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Rogative Learning in Education for Sustainable Development: Environment, Human Rights and Democracy

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Abstract: The question underlying the investigation in this paper is how within a context of education for sustainable development it is possible to learn about the environment, human rights and democracy and at the same time practice what human rights and democracy stands for. A point of departure which allows more than one way of achieving the desired goal is called rogative learning (or question-based-learning). The rogative learning process is scrutinized from various perspectives, mainly philosophical and educational, in order to see how well it fulfils what is required in education for sustainable development. The advantages of this approach – that it springs from the interests of students and encourages deliberation – and the disadvantages and shortcomings – that it constantly puts the educator to test when it comes to knowledge and the many ways of carrying out an inquiry – are discussed for further investigation.

Keywords: Rogative Learning; Sustainable Development; Human Rights.

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1. Introduction

Problems concerning sustainable development are seldom solved by drawing upon knowledge from one discipline. For that to be achieved requires drawing upon a wide range of disciplinary knowledge or, rather, interdisciplinary knowledge (Ramsey, Hungerford & Volk, 2005). One can either teach the students knowledge from several disciplines about problems such as these, and let them draw their own conclusions, or one can turn to a question-based (or inquiry-based) learning process. The latter will be the subject of this article, that is, a question-based learning process to encourage a deliberative milieu on sustainable development in an interdisciplinary fashion.

In a democratic deliberative milieu each participant has a positive human right to ask questions and make propositions, which provides us with a reason for striving towards a democratic deliberative educational milieu when dealing with the issue of sustainable development, since it generates so many questions. But what if we look at this the other way around? Are questions dealing with sustainable development always put best in a democratic deliberative milieu? Volk (2005) believe that the questions should be like research questions followed by a research investigation. This does not allow much room for deliberation but concentrates on facts, facts that are either produced by real researchers or in local investigations (carried out by the students themselves).

The focus of this paper, then, will be on the relationship between questions (question-based-learning) and democratic deliberation generally; and within a context of education for sustainable development (ESD) in particular. How can inquiries in ESD be democratic? What are the limits of democratic deliberation in ESD?

Dewey once wrote that "inquiry and questioning, up to a certain point, are synonymous terms" (Dewey, 1986, 109). In this text it will be argued, rather, that questions and inquiry are intertwined but never synonymous. Every inquiry starts with a question, even though not every question leads to an inquiry (because of a lack of means or inter-

est). A more general term also employed here is doubt, which can also lead to an inquiry. A doubt may be vocal and explicit or unspoken and implicit.

The aim of this paper is to suggest a question-based learning process called a rogative process and to relate it to a democratic method of inquiry in ESD. A primary supposition here is that question-based learning is an effective learning process (see Schank & Childers, 1988; White & Fredrickson, 1998; King, 1999; Bransford et al., 2000; Sternberg, 2003; Plowright & Watkins, 2004; Pedrosa de Jesus et al., 2005; Hattie, 2009; Hargie, 2011) and that it is suitable for ESD (Fortner, 2001; Jensen, 2011).

The following sections will discuss what a rogative process is, how we can deal with question-based learning and how we can make students participate in the inquiry. The general discussion will address the advantages, shortcomings and documentation on the rogative process.

2. The rogative process

Rogare is a Latin word for question, meaning to ask. Hence, the rogative process is a process which focuses on one or several questions. It ought to be described as a process of the mind, beginning with a doubt and ending up with a belief (see figure 1); in accordance with early papers by Pierce (e.g. see Peirce 1992b).

If, for example, you come to be in a situation where your usual way of handling it does not work you will find yourself in a state of doubt. It is not a pleasant state to find yourself in so you will try to find out how to act. This is what Peirce referred to as an inquiry. It is a method (or actually you can choose from several methods depending on what will fit your task best) to leave the state of doubt and shape a new habit (or belief as Peirce also called it). A new habit or a new belief is the same as learning. The rogative process is a learning process.

Doubt ⇒ Inquiry ⇒ Belief

Figure 1. The rogative process beginning with a doubt or a question.

