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Developing an ESD Curriculum in Higher Education through Action Research – a first step through a working model

Abstract

This is a conceptual paper with the purpose of clarifying some challenges in developing a curriculum for a higher level ESD in cooperation with external partners in order to prepare students to work as professionals with sustainable development. The paper will broaden the theoretical discussion about ESD to the question of how higher level ESD can promote developments of professional skills for working with sustainable development. The paper begins with a discussion about the challenges of prepare people to work with sustainable development as professionals. I will then arguing in favour of that this implies that people have to learn experiences their professional practice in a different way – and in the same time challenge existing practices. This could be achieved by an action research approach when educators and researchers together with practitioners from different fields critically examine practices from a sustainable development stand point.

The challenge of teaching about sustainable development

Today there is an increasing insight among those who teach about sustainable development that this area is contains lots of tensions between different perspectives on the concept of sustainability. This not means that everything goes. Even if it is possible to identify more than 300 definition of the concept (Dobson 1996) it is also possible to delimit the goal of sustainable development to two general statements (Cooper & Symes 2009, p. 3). One could be traced back to the World Conservation Union, United Nations Environment Program and World Wide Fund and states that sustainable development: "improves the quality of life while living within the carrying capacity of supporting ecosystem". The other is the well-known statement from the work of the World Commission on Environment and Development which

define sustainable development as "development that meets the need of current generation without compromising the ability of future generations to meet their needs and aspirations."

Nevertheless there is a vivid debate about the eligible way of educate about sustainable development when it comes to develop a curriculum and work out teaching practices. This debate could be traced back to fundamental discussions about education in general. One critic that has been raised is that sustainable development per se is a normative concept. Therefore, the whole idea of educating *for* sustainable development come into conflict with the role of educating as a way of fostering critical thinking, and citizens whit the capability to put ideas, norms and established truths into questions (Jickling 1992). Education about sustainable development must put a great importance on the fact that we could never be certain about what future bear in mind. Even if we scientifically could define the capabilities of ecosystem, there is still impossible to know the needs and aspirations of further generation. Scott and Gough (2003) remark that:

Human society exists in a dynamic context of social and natural reality which it is possible to know (for the present at least) only imperfectly, and which is constructed and given meaning in different ways by different people and organisations. As this context changes, learning takes place, both planned and unplanned, given rise to further, often competing theories, of nature, of society and of change itself. (Scott & Gough, 2003:9)

Nevertheless there is a increasing conviction among individuals, organizations, and decision-makers, booth in politics and business, that our society face huge challenges which in the long-term could threaten our society, for instance the increasing demands of limited recourses, or the ongoing climate changes, just mention a few of them. But to know how something *is* should not be mistaken for knowing how things *should be*. Scholars have therefore arguing that teaching about sustainable development should presuppose from a pluralistic view on education, where individuals learn to take a stand and find ways of acting for sustainable development based booth on contemporary knowledge about local and global developmental trends, ethical and normative perspectives (Scott & Gough 2003) with the emphasis on social learning processes (Wals 2007). A common view is that education about sustainable development should strive for developing action competence among pupils and students (Jensen 2002).

Till now, these theoretical debates have been essential for the development of new teaching practices and an increasing research about sustainable development and learning. But it has a significant limitations because the focus on formal education, mainly in lower grades. When it comes to put knowledge and skills in practice, it often ends up with actions that cover what one could do as a citizen, consumer or in private. Even if teacher strives for relating their teaching to practice, they are limited to practices like taking part in political debate, promote sustainable lifestyles and spread knowledge to other youngsters and elders – like their parents. But if we, like myself, face the challenge to develop a curriculum in higher education for teaching students to work with sustainable development as professionals we must find ways for connecting education about sustainable development to different kinds of professional practices. This rise a new question: how could we educate people to work as professionals with sustainable development?

The challenges of becoming someone who work professional with sustainable development.

