

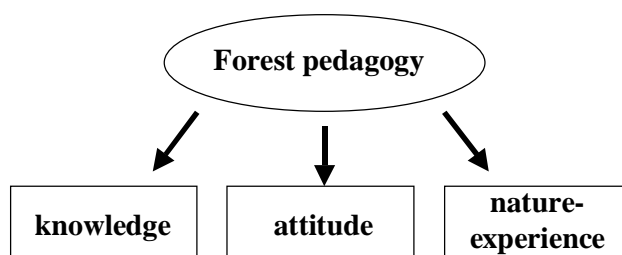


Fig. 1 Goals of forest pedagogy

¹ E.g. Conference „Forum – Waldpädagogik“ of the Federal State Forest Administration Baden-Württemberg march 2004, ANU-Bundestagung: Environmental education within the forest – A contribution to the UN- Decade „Education for a sustainable development“ November 2005

² E.g. KOHLER, BITTNER & BÖGEHOLZ, 2005, KOHLER & VOGL, 2006, 2007

³ Federal State Forest Law e.g.. Baden-Württemberg, Brandenburg, Bayern, Hessen, Niedersachsen, Thüringen, Schleswig-Holstein; Kabinettsbeschluss, Koalitionsvereinbarung, Betriebssatzung./Erlass u.ä.:z.B.: Berlin, Rheinland.-Pfalz, Sachsen, Mecklenburg.-Vorpommern

The main target of forest-related education has been, up to now, children attending elementary school. (KOHLER, 2001). The average activity lasts a couple of hours. The main goals of forest pedagogy are a) to impart knowledge about forests, b) to enhance the positive attitude towards forests and their use and c) to foster nature-experience. (cf. fig. 1) (KOHLER, 2001; KOHLER & VOGL, 2005; KATZ, 2007).

Forest pedagogical activities are based on different didactical concepts; the following two have become established in this field.

a) the approach of nature experience focusing on sensory perception and associated emotions which are considered to be the basic requirements for understanding nature. (JANSSEN, 1988; TROMMER, 1988, 1991)

b) the approach of ecological learning, in which learning processes are triggered by natural experiences and subsequently expanded by explorative-analytical activities. (STEIN, 1994).

Current surveys on forest pedagogical activities found out about positive effects concerning the field of imparting knowledge. An effect upon the attitude towards forests, initiated by forest pedagogical activities, could not be verified. (BOGNER, 1998; SLOTOCH, 2001; KOHLER, 2001; BITTNER, 2002).

Education for a sustainable development

Recent trends demand an orientation of environmental pedagogy and educational theories according to the model of sustainable development currently launched by the UN for the decade of "Education for a sustainable development". (UNECE, 2005; KOHLER ET AL., 2005)

Main goal of this is to cover the present social needs without affecting the requirements of future generations. (cf. HAUFF, 1987).

There are controversial discussions about the main goals of the model, nevertheless, the following consent is unquestioned: (BRAND, 2000; SCOTT &

GOUGH, 2003),

- the inter- and intragenerational equity i.e. the claim that every human being (global dimension), including future generations (future dimension), should have the chance to make a living (dimension of future) (WCED, 1987) and

- the „Retinitätsprinzip“ (principle of reticulation) (SRU, 1994) which comprises the ecological and economical conditions and the goals of human acting.

The latter is an essential innovation in the field of ESD. It describes the idea, corresponding to the model of sustainable development, of cross-linking economical, ecological and social issues. Apart from an interdisciplinary approach, the necessity of communicative, social and methodical key qualifications is postulated. (FISCHER, 2000). Based on these goals, the so called "Gestaltungskompetenz (Inducing transformation competency)" by DE HAAN & HARENBERG (1999) has come to prevail in Germany.

Previous goals of environmental pedagogy aimed at boosting the sensibility for the environment by imparting scientific knowledge, creating a pro-environmental attitude and fostering an appropriate environmental behaviour. (DE HAAN & KUCKARTZ, 1996).