Peirce (1992b; also 1998) believed that this was the way we formed beliefs and habits in everyday life. When we are stuck in a habit (or belief) there is also a way to get beyond it. If you question a person's beliefs or habits you place this person in a state of doubt. In order to achieve this you have to work out one or several key questions (see below). The next step is to provide the person with a helpful method so the inquiry can result in a stable new belief.

The state of doubt can either be internally driven or externally driven. The internal doubt occurs more often when you experience something that you do not possess a supportive belief for. The most positive doubt in this situation is curiosity. For example, in late summer you can see flying insect-like creatures that look like ants with wings. Are they ants or are they another species? From a single observation you arrive at a doubt and if you are curious enough you will try to find an answer. The answer has to be generated from an inquiry. In the case of ants, what type of method is most suitable? When you have chosen a method, you might come up with an answer that forms a new belief and your doubt is gone.

The externally driven doubt comes when someone asks you a question that you have not thought of previously and for which you have no ready answer. The question can be the result of another person's doubt but in an educational frame it is often meant to be used to broaden the belief system of the students. These questions are called key questions.

A legitimate question is: why are questions important in ESD? The answer is found in the term *sustainable development*. We (the global community) strive for sustainability because many areas (e.g. the industrial and ecological) today are not sustainable. There-

fore we need to ask how it has turned out this way and how it might become sustainable. Development is a state of change which implies that static systems (including institutions and habits) will become obsolete every time the surrounding environment changes. Therefore we also need to ask why we are not adapting to new situations and how we can adapt.

2.1. Three perspectives on learning

If we simplify the schemata above to: question⇒method⇒answer, then we can use it to analyse three different ways of looking at learning. First of all, there are those who believe in fixed answers. The answer is the ideal and we just have to connect to it (see Sternberg, 2003; Schank, 2001, for a discussion). In this view the student only needs to memorise the answer (the fact) in order to learn. A student who does not memorise the answer is, according to this view, not a good student. Since there are only right and wrong answers (or the absence of an answer) proper learning occurs in connection with right answers (for some ethnographic examples see Salo, 2003; also Caine & Caine, 1997). The questions in the learning process are only asked by the teacher and the method is to *recall* what the teacher has previously told the student or to recall the facts that the student had previously studied (Sternberg, 2003). In some cases the answers are just designed to state the obvious (see example about butterflies below).

Question ⇒ Method ⇒ **Answer**

Figure 2. The first perspective on learning focuses on the answer.

According to the first perspective the answer is the most important focus. To learn something, you have to memorise it. Questions are used to check if the students have

learnt anything. The method the student has to use is memory recall (see figure 2). The following situation from a Finnish pre-school classroom provides an example of the first view (Lappalainen, 2003, 84):

> Meri (teacher): What is the language spoken in Finland?
> Chorus: Finnish!
> Meri: Good, all of you knew. But let's make an agreement that we raise our hands. Well, what is our capital?
> Someone: Helsinki.
> Meri: What is our nationality?
> Chorus: Finnish.

Another example from a Finnish classroom (Salo, 2003, 112-113):

> Teacher (to the pupils): Everyone has to raise their hands. How many yellow butterflies are there on page ten?

The pupils' questions are not part of the learning:

> Sini: What should I do here?
> Teacher: You should do the same as it says (Salo, 2003, 112).

The most frequently asked questions, by the pupils, are: "What do we do now?" and "Teacher, what next?" (Salo, 2003, 114). About the view on memory one child asks (Salo, 2003, 109):

> Mikko: Do we have to remember everything?

Teacher: Put everything into your memory right up here (points to her head).

The second perspective focuses on the teaching technique or method (see figure 3). The idea is that one method is superior to other methods. In order to learn, in this view, you had better use the superior method or you will not learn as much as you might. The questions are asked only in order to fit the method and the right answers naturally follow from the right method. Some examples of such techniques are lecture-based teaching, text-based teaching, inquiry-based teaching, technology-enhanced teaching, teaching organised around individuals or groups, or skill-based teaching. Some classical examples are Froebel, Freinet, or Montessori methods.