Professional competence is a blend between theoretical and propositional knowledge, personal experiences, traditions and situated practical knowledge. As long as education of professionals has existed, there have been debates about the best way of doing this. It is often a debate about how to improve transfer of knowledge and skills from an educational context to a work context (Bennet *et al.* 2000). Dreyfus and Dreyfus (1986) have argued that transfer of knowledge and skills is not enough for developing the ability to work as a professional. One need the experience of the practice in order to gain the bodily embedded knowledge that characterizes a professional.

Lave and Wenger (1991) describe this as *legitimate peripheral participation* where the newcomer become introduced in to a practice by more experienced participants given more and more complex tasks. The reason for this is the fact that practical knowledge to large extend are situated in different communities of practice (Wenger 1998). A community of practice is created and preserves through the daily actions of its members. This actions is dictated by formal structures, like job descriptions, routines or the organizations overall means. It is also formed by informal structures, for example the members understanding of the community or of the way they act in order to develop and maintain their professional identity. The members are involved in ongoing negotiations of the content in the practice. Newcomers – for example a recently graduated student – are influenced by these negotiations, and could of course influence them to. But according to the idea of legitimate peripheral participation, newcomers probably have less influence, and are more likely to be influent by the predominant meanings about the content of the work. It is also necessarily for a newcomer to understand the tacit part of the work in order to develop a professional knowledge (Wenger 1998). Dreyfus and Dreyfus (1986) describe this as steps on a stair. The newcomer learns to master the work through experience, and develop an embodied knowledge. After a while she evolves to a more professional practitioner and eventually become an expert. At the same time she becomes to see the existing practice as a matter of course. And that points to, in my opinion, one the challenges when it comes to educate professional for working with sustainable development.

Today one could argue that existing practices instead contribute to unsustainable developmental processes. The rot of many global problems – like climate change– could be found in how we act in different kinds of existing professional practices (Cooper & Symes 2009). In that perspective learning a practice through legitimate peripheral participation means that one becomes a part of the problem – instead of solving it. Cooper and Symes observe that: "Sustainability frequently calls into question the repeated use of know solutions, these often being 'part of the problem'. But learning a practice through legitimate peripheral implies that you learn to make use of known solutions. Newcomers, who arrive to the practice well-trained about sustainable issues and with the intention to change, must remain to the existing practice and must also internalize the established tacit knowledge. This put students in a tension between their theoretical – and normative – knowledge about sustainable

development, and the need of becoming a full member in an existing community of practice (Johansson 2008).

Another challenge for those who had the intention to work with sustainable development as professionals lies in the fact that it is hard – or impossible – to reach experiences of a professional sustainable practice. In the vast majority other existing professional practices – like teaching – it is possible to evolve situated knowledge based on embodied experience as a way of improving my work. It is possible to learn from mistakes – if you make an effort on that. But this is not always the case when working with sustainable development. It is often hard to know if a specific way of work will promote sustainable development, mainly because it is hard – or impossible – to see or measure or in other ways evaluate efforts of promoting a sustainable development. If your experience is doubtful it is hard to be sure what you have learnt. Ideas about what kinds of competence are needed to improve sustainable development are closely connected to how we name and frame sustainable development in general. In fact, only future generations are able to tell us if we did the right things or give our students a proper education about sustainable issues. And they are hard to ask. So we have to grope in the dark when it come to develop living experience and embodied knowledge about sustainable development.

The rise of new professions – the professional sustainable worker

But still people maintain that they work on daily basis with sustainable issues. Today, there are a growth number of educational programs and university courses with the intention to prepare people to work with sustainable development. I teach on one of them myself. This point out a paradox and put my discussion above into question. On one hand I am arguing that it is impossible to develop a situated knowledge about sustainable development because it is impossible to gain an embodied knowledge of sustainability. But on the other hand I must admit that there exist lots of communities of practices where people actually work with sustainable development. This implies an ongoing change of lots of professional practices which probably may result in new occupations and professions.

