

Article "These Grandmas Drove Me Mad. It Was Brilliant!"—Promising Starting Points to Support Citizen Competence for Sustainable Consumption in Adults

Antonietta Di Giulio *, Corinne Ruesch Schweizer, Rico Defila, Philipp Hirsch and Patricia Burkhardt-Holm

Program Man-Society-Environment (MGU), University of Basel, Vesalgasse 1, Ch-4051 Basel, Switzerland; corinne.ruesch@unibas.ch (C.R.S.); rico.defila@unibas.ch (R.D.); philipp.hirsch@unibas.ch (P.H.); patricia.holm@unibas.ch (P.B.-H.)

* Correspondence: antonietta.digiulio@unibas.ch; Tel.: +41-(0)61-207-04-12

Received: 5 September 2018; Accepted: 21 January 2019; Published: 28 January 2019



Abstract: The article addresses citizen competence for sustainable consumption in adults. It discusses whether it is possible to develop educational offerings for adults (being by nature short and isolated) that effectively promote this competence and whether it makes a difference if sustainable consumption is approached by focusing on good life (quality of life) and justice or by focusing on natural resources and environment (as is suggested by, e.g., environmental literacy approaches). Taking the case of energy policy, it presents an educational intervention (EdIn) developed, implemented, and investigated by the authors. In data-analysis, three approaches were adopted (methodological triangulation), one analysing the deliberations' cognitive structure, one analysing the participants' perception, one analysing the participants' reaction (in terms of the knowledge/concepts and values/concerns they voiced). The results show, firstly, that the didactical design of EdIn was successful with a view to supporting citizen competence in participants. Secondly, they show that in adult civic education sustainable consumption should be approached by focusing on good life and justice. Thirdly, they indicate that people do not necessarily perceive themselves to be part of societal decision-making, leading from the question of the design and content of civic educational activities to the question of their necessity.

Keywords: energy policy; sustainable consumption; education for sustainable development; adult education for sustainable development; citizen and consumer; civic education; citizen competence; civic competence; good life; quality of life

1. Introduction

It is broadly accepted both within and outside academia that sustainability in consumption will not be achieved by relying on technical solutions only and that it will only be achieved if consumer behaviour changes as well (e.g., References [1–4] to name just a few). This refers to individuals in their role as consumers and it calls for policies supporting or initiating this change of behaviour. The latter, in turn, involves individuals in their role as citizens, because designing and deciding about policies for sustainable consumption is not (and cannot be) confined to governmental bodies, politicians, and technical experts (e.g., [2,3,5–9]). We proceed, thus, from two basic assumptions. The first is that sustainable consumption will not be achieved without fundamental transformations of consumption. The second is that inducing fundamental changes in consumption is neither the sole responsibility of



governments nor the sole responsibility of individual consumers, but a shared societal responsibility (implying that we proceed from the concept of a democratic society).

1.1. Why It Makes Sense to Distinguish Citizen Competence from Consumer Competence

In their role as citizens, individuals influence decision-making not only indirectly by accepting, supporting or resisting changes and thus influencing other policy-making actors, but also directly by consenting to or refusing policy options in democratic decision-making processes. That is, with regard to policies that address consumer behaviour, individuals are actors participating in enacting change, actors affected by change, and "essential contributors to the effective execution of the selected (...) options" [10] (p. 191). Thus, in their citizen role, individuals have at least to consent to policy measures and to support their implementation, and in their consumer role, they have to adopt and implement these measures in their behaviour. In other words: With a view to sustainable consumption, individuals are important actors both in their role as consumers and in their role as citizens, both of these roles are not passive but active, and individuals do different things when they act as consumer or as citizen. The existence and importance of these two roles is widely accepted in the scholarly literature, but it is often neglected in policy design (this is pointed out, for instance, by Berglund and Matti [11] and by Spaargaren and Osterveer [12]). Our research shows that individuals display markedly different patterns of thinking, patterns of arguing, and concerns, depending on whether they are addressed as a consumer or as a citizen [13].

With a view to education for sustainable development, this leads to the conclusion that individuals need both a consumer competence and a citizen competence (see also, e.g., References [11,12,14–16]): The consumer competence focuses on the ability of individuals to assess acts of consumption and to implement sustainability in their acts of consumption in their role as consumers. The citizen competence focuses on the ability of individuals to assess consumption policies and to participate in societal decision-making toward sustainable consumption in their role as citizens. To account for the different foci of consumer competence and of citizen competence, for the different acts of consumers and citizens and for the different perspectives associated with these two roles, these competences—consumer competence and citizen competence—must be distinguished and activities to support the development and improvement of these competences have to be tailored and designed accordingly. We emphasise this because, although the necessity for these two competences is not controversial in the scholarly literature, they are quite often not accurately distinguished (examples are References [17–19]). And with a view to fundamental changes in consumption, evidence provided by Balsiger, Lorenzini, and Sahakian [20] shows that individuals, at least in Switzerland, tend to reduce their perspective to that as a consumer. This, in turn, leads individuals to focus on small changes (what Balsiger et al. [20] call "micro-gestures"), instead of fundamental transformations. Hence, while not contradicting that the two roles consumer and citizen, as well as the two competences, i.e., consumer competence and citizen competence, interleave (see, e.g., References [12,14–16]), we argue that because of the differences in perspective (see also, e.g., Reference [11]), it makes sense to disentangle these competences.