A democratic ideal is part of the perspective here because the democratic method argues that you will learn in an ethically satisfying manner when everyone takes part or at least when most of the group makes positive choices for the learning process. This may result in some learning but it need not result in any kind of learning at all. If the democratic process – which is a social activity which you learn to participate in as you would learn how to behave in order to form a queue – is known to the students and they use it in a satisfying manner, they do not learn anything simply by using the method. Learning in this context is connected to the content of the discussion. One criticism, then, is that using the democratic method does not necessarily lead to any new learning.

Question ⇒ **Method** ⇒ Answer

Figure 3. The second perspective on learning focuses on the method.

Asking what teaching technique is best is analogous to asking which tool is best – a hammer, a screwdriver, a knife, or pliers. In teaching as in carpentry, the selec-

tion of tools depends on the task at hand and the materials one is working with (Bransford et al., 2000, 22).

The third perspective focuses on the question (figure 4). What type of question is it? How can we deal with this question in the best way? Which method is preferred? By focusing on the question and choosing the most suitable method the end result, that is, the whole inquiry, will be what you learn. This is similar to the research process and is, in fact, the way that Peirce and Dewey (1985; 1986; see also Rescher, 2001) view learning.

Question ⇒ Method ⇒ Answer

Figure 4. The third perspective on learning, the rogative process, focuses on the question.

There are three similar terms that need to be distinguished: Problem-based learning (PBL), Inquiry-based learning (IBL) and Question-based learning (QBL). Problem-based learning is not seen as an example of the third view for three reasons (see Plowright & Watkins, 2004). (1) Although PBL might begin with a question from the outset, this process does not require it. (2) The word "problem" has a negative connotation in some research areas (i.e. in social work connected to terms as class, welfare, life changes, and gender). (3) "[T]he word 'problem' points students towards a primacy in thinking and practice of problem solving." (ibid., 187). In EE (environmental education) it is called EPS (environmental problem solving) where the students actually set out to solve a local problem (Ramsey, 2005). It is more in line with the third view to understand, reflect and in some cases react, not primarily to solve anything. That is why IBL is to be preferred instead of PBL because it focuses on the inquiry process and not on the result or solution *per se*.

Question-based learning, or rogative learning as we also may call it here, focuses on the question and how a question can be used to start a learning process. The inquiry process is still important but it is secondary to the question. A question in itself can change the structure of the human mind (King, 1999; Schank & Childers, 1988; Rescher, 2001). You cannot start an inquiry without a question and the whole inquiry depends on what question you ask (Alvarado & Herr, 2003; also Fortner, 2001). This is why the third perspective on learning focuses on the question, it directs the path of inquiry and the whole learning process (Schank & Childers, 1988).

> Example from a Swedish primary school (Jensen, 2000, 31): IR (a teacher) starts her outdoor lesson by asking a question: "Who do birds sing for?" The children begin buzzing right away. "Do not answer the question now. We will discuss it later when we return". They went off into the forest and the pupils tried to observe every bird they could find. On their way back, the pupils discussed what they believed. Some said that birds sang for people. Most of the children said that they sang for other birds. As they discussed it together, IR never provided her own answer to the question.

This example deals implicitly with the issues of anthropocentrism and biocentrism. The children who believed birds sing for humans are adopting an anthropocentric view on nature. To understand that humans do not necessarily have to be involved in other animals' lives are adopting a biocentric view on nature. The "right" view is never presented, instead they learn from listening to each other.

Sometimes reasoning about a question may lead to an answer (or a thought) that leads to a new question (see Rescher, 2001).

Example from a Swedish primary school (Jensen, 2000, 26): IB (a teacher) is talking about a special forest that the class is going to visit next week. If they are lucky they might see a rare woodpecker. IB asks: "What do woodpeckers feed on?" The students are not sure. The teacher suggests that they feed on insects and caterpillars. "Where can woodpeckers find bugs and caterpillars?" "In tree trunks", the students reply. "What will happen when the trees are sprayed with pesticides?" "Why are trees sprayed with pesticides?" The students discuss it for a while and conclude that trees are sprayed in order to get rid of the bugs and caterpillars. "What is left for the woodpecker to feed on?" The children answer that there is not much left and that might be why the woodpecker is so rare. IB announces that the forest they are going to visit is very old and has not been sprayed.