When new and abstract concepts – like sustainable development – are introduced to a practice it will be interpreted by its members. Because sustainable development is a controversial concept full of contradictions different actors will understand it in different ways (Guy & More 2001). This process could be described as a knowledge creep, where new ideas about the work differ into existing practices (Weiss 1980). This process of knowledge diffusion means that abstract concepts transforms and gives new contents in order to be useful in practice. Here metaphors and stories play an important role. Through metaphors could the new (and unknown) knowledge interpret as something well-known that could fit into the members existing understanding of their work. But this also gives the new knowledge a different meaning.

This transformation is influenced by the fact that individuals understand and interpret their working tasks in different ways, which in turn affects how they carry out their work. In every workplace there is always a variation of understanding of the content of the work (Sandberg 2000). This is commonly understood as differences between more and less skilled workers like newcomer versus experienced experts (Dreyfus & Dreyfus 1986). However, empirical evidence indicates that this rather express fundamental differences between individuals understanding of their work. It is therefore unlikely to understand knowledge development as a stair where the individual get more and more skilled and at the same time change his understandings of the work, as Dreyfus and Dreyfus describe it. Instead, it is more likely that individuals understand their work in qualitatively different ways from the beginning, which in turn put the picture of knowledge development as a straight path from beginner to expert in question (Dall'Alba & Sandberg, 2006). Therefore, knowledge about sustainable development will probably interprets in many different ways based on how professionals understand their work from the beginning.

This implies that new perspectives on an existing practice, for example sustainable development, creeps into a community of practice through a great number of individual translation processes, which in turn affects the ongoing negotiations of meaning in a practice. Even if there is a consensus about both means and ends for a specific community of practice, there are likely distinctions between how professionals actually turns this into their daily work. This, in turn, indicates that visions about sustainable development will manifest in different ways by professionals. Communities of practice therefore evolve in blurred ways through the knowledge creep, and this will from time to time rise dilemmas. Ryle (1945/2002) defines dilemmas as:

…lines of thought, which are not rival solutions of the same problem, but rather solutions or would-be solutions of different problems, and which, none the less, seem to be irreconcilable with one another (Ryle, 1954/2002, p. 1)

In a community of practice, solutions of dilemmas are rather a spin-off from the daily work then a result of well thought-out analysis. Dilemmas are solved because everyone needs to carry out their daily work, earn the money and find some balance between the demands of work and the reaming life. As soon there is a solution which is satisfied enough it tend to be established as a routine. If new knowledge raises new dilemmas it often tends to be ignored, or interpret in a way that fits with the established ways of understand the work. Sustainable development holds lots of dilemmas. One dilemma is the fact that I mention above: that lots of "unsustainable solutions" is a result established ways of handle different working tasks. Professionals, who had an intention to work in new, sustainable ways, probably must begin facing their own professional practice as one of the roots of the problems. This is impossible without call existing routines and practices in question. But this rise dilemmas and I will mention a few of them below.

The ideas behind sustainable development aroused ethical questions. One fundamental principle is responsibilities for other people as well as future generation. This seems obvious,

but in a professional context this nevertheless is a challenge. Traditional, professions are based on service to a particular client and your responsibilities are limited to this client. But as a professional sustainable worker you must put broader impacts before individual benefits follow (Cooper & Symes, 2009). But all work with sustainable development takes place within organizations which main purpose is not performing sustainable development but other benefits. Another challenge with long-term perspectives is the overall uncertainty. An organization is probably capable to make strategic decisions in a maximum of two year perspective. But sustainable development cares for at least a hundred years perspective, which is almost impossible to handle within a company or public administration. Not to mention how to carry out a budget during this conditions.