1.2. What Citizen Competence with a View to Sustainable Consumption Is about

In this paper, we focus on citizen competence and therewith on civic education for sustainable consumption. Before turning to the latter, we have to clarify the specifics of citizen competence in the context of sustainable consumption. Because citizen competence focuses on the ability of individuals to assess consumption policies and to participate in societal decision-making toward sustainable consumption, we do this by drawing on the most important specifics of societal decision-making toward sustainable consumption.

1.2.1. Specifics of Societal Decision-Making in the Field of Sustainable Consumption

In the field of sustainable consumption, there is no such thing as absolute certainty and completeness of knowledge to draw on in designing and deciding on policy options. Rather, there are different context-specific truths [21], making it impossible to base policy decisions solely on scientific knowledge [22,23]. For sustainability policies to be accepted and effective, they have to be in line with the knowledge, concerns, and values of the different stakeholders and with their perception and assessment of the outcomes of these policies (e.g., References [2,3,11,22,24,25]). Hence, sustainable consumption has to be societally negotiated both in terms of its exact definition and in terms of the policies leading to its achievement (e.g., References [26,27]). This, in turn requires, participative approaches based on deliberation and consensus-building and involving all relevant stakeholders, that is, citizens as well. Participation of citizens in societal decision-making cannot be reduced to the formula 'experts and/or politicians develop suggestions that citizens accept or reject': This formula negates the perspectives (knowledge/concepts, values/concerns, experiences) of citizens (and, by the way, of consumers as well). Accordingly, participation is not about asking citizens to voice their opinion to a set of given options, but about engaging into deliberation, leading to the integration of perspectives and consensually developed policies.

Processes leading to this kind of societal decision-making are deliberative in nature (see, e.g., References [16,28,29]); that is, decision-making is a decision between options that are developed in the course of a preceding deliberation (according to Bohn and Fuchs [28], this distinguishes decision-making from a mere choice-making, and in the framework of Arnstein [30], this understanding of participation corresponds to the rungs 6-8 in her ladder of citizen participation). They foster individual, mutual, and collective learning, and this learning is not confined to acquiring new information (or getting to know more about the legal system and (political) functioning of one's society) but is of a deeply reflexive nature. This learning entails questioning accepted knowledge, reflecting individual perspectives, and integrating different bodies of knowledge. Such processes take place collectively, they emphasise face-to-face discussion and interaction, and they are oriented toward mutual understanding, knowledge integration, and consensus. They foster change of individuals' perspectives and revision of preconceived understandings through experience and exchange of perspectives. They encourage people to become involved and to turn toward the collective good beyond individual interests. Conditions favourable to such processes are transparency and fairness of the processes, mutual trust, a diversity of participants (and, thus, perspectives), face-to-face dialogue, a neutral facilitation, and that participants perceive themselves as being actually influential. According to Sinclair and Diduck, the key to success is "that all (...) participants share a commitment to mutual learning and responsibility for making contributions to the process" [29] (p. 177).

1.2.2. Citizen Competence in the Context of Sustainable Consumption and Corresponding Educational Offerings

Citizen competence in the context of sustainable consumption is the competence of individuals to engage in and to contribute to the kind of processes described in the previous section (Section 1.2.1). Based on the broad body of literature dealing with the ability of citizens to participate in such processes (e.g., References [31–38]), we substantiate this competence as follows: Individuals must be willing and able to engage in a deliberation aiming at developing policy options and achieving consensus. They must be willing and able to engage in individual, mutual, and collective processes of learning and reflection, that is, to acquire new information, to collectively integrate knowledge, to understand and compare perspectives, to question both their own perspective and that of others, and to revise their own (pre)conceptions and broaden their perspective. They must be willing and able to become involved and to take on responsibility, to move beyond their individual interest and toward the common good.

Civic education for sustainable consumption is education supporting individuals in developing and increasing this competence. The same body of literature and the body of literature mentioned in Section 1.2.1 allow us to infer criteria activities of civic education have to meet: Activities of civic education must themselves comply with the conditions mentioned above, that is, they should allow for interaction and collective action in their design, they should create an atmosphere that fosters mutual understanding and trust, and they should ensure a diversity of participants and provide for neutral facilitation.