2.2. The internally driven question

When a child explores her local environment she will sometimes become curious or perhaps confused and will therefore try to learn more about various phenomena (Schank, 2001; Schank & Childers, 1988). The vocal child will ask the adults nearby in order to find answers. Sometimes these questions appear deeper than expected. For example, a six year old child asked if there definitely was lettuce seed in a bag that had the word lettuce written on it (Matthews, 1984). Why can't it be tomato seeds? The seeds might have been put in the wrong bag.

Panksepp (2005) suggests that human beings have seven emotional core systems. One of these systems is called SEEK. When this system is activated human beings tend to be more interested in their surroundings and in certain objects or events. This emotional system drives the internal questioning. The entire cognitive system is more likely to learn when the SEEK system is activated.

The desire to ask questions and to find an answer is a behaviour that generates pleasure without any given (promise of) reward. To be curious is a part of human na-

ture and an essential way of learning (Panksepp & Smith Pasqualini, 2005; Matthews, Zeidner & Roberts, 2004; Gopnik, Meltzoff & Kuhl, 2001; Schank, 2001).

Curiosity is, according to Russell (1926/1970), a primary need to learn. Inquisitiveness is a virtue; if ten questions do not provide results, the eleventh may still be of great significance. That is why educators should encourage children to ask questions. The best educators motivate students to formulate questions, not to demand that they be answering machines (Liedman, 2001; also Schank & Childers, 1988; Schank, 2001). A question is a way for both the student and teacher to learn. Peirce is critical of educators who are ”more concerned with teaching than with learning, […] some […] teach as a self-evident truth” (Peirce, 1992a, 179). Educators more often should take questions built on curiosity seriously.

> What we take to be primitive, however, may actually be more openly reflective than the adult norm we set as the goal of education, […] in that way we also avoid taking the child and the child's point of view with either the seriousness or the playfulness they deserve (Matthews, 1984, 52-53).

A way to utilise the children’s genuine questions is to do like Barb Johnson (a primary school teacher in USA):

> During the first week of school Barb Johnson asks her sixth graders two questions: “what questions do you have about yourself?” and “what questions do you have about the world?” The students begin enumerating their questions, “Can they be about silly, little things?” asks one student. “If they’re your questions that you really want answered, they’re neither silly nor little,” replies the teacher. [...] These questions become the basis for guiding the curriculum in Barb’s class. [...] According to Barb Johnson, “We decide what are the most compelling intellectual issues,

devise ways to investigate those issues and start off on a learning journey. Sometimes we fall short of our goal. Sometimes we reach our goal, but most times we exceed these goals – we learn more than we initially expected" (Bransford et al., 2000, 156-157).

Teachers and parents can help children by making questioning a part of their daily exchange (Sternberg, 2003). In an environment like Barb Johnson's classroom it is possible to learn what questions to ask and how to ask them.

2.3. The externally driven question

An educator may have a purpose with a question, that is, if it is seen as a means for reflective and developed thinking (Alvarado & Herr, 2003; King, 1999). The human mind has a tendency to settle down into routines. That is a way of being efficient but it is also a way of stagnating (Schank & Childers, 1988). De Bono (1970/1990) has suggested, what he calls, lateral thinking in order to break this stagnation and bring some creativity to the thought process. Lateral thinking is in part a way of provoking the human mind towards a new perspective. Hence, the educator is encouraged to use questions in a provocative way (see also King, 1999; Sternberg, 2003).

Some provocative and/or engaging questions may appear as follows:

- Can a shoe be an environmental problem?
- Can a shoe be an ethical problem?
- Who deserves to be poor?
- What would we do if all cars broke down at the same time?
- Whom do birds sing for?
- For whom are flowers so beautiful?
- How do we survive on an uninhabited island?
- Is waste useless?