Another dilemma covers the global responsibilities in relation to other people, groups and countries. This is about our responsibilities to other living people – and to other living creatures in general. Traditional professionalization implies a process of creating well-defined borders between the professions area of work – responsibilities – towards the surrounding society. This is a process which works in two directions. It defines what the members of the professions are allowed to. In the same time it defines what people outside the professions are not allowed to do – and also not responsible for. The job splitting of the modern society created an endless rising sum of professional groups, and in the same time it make extensive responsibilities more difficult. Extensiveness means that professional must learn to think outside their own professions. But that means that they have to challenge their own authority and allow others to look with critical easy on their own field.

This led us in to a third dilemma: the quest for participation. Democracy is a fundamental condition for achieving sustainable development. Well-educated citizens are a fundamental condition for democracy. This means that citizen got the capability to call professional groups in question, which, of course is a other challenge for professional. Participation means that other which not belongs to the professional groups is given the possibilities to criticize and put the professional's actions and decisions in question. But this also put the demarcation between professional and lay people in question. Whose knowledge deserves attention? But shouldn't the professional seem to be better prepared to made decisions than the man on the street?

To sum up so far, there is an ongoing debate about how to teach about sustainable development which lay stress on the importance of a pluralistic educational approach. Because sustainable development is possible to understand and interpret in different way and because the concept rise ethical and normative questions, education about sustainable development should promote critical thinking and the ability to put both personal and more general ideas about development and the future in question. On the other hand, after graduation the student will face a working-life where the majority does not work with this issue. As a newcomer on the labor-market, no matter which kind of occupation, there is already established communities of practice a newcomer had adapt to. And there it is established practices, which may result in unsustainable solutions, but which a newcomer has to adapt to in order to be a part of a community of practice. And here we return to the main

question: how could we develop a curriculum for education about sustainable development which prepares students to work as a sustainable professional in different communities of practice in a manner that encourage changes of unsustainable practices? In the next part of the paper I will suggest one way to handle this. I will argue that a combination of phenomenographic approach to learning combined with a life-world phenomenological theory perspective could serve as a point of departure.

Development of professional competence as a process of discernment and variation

The modern phenomenological philosophy movement begins with Husserls attempt to find a firm ground for our knowledge about the world. This could be sum up in one question: "how could I know for certain that I know something for certain?" Husserls try to solve that by the phenomenological method: to put the world between brackets. If we could examine the conditions of our own existence, it would be possible to define how we could know something for certain. Merleu-Ponty (1962), criticized Husserl idea of put our existence in brackets as an anomaly, and pointed at the fact that as human beings we could newer escape our own existence as human beings trapped in human bodies. We know something for certain because it exists for us and we maintain a relation to it and because we can use our bodies to touch the world. Knowledge could therefore be understood as a relation to the world: we express something as something, as a part of our living existence.

Phenomenography is an educational research approach that originates at a group Swedish researcher – with no connection to phenomenology from the beginning. The main research interest is the content of learning. Phenomenographic research has pointed at that there is a variation of understanding of a certain content or phenomenon (Marton 1981). This is a result of a process of discernment and variation. The phenomenographer is interested of mapping this variation in order to understand differences and similarities among individuals understanding of something. To learn something means that one discerns this from a background – to be aware of the salient features of a phenomenon – and understand how it differs from other salient features at other phenomenon (Marton & Booth 1997). Linder and Marshall (2003) describe this with following words:

From the phenomeographic perspective learning cannot take place without discernment, discernment cannot take place without variation, and the search for variation is driven bay the relevance structure brought to the learning situation. (Linder & Marshall, 2003:281)