This understanding of citizen competence and its consequences for corresponding educational offerings is in line with, and part of, most approaches in education for sustainable development for children and youths (e.g., [39–41]). What is, however, basically neglected in the scholarly debate about education for sustainable development (an exception is, e.g., Reference [31]) is the problem of how to provide educational offerings for adults targeting this kind of citizen competence for sustainable consumption.

Designing and implementing such offerings for adults has to deal with some specific challenges (e.g., [31]): To be inclusive, such offerings have to be rather short and consider restraints in terms of the time people can and are ready to invest in attending them. This sets limits with a view to the possibilities of going into details and leading in-depth discussions. Such offerings are optional, that is, there is no guarantee that someone attends more than one offering. As a consequence, each offering must be conceived as an isolated and single offering, and this in turn does not allow to draw on anything that has been or will be done and achieved in another educational offering; it is, in other words, impossible to adopt a curriculum perspective in the design of such offerings.

These challenges are considerable and raise the question of whether it is possible to promote citizen competence for sustainable consumption of adults by educational offerings and how such offerings should be designed (with a view to both didactics and content) to comply with the abovementioned conditions and to meet the outlined challenges. This is the question we address in this paper.

The paper is structured as follows: In Section 2, we describe an educational intervention we designed and implemented to investigate this question. In Section 3, we present the data we produced and how we approached data analysis, and in Section 4, we show our results. In Sections 5 and 6, we discuss what can be achieved by such an educational offering, and we draw conclusions with a view to the implementation of educational offerings targeting the promotion of citizen competence for sustainable consumption in adults.

2. Design of the Educational Intervention (EdIn)

In a project funded by the Swiss National Science Foundation (SNSF) (this research project was funded by the SNSF as part of its National Research Programme (NRP) 71 "Managing Energy Consumption" (2015–2017). Project title: "Towards societal consensus – Influencing the perception and evaluation of energy policy measures by means of self-reflection and information". Project team: Rico Defila (attorney at law, co-leader), Antonietta Di Giulio (philosophy, co-leader), Patricia Holm (biology, co-leader); Philipp Hirsch (biology, research associate), Corinne Ruesch Schweizer (educational sciences, research associate). We realised an educational intervention (*EdIn*) aiming to foster citizen competence for sustainable consumption in adults. Due to the context in which the research was funded, *EdIn* focused on energy policy (in Section 5.4, we address its applicability in other fields of consumption policy). In this section, and proceeding from what has been outlined in Section 1, we justify and describe the guiding principles and the specified goals as well as the content and the structure of *EdIn*.

2.1. Specified Goals and Guiding Principles of EdIn

The specified goals of *EdIn* correspond to the understanding of citizen competence in the context of sustainable consumption that we explained in Section 1.2.2. The principles guiding the design of *EdIn* are drawn from the conditions that activities of civic education must comply with that we described in the same section and from the theory of teaching and learning that we adopted. In terms of teaching and learning theories, *EdIn* is based on a constructivist approach (e.g., [42,43]). According

to such an approach, education is a process that cannot be determined by the teachers but has to be accomplished by the learners themselves, and education is not primarily about replacing falsities by truths but about broadening, diversifying, and refining the learners' perspectives.

With a view to the promotion of citizen competence, *EdIn* should promote the participants' abilities in assessing and developing energy policy options, in engaging in deliberation and consensus-building about energy policy, and in individual, mutual, and collective learning and reflection about perspectives in their relation to energy policy. With a view to its didactics, *EdIn* should draw primarily on the participants' perspectives and allow for discussion and reflection leading to a broadening of these perspectives, and it should be characterised primarily by face-to-face discussions and activities of participants.

EdIn should provide participants with the opportunity to acquire new (scientific) information and to use this information as a basis to reflect their own perspectives. Accordingly, presentations by the facilitators had to be part of *EdIn*, but these presentations should be as short as possible. They should be tailored to support reflection and discussion, and they should not aim at conveying as much information as possible. After each presentation, a moderated discussion should allow to link the content of the presentation to the participants' perspectives, that is, each presentation should end with an appropriate stimulus, and each discussion should be initiated with a question inviting participants to voice their own knowledge and experiences and to formulate questions and considerations. These discussions should also be a substitute to a serious beforehand investigation into participants' perspectives (knowledge/concepts, values/concerns, experiences) not being possible for this kind of short and isolated educational offering.

EdIn should provide participants with the opportunity to apply what they would hear and discuss and to draw their own conclusions from that. Therefore, *EdIn* should not present participants with final solutions to the 'energy issue' or with a set of criteria to apply in assessing energy policies but invite them to develop, justify, and apply suitable criteria by themselves. This should encompass interaction, thus providing the participants with the opportunity to exchange and compare perspectives. At the same time, it should simulate a political deliberation about policy measures aiming at consensus. In order to avoid the impression that the facilitators are assessing the participants, and in order to make it easier for those participants that do not feel comfortable if they have to speak in public to voice their opinion, this collective action should take place in small working groups and not in the plenary. However, the results of these discussions should be presented and discussed in the plenary to allow for comparisons, and these presentations should in turn be the basis for an overarching discussion about energy policy. An abstract development and discussion of criteria is at least difficult and might, depending on their cognitive competences, be even impossible for some of the participants. Because of that, participants should be provided with a selection of policy measures targeting or affecting consumer behaviour they should use as a case for application. These measures, in turn, should be actually discussed in Switzerland, and for that reason, we decided to choose them from the 182 measures mentioned in the different documents building the Swiss "Energy Strategy 2050".