- Is your joy necessarily pleasant to other individuals?
- Can you watch TV without energy?

Some of these questions are not only thought-provoking but also integrating. Integrating questions synthesise two or more ideas or beliefs (King, 1999). The question about shoes and environmental problems, for example, is of that kind. You have to integrate ideas about shoes and environmental problems as you know them. Questions about what will happen...? are of a similar kind (King, 1999; Schank & Childers, 1988). You can also ask what happened before... For example, what happened before a particular artefact became mine? What, for instance, is the history of my shoes? If I trace the way back to my shoes' "birth" I may find a whole story about people and events (Jensen, 2009; 2011). "In what way(s) does knowing the 'story' behind an object affect the value you give to the object?" (Alvarado & Herr, 2003, 126). That is a question to look further into.

A question can, according to Lipman (1991), be as sharp as a laser in a diffuse surrounding putting the object in focus and penetrating it.

> [T]he question is a way of engaging the student in directed practice dealing with a specific area of the problem at hand (Lipman, 1991, 224).

A good way to deal with problems is to seize the unique opportunity.

> Example from a Swedish primary school (Jensen, 2000, 30): IR (a teacher) invited me to join their outdoor lesson. When I arrived I introduced myself and told them where I was from. IR asked me how I had travelled to their school that day. I told them that I first of all travelled by bike, then by train and finally by bus. IR asked the group: "Did he travel in an environmental friendly way?" The pupils dis-

cussed the issue for a while. IR never gave her own answer but only asked some additional questions.

Example from a Swedish primary school (Jensen, 2000, 31): On the way to the forest one day, IR stops in front of a tree. When everyone has gathered around her she asks: "Do you see something peculiar?" After a while some of the children say that the tree has lost its leaves while the other trees nearby have leaves. "How can that be?" IR asks. After some reflection many of the children believe that the tree hasn't got its leaves yet. A few children say that the tree is sick or might be dying. IR says that the tree is a witch-elm. She walks a few steps and points to another tree. "This is also a witch-elm" she says. The other tree has plenty of leaves and elm-seeds. The pupils start to reflect again. The next time IR interrupts is when she encourages the children to taste the elm-seeds.

In these examples the teacher is using questions as a means for reflective thinking.

Wittgenstein believed that putting a child in a state of doubt was a waste of time. The basic problem is about abstract what-questions. To ask: "what is a ball?" does not cause problems, but, to ask: "what is space?" or "what is time?" or "what is a thought?" is problematic. The solution to these types of questions is to re-formulate the question into an *in what situation do we use the word …?* (Curtis, 1993). This solution is inspired by Wittgenstein himself. The following questions are examples of how we can deal with abstract questions:

- In what situation do we use the term ozone layer?
- In what situation do we use the term greenhouse gas effect?
- In what situation do we use the word acidification?
- In what situation do we use the word energy?
- In what situation do we use the term global economy?

- In what situation do we use the word democracy?

Even though this may be of help, these types of questions do not suit all situations or deal with all problems. Further, these kinds of questions can be of help to analyse why students and also teachers often have misconceptions about these terms (see i.e. Fortner, 2001).

In the sections above it has been discussed how to start an inquiry. The following section will deal with the inquisitive community and how the inquiry might be deliberated.

3. The community of inquiry and deliberative democracy

The term *community of inquiry* was coined by Peirce. He used it to describe a group of scientists who strive towards the same goal and discuss their inquiry together. It is a way to attain higher knowledge. Later the term came to stand for an educational method. It involves creating an environment of students in discussion who learn to listen to each other's ideas, who are inspired by each other and learn to listen to each other's views, encourage each other and develop an idea together (Lipman, 1991).

A community of inquiry is an environment where questions are taken seriously and are debated. The inquiry stops only when the group is satisfied with the answer, that is, when everyone who has something to say about the issue has raised his/her voice. During the discussion the group members become more integrated in the process and the participants become the process (ibid.).