Phenomenography should not be viewed as a theory, but as a research approach useful to get a grip of learning as a phenomenon. Other researcher has made a fruitful combination between life-world phenomenology and phenomenography (Sandberg 2000, 2005) in order to develop an interpretative perspective on competence development, where competence is seen as manifestations of how the individual discern salient features of the work. Life-world

phenomenology put emphasizes on the impossibility to separate peoples understanding of something from how the touch the world. Because we are living humans, with a living body who touch the world, we could never go beyond our existence (Merleau-Ponty 1962). But even if all of us share the world, we also have the ability to touch the world in different and unique ways – which implies that there is a variation in how we touch, and understand the world and its phenomenon who constitute it. Therefore, as a mention above, there is always a variation of understanding of the work in every community of practice. Rein and Schon (1977) describe this as a process of problem setting:

Problem setting is a judgement about the problem situation – that is, a diagnosis that also contains the prescription of directions for action. We cannot make a judgement of this kind unless we apply a frame to a *field of experience.* This frame enables us to (1) highlight certain features of the situation, including certain worries that we select as symptomatic, (2) ignore, or select out, certain other features of the situation, including certain worries, as noisy and irrelevant, and (3) bind together the salient features of the situation, including the relevant worries into a pattern which is coherent and graspable. (Rein & Schon, 1977: pp. 237f)

Therefore, we could understand competence development as an ability to set new problems and based on that find new ways of acting. This mean that the professional begins to discern his or hers work in new ways, i.e. highlight new salient features. This process must in turn influence the ongoing process of meaning making (Wenger 1998). Scott and Gough (2003) lay stress upon the importance of promote a reflexive approach to sustainable development. Schön (1983, 1987) has encouraged the central role for reflection in professional learning and competence development. Linder and Marshal have pointed out that a phenomenographic approach to learning easily could be related to Schöns perspective:

It is possible to look at Schön's work and phenomenography and see that they both conceptualize the learner and that which is to be learnt as a *whole*, and in so doing they both generate an anatomy of awareness that reflects the constituting of that whole. (Linder & Marshall, 2003: 277f)

Here we could link a theory of learning to a theory of competence development. In booth of those perspectives, the idea of *a whole* is central. Learning means the change of an understanding of a whole by develops new ways of discern something – new ways of seeing something. Neither learning nor competence development could be separated from how individual understand the world as a whole. In the same sense, the development of abilities to work professionally with sustainable development could not be separated from the abilities to understand sustainable development in general. Because sustainable development is a complex and possible to interpret in different ways, it is probably that different ways of work professional with sustainable development will arise, even within a specific community of practice.

This call for a need for develops curriculums for education on sustainable development in higher education which pay attention to the central role of reflection in boot teaching and working with sustainable issues. If we see the process of discernment and variation as

fundamental booth in learning and competence development it is possible to use a phenomenographic approach as way for overcome the differences between theory and practice. The ability to reflect over a specific practice becomes the core of booth education of sustainable development and develops skills and capabilities to work with sustainable development as a professional. I will end with arguing for that action research could be useful as way to turn this into practice when it comes to curriculum development in higher education on order to promote education of professional sustainable workers, which are capable to handle the dilemmas I mention above and have the ability to change how things work out in established communities of practice.

Action research as a way of promote discernment and variation – and curriculum development

Based on the discussion above we could understand competence development as something that manifests in new ways of naming and framing the world. A condition for developing the ability to work in ways which promote sustainable development is that we could discern our work in new ways. This could of course awake dilemmas, and conflicts with established practices and routines. Therefore, the ability for individuals of competences development in order to work with sustainable development is prerequisite by organisational learning. Educations for a professional practice in order to work with sustainable development presume changes in those communities of practice where the students would work after graduation. It presumes development of so-called mode two-knowledge (Gibbons *et al*. 1994).

The concept of mode-one knowledge versus mode-two knowledge is an attempt to make a distinction between traditional scientific knowledge (mode-one) which is created inside an established field. Scholars in this field are those who had the proficiency to judge the quality of mode-one knowledge. Our knowledge about sustainable development is mode-one knowledge. It is developed by scholars in different fields, like education. Mode-two knowledge, in contrast, is knowledge that is developed in cooperation between researchers and practitioners. This is knowledge whose quality is judged by its usefulness in a certain practice. Professional knowledge about sustainable development must be based on mode-two. Mode-two knowledge could be developed through action research.