A constructivist approach to teaching and learning has implications not only on didactics, but also on the content of educational offerings. It implies that the content of an educational offering should be constructed by integrating the relevant scientific perspective(s) on the topic and the learners' perspectives on the topic to allow for effective learning (see, e.g., the "Model of Educational Reconstruction" [43]). In more general terms, this requires that the learning content of educational offerings links to the perspectives of those addressed by the educational offering (in our case, this is the perspective of individuals in their role as citizens).

The topic energy policy can be approached from different angles leading to different possible contents of an educational offering, and with a view to sustainability, the most important ones are environmental issues and issues of good life and justice. Taking environment as a focus in the education of adults is quite prominent in the literature. It is often assumed that the problem of policies not being broadly accepted or not being effective is caused by a lack of environmental literacy (or energy

literacy) in individuals. The natural conclusion is that it is necessary to increase this literacy by educating individuals about environmental issues and/or technical solutions to environmental (or energy) problems (e.g., [9,17,18,44,45]). Taking good life and justice as a focus is in turn not advocated by scholars with a view to educating individuals. However, several scholars point out the importance of issues of human well-being with regard to assessing policy options and with regard to policy support and conclude that a discussion on quality of life might be a possible starting point to tackle change toward sustainable consumption (e.g., [21,46]). Our own research [13] shows, firstly, that how energy policy measures impact on human well-being and social justice is crucial to both the consumer perspective and the citizen perspective. With regard to environmental issues, it shows, secondly, that although people do not attach much importance to natural resources from a consumer perspective, environmental protection as an outcome of energy policy measures seems to be important to people from a citizen perspective. Hence, both foci could provide a suitable content for an educational offering targeting citizen competence for sustainable consumption of adults.

We wanted to find out whether we can identify any differences between an educational intervention focusing on the content of good life (and the impacts of policy measures on the quality of life and justice) and one focusing on the content of natural resources (and the environmental impacts of policy measures). What interested us most was the question of whether one or the other connects more to the perspectives of individuals in their role as citizens and is, thus, more suitable to support the development of citizen competence. For this reason, we needed two versions of the same intervention, one informed by a good life perspective (the *EdIn-GL*) and one by a natural resource perspective (the *EdIn-NR*). These two should be applied in a quasi-experimental setting.

In designing *EdIn*, we adopted an interdisciplinary approach: In a first step, three members of the project team identified the didactical elements to consider in designing *EdIn*. In parallel, and depending on their research expertise and scientific background, two team members identified the core messages (premises and statements) to convey to participants with a view to the good life perspective, and two did the same with a view to the natural resource perspective. In a second step, the results of these three subteams were exchanged and discussed until reaching agreement within the team. In a third step, the didactical structure of *EdIn* was developed and, in a fourth step, the inputs (including the slides and examples as well as the stimuli concluding the inputs and the questions to initiate the discussions), the materials, the tasks for the working groups, and the rules on how to moderate the discussion were elaborated on and discussed in the team until reaching agreement.

2.2. Core Messages and Stimuli of EdIn-GL and EdIn-NR

2.2.1. The Core Messages to Convey in EdIn-GL and the Stimuli in EdIn-GL

To develop the core messages and stimuli for *EdIn-GL*, we drew on research about how sustainable consumption and good life (not in a moral sense but in terms of quality of life) relate [26,47]. We arranged the core messages and stimuli in two packages as follows:

Package one starts from the premise that humans want to lead a good life, that is, a life they value (premise 1). It comprises the following statements (statements 1–4):

- Statement 1: Humans do not want to consume energy. Rather, they want to satisfy needs and desires that specify their conceptions of a life they value, and the acts of consumption they perform serve the purpose of satisfying these needs and desires. Thus, consumption of energy is not an end in itself but a means to achieve specific purposes.
- Statement 2: What individuals want (ends in themselves) has to be distinguished from the means they adopt to achieve these ends. With regard to the means, the acts individuals perform in order to satisfy their needs and desires must be distinguished from the consumer goods (products, infrastructures, services) they use in performing these actions.

- Statement 3: Quite often, individuals can satisfy their needs and desires by different means, that is, they can satisfy a specific need or desire by other means (other acts or other consumer goods) without impairing their quality of life.
- Statement 4: Relevant to energy are not the needs and desires of individuals (the purposes), but the acts they perform in order to satisfy them, and the consumer goods they use in performing these actions, and these means, in turn, differ with regard to their relevance to energy. To assess this relevance, not an entire and connected chain of acts of consumption has to be assessed, but the single acts within this chain.