The approach of "Gestaltungskompetenz (inducing transformation competency)" exceeds these aims by complementing the competences necessary for recognizing environmental problems as well as those which are necessary to solve problems and to stay capable of acting. (DE HAAN, 2002a). It describes the eagerness and ability to participate in modelling the society and to steer its social, technical and ecological change corresponding to the idea of sustainable development. (DE HAAN, 2004).

"Gestaltungskompetenz (inducing transformation competency)" can be structured according to DE HAAN into eight part competencies, which can be fostered individually but only have an effect if they show up together. (DE HAAN & SEITZ, 2001a,b).

Table 1 The part competencies of "Inducing transformation competency" after DE HAAN & SEITZ ((2001a,b)

Part competencies (PC) after DE HAAN UND SEITZ (2001a,b)	
pc 1	"The capability to think in a future-orientated way and to design future-scenarios"
pc 2	"The capability of an interdisciplinary approach to solving problems or boosting innovations"
pc 3	"The capability of cross-linked thinking"
pc 4	"Open-mindedness and capability of transcultural communication and cooperation."
pc 5	"Capability of participation"
pc 6	"Capability of empathy, compassion and solidarity with the poor, the unprivileged and the suppressed"
pc 7	"The capability to motivate people to pay attention to the model of Sustainable Development."
pc 8	"The capability to reflect individual and cultural models"

It has been ascertained that strategies for solving problems as well as decision-making competencies concerning sustainable development will only meet the complex requirements of the model if they are developed under interdisciplinary approaches. Interaction between scientific disciplines is crucial for communicating a comprising understanding of sustainability. (JÜDES, 2001; DE HAAN, 2002, 2002a; SCOTT & GOUGH, 2003). This is why politicians and researchers, who deal with educational questions, postulate the constitution of educational networks. (DEUTSCHER BUNDESTAG, 2002; drs/14/8651; DE HAAN, 2002a,b).

The potential and the deficits of forest pedagogy with regard to an education for sustainable development

It is obvious that the model of sustainable development faces the actors in the field of forest education with substantial demands. Crucial for efficient ESD is to find appropriate examples and activities to illustrate the complexity of the subject without neglecting the overall idea. Moreover, it is important to pass on the competencies necessary for shaping sustainable development. KOHLER ET AL. (2005) Forests can be considered as an especially suitable vehicle to transport these issues e.g. to demonstrate the interdependencies of global resources (e.g. biomass, soil, water, air) and their significance for mankind. Forests are part of biomass and can be managed in a sustainable way if heed is paid to the spatial potential, the choice of trees being adequate to the site and the amount of yielded goods not affecting the resource as such (SCHMIDT, 2002). Forests depend on the resources soil, water and air. Any damage to only one of these automatically affects the others and thus mankind.

There are other central aspects of sustainable development as the „Retinitdtsprinzip (principle of reticulation“, this can be illustrated by taking forests as a basic principle too. Being simultaneously an ecosystem and the foundation of an economic branch forests harbour an ecologic and a social dimension, and as places for recreation, protectors of soil and water and bases for earning a living they manifest a profound social dimension as well.

Apart from this, for over two centuries forestry has been practising the principles of sustainability i.e. the use of a resource should be consistent with its regeneration, a request which perfectly complies with today's central demands for a sustainable development.

In addition, forest pedagogy possesses a remarkable potential for building up “Gestaltungskompetenz (inducing transformation competence)”. In a recent survey KOHLER & VOGL (2007) held interviews with

experts from the field of forest education in order to find out about the potential of the eight “part-competencies of “Gestaltungskompetenz” (inducing transformation competency) with respect to forest-educational work.