Lewin (1946) has been seen as the founding father of action research as a way of combine knowledge development with change in practice. Action research could be seen booth as a method for development in groups and organisations and as an attitude to research as way of promoting change. In this context I will make use of action research as a method for creating processes which promote booth curriculum development and changes in existing communities of practice. Here booth this process is viewed as a process of discernment and variation. When I and my colleagues develop a curriculum, we are, of course, caught by our own understanding of sustainable development. This understanding may differ from how those who work with these issues understand sustainable development. There is different ways of naming and framing sustainable development and what kinds of skills and knowledge you

need to learn to work with these issues. But it is also important that either a more general, theoretical or a more situated practical understanding of sustainable development gives precedence. Booth perspectives need, not mention to challenge its other. If a theoretical understanding is favoured, it is a risk for educate people which no understanding of the realities of practice. But if higher education limits to train people for existing practises there is a risk that we continue with existing unsustainable practices.

In order to educate people who are able to work with sustainable development in different communities of practise, and in the same time be able to put existing routines in question, education about sustainable development must take place in an ongoing dialog between higher education and all those communities of practice where people work with sustainable development. This dialog should take shape as an ongoing action research project. The main challenge is to construct ways of handle this dialogue. Here, *boundary objects* could play a significant role (Cooper & Symes 2009). Wenger (1998) describe this as objects:

...that serve to coordinate the perspectives of various constituencies for some purpose (Wenger, 1998, p 106)

A boundary object is something that belongs to more than one actor or group. It is possible to give the object multiple meanings. To serve multiple constituencies means that each part has only partial control over the interpretation. Wenger himself exemplify with a novel. The writer has control over what is written, but she could not control the reader and what the story comes to mean for them. Boundary objects is a way for achieving knowledge creeps, when new ideas bit by bit enter and affect a community of practice.

I will finish with a short description of how we try to achieve this at a master program in sustainable urban management at Malmö University. From the beginning we had the ambition to involve external partners and create a close connection between them and the students. Before the program begun, we pay visits to possible partners, booth for encourage them to become partners to the program, but also trying to convince them to use the program as a way of further education for employments about sustainable urban development. The schedule for the program is adapted for working people. All lectures, seminaries and so take place in the late afternoon. We had an overall ambition to create a mix between younger students with a bachelor degree and older more experienced people. This proves to be difficult, and we attract just a few professionals.

The autumn semester of the program is focused on theories about urban development in general with a focus on the conditions for sustainable urban development. The spring semester contains of two courses which parallel each other. One of them is a course in project and process leading. The other is a project course where the students should carry out a pilot study of a sustainable urban developmental project in collaboration with an external partner. During the autumn we arrange a workshop when we invited partners and ask them to formulate challenges and problem areas in relation to sustainable urban development. This workshop was held without students. The purpose was an attempt to develop a kind of catalogue with ideas worth a pilot study. In the beginning of the spring semester we held a

new workshop where students and external partners could meet each other and creating partnerships for the oncoming pilot studies. This resulted in 14 pilot studies, which will be presented in the beginning of June. The studies will be evaluated both by the staff for the master program and by the external partners In the oncoming autumn we will hold a new workshop with external partners, evaluated the pilot studies and discuss new areas and problems who need new studies, and so on.

The goal is the creation of a loop, where staff from the master program, students and external partners continuously gets together, discuss sustainable urban development and identify problem areas which requires pilot studies in order to develop projects whit the capabilities of increasing sustainable urban development. This ongoing loop could be seen as an ongoing action research process, where academic researcher, students and practitioners continuously develop skills and knowledge for achieving sustainable urban developmental processes. Up to the present date, we have not finished the first loop. It is therefore too early for evaluate the process. This is therefore something that will be presented in oncoming papers.

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