The stimulus that concludes package one is (stimulus 1): Means and ends in themselves must be distinguished, and it must be asked what from what individuals do is actually relevant to energy.

Package two starts from the following premise: Because all (non-)actions of individuals impact the life and actions of others, both the question of how quality of life and justice relate and the question what role this plays or should play in discussions about energy and energy policy are questions to be asked (premise 2). It comprises the following statements (statements 5–7):

- Statement 5: Individual conceptions of a good life differ, but looking at the ends themselves instead of looking at the means reveals that, possibly, some of these ends are universals (making it necessary to distinguish universal needs from not universal desires).
- Statement 6: The starting point to distinguish means from ends in themselves and to identify means being relevant to energy should be universal human needs.
- Statement 7: The goal of sustainability is to ensure that each and every human being living now or
 in the future has the possibility of living a life he/she values. For this reason, reflecting on energy
 policy must always encompass reflecting on the quality of life we want to provide for humans
 living at the same place we do, for those living in other places, for those living now, and for those
 living in the future. Thus, it is necessary to consider how present individual and collective acts
 impact the possibility of others to lead a life they value.

The stimulus that concludes package two is (stimulus 2): This way of thinking raises a series of questions which are uncomfortable because there is no final answer to them: What world do we want to leave to future generations, what chances and what mortgages? How do our acts affect other humans—here, elsewhere on the world, now, in the future? When are our doings, as individuals and as society, just? How exactly do we define justice?

2.2.2. The Core Messages to Convey in EdIn-NR and the Stimuli in EdIn-NR

To develop the core messages and stimuli for *EdIn-NR*, we drew on research about the environmental impact of energy production and energy use [48,49]. We arranged the core messages and stimuli in two packages as follows:

Package one comprises the following statements (statements 1–2):

- Statement 1: With a view to the pollution and to other forms of damage to natural resources and to the environment as well as to the overuse of natural resources, not only the energy use matters but also the energy source. Different energy sources such as fossil or nuclear sources differ with regard to their environmental impact, both at the place where the energy is produced and at the place where the energy is consumed. Because of this, discussions around energy have to consider the environmental impacts caused by the energy source and the transportation of energy as well.
- Statement 2: With a view to a sound discussion around energy, grey energy (embodied energy, hidden energy) is as important to consider as the direct and operational (visible) energy use.

The stimulus that concludes package one is (stimulus 1): It is important to consider both the source of the energy that goes into consumer goods and the amount of grey energy hidden in consumer goods.

Package two comprises the following statements (statements 3–4):

- Statement 3: The energy use requires more environmental goods and natural resources than those
 that are used directly in the production of energy (in a narrow sense) and those that are used in
 the production of consumer goods (products, infrastructures, services). This encompasses both
 the use of environmental goods and natural resources as well as their pollution. These rather
 diverse impacts on environmental goods and natural resources all have to be taken into account
 when reflecting about energy and energy policy.
- Statement 4: Producing renewable energy is not neutral with regard to its environmental impacts. That is, the production of renewable energy uses and impairs environmental goods and natural resources as well.

The stimulus that concludes package two is (stimulus 2): With a view to a reasonable and sustainable dealing with energy, both play a crucial role: The energy source as well as the energy use and with that the amount of energy that is consumed.

2.3. Structure of EdIn

Introduction: To get started, the participants and the facilitators introduced themselves (Table 1). This introduction was designed to be, at the same time, a first invitation to the participants to voice and share their individual energy-related perspectives. This invitation should be made as tangible and as low-threshold as possible, it should be as open as possible, it should avoid that participants venture into unfolding their declarative knowledge about energy and/or whether and how they make efforts to save energy (or felt forced to do so), and it should avoid that the participants start to worry about whether they are being tested. To achieve this, participants were provided with a selection of approximately 40 rather diverse images (mostly photographs), and this body of images encompassed both images that have to do with energy in the sense of energy policy as well as images that have to do with energy in the spontaneous image the term 'energy' evokes with them, and facilitators did the same.

The two main parts: Part 1 consisted of short presentations by the facilitators (core messages and stimuli from the good life perspective in *EdIn-GL*, core messages and stimuli from the natural resource perspective in *EdIn-NR*), followed by discussions serving the purpose of enhancing understanding of the presentations and of linking them to the perspectives of the participants (Table 1). The core messages and the stimuli were conveyed in colloquial language and mainly using a lot of examples tailored to daily life in Switzerland. In part 2, the participants reflected on the consequences of the good life perspective (in *EdIn-GL*) or the natural resource perspective (in *EdIn-NR*) on energy policy by developing and applying criteria they perceived to be adequate to assess policy measures in a way that is consistent to these perspectives in working groups. These criteria were presented and discussed, and this, in turn, led into an overarching discussion about energy policy (Table 1).