The idea that everyone has something important to say about a question that involves them was argued by J. S. Mill (see 1956/1996). It is a fundamental democratic cornerstone. Mill believed that all members of a group have more knowledge together than the one who knows the most in the same group. That is the first argument for eve-

ryone participating. The second argument is that everyone in that group has something to learn from other individuals since you have to adopt the other person's point of view in order to understand a problem. No development occurs within a person who believes that he/she is right and is never questioned. The debate makes everyone intellectually richer and stronger in the group (cf. Malmberg & Svingby, 2004).

In a community of inquiry the educator may be the one who knows the most but not more than the whole group put together. Analytically, this gives the teacher a guiding position but not a leading position towards a given solution (Lipman, 1991). In a rogative process the teacher has the primary means, that is, the questions, and the secondary means, how to carry out the inquiry. The way of inquiry is not singular, it is satisfactory. *Don't block the way of inquiry*, Peirce (1992a; 1998) as well as Dewey (1986) stressed. If you don't become satisfied by using one method you have to try another method. The teacher needs to be able to provide many alternative methods. An inquiring communion is just one method.

Another fundamental idea, argued by Mill, is that every participant needs knowledge to make a solid contribution to the debate. The idea of democracy first is to discuss how we want things to be and second to implement this desire. This whole process requires knowledge and therefore participants need more than just to engage in a discussion. What we conclude then is that democracy needs education and education needs to be democratic.

Gutmann (1999) argues in a similar vein. To cultivate the skills and virtues of deliberation is a primary aim of public schooling, she argues. It is primary goal but it relies on other skills that we need to learn like reading, writing, counting, speaking, critical thinking, and perspective taking. This means that we learn to read and write and so on to be able to deliberate. Another way to put it is that we have no need of the skills to read or write if we can not deliberate.

Deliberative democracy, according to Gutmann, works on different levels. First, we (the members of a society) have to deliberate about education as a common institution. Second, we have to deliberate about necessary common knowledge. Third, we (teachers and students) have to deliberate in the classrooms about what we should deliberate, how we should deliberate and when we should deliberate. It is also important to deliberate about what not to deliberate about and when not to deliberate.

Deliberative discussion or deliberative communication is roughly defined as (Englund, 2000; 2005; 2006):

- Discussions where different views are allowed and argued from different angles.
- The individual participants are treated equally and with respect regardless of what their opinions may be. It concerns learning to listen to other people's arguments.
- It involves a collective act of will. The communicating group is supposed to reach a long lasting (at best), or a temporary, agreement.

This depends on fundamental democracy and human rights; it is, according to Dewey, "within a democratic context that each individual maximizes the meaning of experience and achieves the greatest autonomy" (Popp, 1999, 14). Deliberation is best used in groups or communities with a wide variety of opinions and backgrounds (like religion, regional belonging, ethnicity, social class or gender).

The principle of affected interest, suggested by Dahl (1970/1990), should be considered by those who are practising deliberation, democracy and the rogative process. Those who are affected, directly or indirectly, by a question or an issue, are the ones who should deliberate this question. A question that concerns two people should be discussed by those same two people and only by others when necessary. A question that concerns a whole group should be discussed by the whole group. This is a way of ensuring respect for the individuals' rights and democratic values but when it comes to

more abstract and global issues we need another strategy. Poverty, the greenhouse effect, human rights, and global trade are examples that can be discussed in a classroom but the group that is affected is much larger. This means that the students can learn parts of the problem but they can not reach a solution since the solution requires everyone to be involved (or at least representatives).

We need to know where we can practice democracy and where the boundary for learning from this practice lies. We can not discuss all abstract and global issues; the result of such discussion will be limited. Only a discussion in which everyone affected takes part can provide a thoroughgoing answer.

4. Discussion

The pedagogical approach discussed here called the rogative process, has not yet been fully developed. A reason for this may be that we often ask questions but we do not reflect on what kinds of questions it is that we ask. The first view on learning (see section 2.1. above) ask questions to receive the right answers. In the second view on learning questions are used to begin the method preferred. The kinds of questions that are interesting for the rogative process are genuine questions (internally driven from interest or curiosity), key questions (to guide the student into a specific area of knowledge or to provoke them to think in new directions), and open-ended questions (the answer is not known or is not the target for the process) (see e.g. Bransford et al., 2000; Alvarado & Herr, 2003; King, 1999; Sternberg, 2003; Axelsson, 2004).