The results reflect that some part-competencies are considered to be implemented easier than others. The former read as follows:

pc 1 *“The capability to thinking a future-orientated way and to design future-scenarios”*

pc 2 *“The capability of an interdisciplinary approach to solving problems or boosting innovations”*

pc 5 *“Capability of participation”*

pc 7 *“The capability to motivate people to pay attention to the model of Sustainable Development.”*

Examples to foster pc 1 *“to think in a future-orientated way”* arise from every opportunity to influence forest-use (or non-use) as long as future aspects are taken into account. Or, to get more practical, if the importance of individual political engagement (e.g. NGOs) for the preservation of forests is considered or the effects of consumer behaviour are taken into account. E.g., buying non-certified wood products can cause the following “chain reaction” = > unsustainable way of forest management ending up in an overuse = > extinction of species, loss of the protective function (water, mountain slopes, climate etc.) ending up in complete soil degradation = > climatic change. The function of forests as a central resource and a means to make a living indicates that this issue is not solely forest-related.

Fostering pc 2 *“to think in an interdisciplinary”* can be achieved by working on theoretical examples or by offering special methodical-didactical activities. Examples come from the field of “functional diversity” (use, protection, recreation) or from the field of “Reticulation” (crosslinking of economical, ecological and social aspects). Moreover, the whole range of (social) sciences can contribute relevant forest-related issues (biology, chemistry, geology and (cultural) history). As methodical-didactical means serve roleplay, practical work and explorative-analytical activities. According to the findings of KOHLER AND VOGL (2007) the potential of fostering pc 5 *“capability of participation”* mainly relies on methodical-didactical elaborated activities, e.g. group-work with explorative-analytic activities or managing a school-owned forest). Authentic nature experience (a standard within forest pedagogy,) combined with knowledge about the significance of managing resources in a sustainable way, seem to be crucial for motivating oneself and others to pay attention to the model of sustainability (cf. BÖGEHOLZ,

2001; KOHLER ET AL., 2005; KOHLER & VOGL, 2007).⁴

Experts judge the chance of a successful implementation of the following part competencies within forest pedagogy as less promising but possible (cf. KOHLER & VOGL, 2007) :

pc 3 *"The capability of cross-linked thinking"*

pc 4 *"Open-mindedness and capability of transcultural communication and cooperation."*

pc 6 *"Capability of empathy, compassion and solidarity with the poor, the unprivileged and the suppressed"*

pc 8 *"The capability to reflect individual and cultural models"*

In general, these ideas can be passed on by using forest as an example. However, it is important that insights gained in the vicinity forest can be transferred to the situation elsewhere. Thus, cross-linked thinking can be triggered by looking at examples from different points of view (e.g. coppice as a cultural-historical result of human needs and the circumstances given at that time (social crosslinking) or dead-wood forests and natural regeneration as a consequence of pest calamities (ecological crosslinking).

Even for the reflection of individual and cultural models forests provide examples (e.g. sustainable (extracting energy from renewable resources (wood)) or unsustainable behaviour (depositing waste "fly-tipping").

As soon as global aspects are focused on, educational actors become sceptical about implementation although examples show that this is possible (e.g. the effects of product choice on how forests are managed (cf. to think in a future-orientated way (pc 1)). To foster open-mindedness, empathy, compassion and solidarity examples can be taken from the field of climate policy by pointing out the interdependencies of CO₂-output in the industrial nations causing natural disasters in the third world. To achieve these goals it is crucial to integrate theoretical learning into forest pedagogical work.

Apart from forest-related issues providing examples for ESD and the vast potential of forest pedagogy, the established structures of forest administrations with their legal assignment for carrying out forest pedagogical measures on a broad basis can be considered as an effective contribution to ESD. All this and the fact that the topic "forest" is one of the most frequently requested issues in extra school education⁵ indicates a broad effect of ESD-orientated forest pedagogy.