Feedback: At the end of an educational offering for adults, participants are, as a rule, explicitly asked about their learning outcomes. This reflection can be combined with asking participants to give feedback on content and didactics. Because we wanted to get explicit feedback to *EdIn* from the participants, we refrained from asking them explicitly about their learning outcomes but focused on asking them explicitly how they had experienced *EdIn* (Table 1).

Duration	Content and Didactics			
10'		Arrival of participants and welcome		
30'		Introduction		
		The participants and the facilitators introduced themselves by explaining their choice		
		of image.		
60'	Part 1	Presentation I and discussion I		
		Presentation I (10') In EdIn-GL, the presentation covered premise 1, statements 1–4 and stimulus 1. In EdIn-NR, the presentation covered statements 1–2 and stimulus 1. Discussion of vresentation I (20')		
		The participants were asked an initiating question they discussed in pairs. The reports by these groups informed the subsequent discussion in the plenary.		
		<i>EdIn-GL:</i> How can we distinguish between wants of individuals and the means they use to satisfy their desires and needs?		
		<i>EdIn-NR</i> : What do we know about the grey energy of the products we use, and how much can we find out about it?		
		Presentation II and discussion II		
		Presentation II (10')		
		In <i>EdIn-GL</i> , the presentation covered premise 2, statements 5–7, and stimulus 2. In <i>EdIn-NR</i> , the presentation covered statements 3–4 and stimulus 2. <i>Discussion of presentation II (20')</i>		
		The participants were asked an initiating question they discussed in the plenary.		
		<i>EdIn-GL:</i> The freedom to choose and implement one's own lifestyle ends where it impairs the quality of life of others: Which others must be considered, that is, how far does our obligation reach?		
		<i>EdIn-NR:</i> Building hydropower stations to gain regenerative energy is always accompanied by intervening in ecosystems: To what extent are such interventions in ecosystems justified?		
20'		Coffee break		
85′	Part 2	Application of the perspective GL (<i>EdIn-GL</i>) or NR (<i>EdIn-NR</i>) to energy policy <i>Working groups (</i> 45')		
		The participants were provided with a list of six energy policy measures (each		
		described in 2–3 sentences). They were asked to, firstly, identify measures they found		
		particularly convincing (or particularly unconvincing) against the background of what		
		ritoria they had used in this selection		
		Presentation of working groups' results and discussion (40')		
		In a first step, the working groups presented their results, and these results led, in a		
		second step, to an overarching discussion about energy policy.		
15′		Feedback		
		The participants were asked what they had found more or less interesting, what		
		should be changed and what should be retained. They answered in the plenary, but		
		no-one was forced to answer the question.		
20'		Closure (drinks and snacks)		

Table 1. Timeline, initiating questions, and working group tasks of the educational intervention (EdIn).

3. Methods Applied in Analysing the Data

EdIn was embedded in an empirical design that was larger in scope and sample than *EdIn* and consisted of two rounds of seminarrative (individual) interviews with 48 respondents, one round before and one after *EdIn*. The aim of these interviews was to uncover how individuals perceive (future) energy policy measures in their role as consumers and in their role as citizens (for more details and the results, see Reference [13]).

In the first part of the interviews in round one, we addressed respondents in their consumer role (anticipation of impacts of measures on their own lives), and in the second part, in their citizen role (consenting to or rejecting measures). Each respondent was assigned one out of three energy policy measures. In the second round of interviews (approx. one year later), each respondent was provided with the reprocessed results of the first interview with him/her. This second round of interviews served the purpose to ascertain whether in analysing and interpreting the data, we would

have to consider major changes in the perception and judgement of the respondents. Those out of the respondents that had participated in *EdIn* were asked for feedback on *EdIn* (the supplementary question was whether they had, looking back on the discussion, any comments on the discussion).

EdIn took place in between these two rounds of interviews, that is, approx. eight months after round one and five months before round two. In this section, we present the participants of *EdIn* (recruitment and sample), the data we produced, and how we approached data analysis.

3.1. Recruitment of Participants and Sample

The sample for our project was built by quota (the characteristics of quota sampling being gender, age, educational level, place of residence) and consisted of 48 respondents. The quota of each characteristic in the sample (Table 2) matches the distribution in the Swiss population (aged 20 and older). The single characteristics have been independently calculated.

To recruit participants for *EdIn*, we invited all of our 48 respondents to attend a "discussion about energy policy" lasting four hours (one 15–19 pm, the other one 16–20 pm). They were offered two dates (both were weekdays) out of which, if they wanted to accept the invitation, they could choose one suiting their availability (that is, it was their availability that decided to which of the two *EdIns* they were assigned). Those that had accepted our invitation knew that two such discussions would take place, but they knew neither that these discussions would differ with regard to the content serving as a starting point to approach the topic of energy policy nor what the exact content would be in the discussion they would attend.