Sometimes a question is used to begin a dialogue without any other purpose than to talk, to just be social. It is also used to get the chance to tell a story (e.g. do you want to know what I saw today?). In other situations a question may be used to receive a report on an earlier event (e.g. what did you do in school today?) or to check on what a child

has learnt (e.g. do you know how to use a calculator?). These kinds of questions are used in every day situations among friends and family, and sometimes in school. An individual's background influences them to use and respond to questions in a certain way. This may lead to difficulties when students from different backgrounds confront new ways of asking questions (Bransford et al., 2000).

Axelsson (2004) has shown how difficult it can be, both for the teacher and the students within EE, to change from closed questions (with a known and sought-after answer) to open-ended questions. None of the participants are comfortable with the new situation but eventually they adapt. Some good general examples can be found in Alvarado and Herr (2003), Caine and Caine (1997), Pedrosa de Jesus et al. (2005) and Bransford et al. (2000), and some EE/ESD examples can be found in Jensen (2000) and Brunner (1996), where the educator on the one hand lets their students ask genuine questions that are taken seriously and on the other hand asks key questions (open-ended questions) to guide the students into areas that they have not thought of before.

The advantage of genuine questions is that the student is already motivated to learn more. The challenge for the educator is to accept that the answer is not yet known to either the student or the teacher, which is often the case in ESD (Dahlberg, 2001). They have to come up with a suitable method to carry out the inquiry. The whole process is driven by the interest and curiosity of one student or a group of students, which provides the students with an opportunity for taking responsibility for their own learning (see i.e. Caine & Caine, 1997; Alvarado & Herr, 2003). Some problems with genuine questions may be that (1) the question is too innovative or advanced to be inquired according to a known method, (2) the question may be too broad in order to be deliberated fairly, (3) the relevant background knowledge is too small in order to handle the case (see Bransford et al., 2000).

The advantage to key questions is that they are able to direct students into areas of knowledge that they know little about but can still relate to (the question is supposed to

start in the familiar and be directed at or move towards the less familiar) (Schank & Childers, 1988). The question is also asked in order to provoke thought. The educator needs to be well prepared and know enough in order to guide the students into the new area of knowledge. This is definitely the critical part of the rogative process. Teachers may find themselves wandering off or may find their students a bit astray. Failure is maybe too much for some teachers or students to handle but on the other hand failure to some individuals may be just the right way to go about learning. Another problem with key-questions may be that the students find the question too difficult or not engaging (ibid.). The rogative learning process will probably not even start if that is the case. The challenge is to get the students involved and motivated by the question.

The methods for encouraging participation among groups of students are desirable primarily for the sake of participation. Participation is at best democratic, it broadens your view, and it creates common knowledge and common meaning (Lipman, 1991). A disadvantage is that some students never fully take part in this kind of activity and therefore never contribute to knowledge building (Malmgren & Svingby, 2004). However, they may still be able to learn from others.

A limitation to the democratic process, in this particular social activity, is learning how to act in a democratic way; when you know that social activity well it does not in itself lead to increased learning. A useful analogy is to think of it in terms of a car and every potential road that can be travelled; simply because you have learnt how to drive a car (i.e. how to participate in democratic deliberation) does not mean that you automatically know about the roads that *can be* travelled (i.e. the knowledge to be gained). You only know those roads that you already have travelled. In such a case it does not matter how good you are at driving (i.e. deliberating). You have to find the new roads (i.e. new questions to inquire) in order to learn about them (i.e. to deliberate and acquire/produce new knowledge).

The rogative process is similar to the research process; the question determines which method to use. In order to avoid blocking the path of inquiry the educator needs several alternative methods and tools. The end result, the answer to the question, is only one part of the learning process. The whole rogative process is learning (Ramsey, 2005; Jensen, 2011).

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