Nevertheless, forest pedagogy harbours some

deficits regarding the demands of ESD. Unfortunately forest educational instructors often reduce the demands of ESD solely on the forest-related idea of sustainability and especially on the idea of a sustainable forest use. (sustainability of resources) (KOHLER & VOGL, 2006). However the model for sustainable development and thus ESD require, that economic, ecologic and social issues are equally taken into account. Moreover, in order to meet the requirements of ESD, forest pedagogy should preferably foster those competencies which enable people to design features for sustainable development (e.g. "Gestaltungskompetenz und die notwendigen Teilkompetenzen" inducing transformation competency and necessary part competencies). The potential available has already been laid out in detail.

Up to now, the following forest pedagogy has been pursuing the following goals a) to pass on positive attitudes towards forests and b) to impart knowledge about forests and their use. Although these aspects form a necessary basis, they do not sufficiently meet the demands of ESD. Apart from this, forest educational instructors tend to orientate themselves according to the traditional approach of nature-experiencing-pedagogy as well as ecological learning. (cf. e.g. CORNELL (1991a,b); HILFERE FORSTBEHÖRDE WESTFALEN-LIPPE (1997); BAYERISCHES STAATSMINISTERIUM FÜR LANDWIRTSCHAFT UND FORSTEN (2001)). This approach aims – corresponding to the goals of environmental education during the 1980ies and 90ies – at experiencing nature and imparting scientific knowledge only in a descriptive way (BOLSCHO & SEYBOLD, 1996; KOHLER ET AL., 2005).

In order to comply with the complexity of the model of sustainable development, the methodical didactical approach has to be thought over and enriched by a variety of methods (e.g. scenario-technique, workshops focusing on future, business games, open-space) (e.g. BARTH, 2006; RODE, 2006).

It has been shown, that forest related educational work can pass on the idea of sustainable development by means of an interdisciplinary approach as requested by ESD. However, politicians and researchers claim that a variety of disciplines and patterns of thinking – preferably from the field of economy, ecology and sociology - should be bound in to create new educational concepts. (e.g. DEUTSCHER BUNDESTAG, 2002, drs/14/8651; DE HAAN 2002A,B; SCOTT & GOUGH, 2003, BITTNER & BÖGEHOLZ, 2002). As a matter of fact, first interdisciplinary cooperations between teachers and persons in charge from

4 findings which confirm the influence of (environmental) knowledge and nature experience on the motivation to act in a sustainable way (Rost, 1999; Bögeholz, 1999).

5 Giesel et al., 2002

the forest side have been made out. (WETZEL, 2004, VAN DER MEER, 2004). To make ESD a success it is crucial to extend these networks by involving actors from the nature protection side, the church, social work and economy in order to start a durable and consistent cooperation.

Conclusions

Forest pedagogues who try to integrate the demands of ESD in their work face a great challenge. Nevertheless the current development is promising. Forest-pedagogy boasts a lot of topics and a large methodical-didactical potential to implement the ideas of ESD.

Moreover, the increasing number of those who are active in forest-educational work as well as the broad range of activities offered, reflect a significant impact of ESD.

Presently, deficits manifest concerning a) understanding the term "sustainability" in its complexity, b) the knowledge about the central issues of ESD and their methodical-didactical implementation and c) the consistent, interdisciplinary cooperation of educational actors according to the criteria of "Retinität" (reticulation). In order to comply with the demands of ESD, Forest pedagogy has to make up for the deficits. Forest-related educational work should prepare an interdisciplinary collection of teaching and learning material going beyond the idea of forest-related sustainability, paying regard to the central issues of sustainable development and the aspects of justice and "Retinität" (reticulation) as well. Apart from this, it should clarify the central issues of ESD and make proposals for fostering "Gestaltungskompetenz" (inducing transformation competency) on forest-related issues, which, depending on the topic, could possibly take place in the forest. Seeking interdisciplinary cooperation with the existing structures of forest administration as an ideal multiplier and distributor of ESD and as a means of quality management because of its comprising supply of educational actors and activities should be strived for.

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