EdIn did not take place at the University of Basel (placed at the northern end of Switzerland) but in the railway station in a city that in Switzerland is perceived to be the 'neutral place' to meet for people coming from different parts of the country (and providing rooms for a broad diversity of gatherings). All the same, both the duration of the discussion as well as the necessity to travel to another place were considerable obstacles for people to participate. Thirteen respondents attended *EdIn* (Table 3), six of them attended *EdIn-GL*, and seven *EdIn-NR*.

Gender		Age	Educational Level		Place of Residence		
Men	24 (50%)	20–39	16 (33%)	ISCED 0-2	10 (21%)	Country	13 (27%)
Women	24 (50%)	40-64	21 (44%)	ISCED 3-5(6)	23 (48%)	Urban	27 (56%)
		65 upwards	11 (23%)	ISCED 6-8	15 (31%)	Town (>70'000)	8 (16%)

Gender		Age		Educational Le	vel	Place of Residence
Men	4	20–39	2	ISCED 0-2	1	Country 3
Women	9	40-64	8	ISCED 3-5(6)	5	Urban 3
		65 upwards	3	ISCED 6-8	7	Town (>70'000) 7

Table 3. Sample of *EdIn*: 13 respondents out of the 48 attended the educational intervention.

 Table 2. Sample of the project: 48 respondents, built by quota.

3.2. Data Analysis

How *EdIn* was executed is shown in Section 2.3. The question we wanted to investigate was (see above, Section 1.2.2) whether it is possible to promote citizen competence for sustainable consumption of adults by educational offerings and how such offerings should be designed (with a view to both didactics and content). The analysis of the body of data should allow to compare *EdIn-GL* and *EdIn-NR*. The entire *EdIn* was tape-recorded (except for the discussions in the working groups) and transcribed (with a simple transcription system cf. [50]). The working groups wrote the criteria they used in their identification of particularly good or poor measures on cards that they then presented in the plenary (see Table 1), and these cards were photographed. Additional data were the answers to the feedback question in the second round of (individual) interviews with those that had participated in *EdIn*. These

answers were also tape-recorded and transcribed. We adopted three approaches to analyse the body of data (the transcripts and photographs):

- *Approach* 1 focused on the cognitive structure of the deliberations, that is, on how the discussions evolved in terms of the issues that were raised, the arguments that were developed, and the topics that were taken up or not during the discussions (analysed data: Part 1 discussions, part 2 presentations (transcripts and cards), part 2 discussions).
- *Approach* 2 focused on the participants' perception of *EdIn*, that is, on how they experienced the setting and the discussions and on what they had, according to their own perception, learned (analysed data: Answers to feedback questions at the end of *EdIn* and during the second round of interviews).
- *Approach 3* focused on the participants' reaction to *EdIn*, that is, on how they reacted to the stimuli and the discussions in terms of the kinds of individual knowledge/concepts and values/concerns they voiced (analysed data: Part 1 discussions, part 2 presentations (transcripts), part 2 discussions).

These approaches cover, firstly, different and complementing aspects, both with a view to citizen competence as it is defined in Section 1 and with a view to the requirements that activities of civic education should meet in their design that are outlined in Section 1. Secondly, they represent a systematic interdisciplinary methodological triangulation leading to a broader and more differentiated understanding of *EdIn*. By adopting these three approaches, we took on several and complementing perspectives on *EdIn* and applied them equally and consistently in their respective logic. With reference to the terminology provided, for instance, by Flick [51], approach 1—the investigation of the interactively produced cognitive process in *EdIn*—corresponds to a structural perspective, while approach 2—the investigation of the meanings (incl. perceived learning outcomes) attributed to *EdIn* by the participants—corresponds to a meaning-related perspective. Additionally, we chose approach 3—the investigation of the individually produced cognitive reactions—to provide for a complement to approach 1. In implementing these approaches, we not only drew on different disciplinary approaches but also analysed multiple types of data [51].

3.2.1. Approach 1—Analysing the Cognitive Structure

This analysis focused on the content of the deliberations, that is, the entire discussions and the entire presentations (part 1: Two in *EdIn-GL* and two in *EdIn-NR*; part 2: Two in *EdIn-GL* and two in *EdIn-NR*) were each considered as a text, as an object to be examined with a view to its content and cognitive structure (see, for this kind of analysis, the contributions, for instance, in Reference [52], especially [53]). In this approach, the epistemological interest applies to the text itself, not to the persons who have produced it. The analysis has been done by applying a philosophical approach of analysing texts to a text not being an artificial text, that is, to a text that is not authored, but that is yet treated as one artefact. This kind of analysis is based on the hermeneutical assumption that the artefact subjected to the analysis is meaningful in a cognitive sense and that this meaning can be detected.

Part 1: Discussion I and Discussion II

The analysis of the transcripts of the discussions in part 1 of *EdIn* proceeded from a diachronic approach. It was informed by the following questions: (a) What arguments are put forward, what statements are made (content)? (b) Which arguments, statements are what kind of reaction to which other arguments, statements, that is, what kind of speech acts take place (speech acts)?

In the first step of the analysis, summaries of the content were produced, and these summaries were tagged according to the speech act they represent (see Table 4 for the tagging categories). To enhance credibility of the analysis, we used the strategy of rater triangulation by validating the summaries and the tagging and discussing differences in summarising the content and in tagging speech acts until achieving consensus.

Tagging Categories	Tagging Rules
Affirmation	Content is an explicit affirmation (or a repetition) of a previously uttered content by the same person.
Answer/reaction	Content is clearly an answer to a question asked or an objection raised.
Application own life	Experiences and examples taken from the own life ("I", my family, my housing estate etc.).
Application generalised	'Abstract' examples (human beings, people in Switzerland, "we", one does etc.).
Broadening	Content is an explicit broadening of a previous content.
Broadening focus	Content broadens the focal content of the <i>EdIn</i> -perspective (good life in <i>EdIn-GL</i> , natural resources in <i>EdIn-NR</i>) by introducing an aspect that according to an expert's opinion does not directly relate to this focus.
Conclusion	Content is a conclusion drawn from previous statements.
Confirmation	Content explicitly confirms a statement, a further consideration, a conclusion etc. uttered by another person (in case of doubt, that is, in cases where a statement is similar to a previous but without explicitly referring to this previous statement, the new statement is not tagged as confirmation but tagged as "bis").
Correction/objection	Content is an explicit correction or objection to a previous statement.
Further consideration (FuC)	Content is, according to an expert's opinion, a consideration carrying forward, by advancing either the content of the moderators' presentation or other contents that have been uttered until then. Content is tagged as further consideration only if it represents a coherent and meaningful further development of the focal content of the <i>EdIn</i> -perspective (good life in <i>EdIn-GL</i> , natural resources in <i>EdIn-NR</i>), that is, if it is in line with this focus (otherwise the content is a broadening of the focus, even if it comprehensibly/meaningfully draws on preceding contents).
Query	Content is an explicit query about something that has been said before.
Recourse	Content is an explicit recourse to previous content (e.g., to examples).

Table 4. Analysing the cognitive structure of *EdIn* (part 1): Categories used to tag the speech acts performed during the discussions in part 1 of *EdIn*.

This first step resulted in a diachronic representation of the discussions. In the second step, this diachronic analysis was translated into a flowchart representing only the cognitive structure of the deliberations and ignoring their temporal development. The cognitive structure shows the contents that were produced and the cognitive purpose they served, and it shows whether and in what kind of cognitive act they were taken up at some other point in the discussion by participants and facilitators.

Part 2: Application of the Perspective GL (EdIn-GL) or NR (EdIn-NR) to Energy Policy

The analysis of the transcripts of part 2 of *EdIn* proceeded from a synchronic approach. It was informed by the following questions: (a) What criteria were applied by the working groups (criteria, used primarily to assess single policy measures)? (b) What additional criteria did arise during the subsequent discussions (criteria, used primarily to assess single policy measures)? (c) What topics/questions were discussed with a view to energy policy (topics, not used to assess single policy measures)?

In the analysis, highly aggregated summaries of the content were produced, and these aggregated summaries were tagged according to whether they represent criteria or topics (see Table 5 for the tagging categories; subcategories served the purpose of further refining the tagging). To enhance credibility of the analysis, we used the strategy of rater triangulation by validating the summaries and the tagging and discussing differences in summarising and tagging the content until achieving

consensus. Additionally, the stimuli and the information provided by the moderators were described and tagged in order to distinguish the contents that were produced without the moderators' intervention from those that were produced as a reaction to the moderators' intervention.

Table 5. Analysing the cognitive structure of *EdIn* (part 2): Categories and subcategories used to tag the summaries of the contents produced by the participants in part 2 of *EdIn*.

Tagging Categories	Tagging Rules		
Criterion	Features used by participants to assess single energy policy measures (or even energy policy taken as a whole), regardless of whether they were explicitly declared as criteria by the participants themselves.		
Торіс	Aggregated description of contents that were discussed by participants but were not directly used to assess policy measures.		
Subcategories			
Discussion	Aggregated description of contents that were discussed by participants either in the context of ventilating and/or applying a criterion or in the context of ventilating a topic.		
Judgement	Aggregated description of opinions by participants that either met with approval or were not contradicted by others about what is the case or should be the case with regard to a specific topic.		
Measure/indicator	Aggregated denotation of what was used by the participants to assess whether a criterion is met or not.		
Problem	Aggregated description of facts and circumstances participants classified to be problematic with regard to a topic or with regard to a criterion, regardless of whether these facts and circumstances are accurate.		
Question	Aggregated denotation of real questions that were raised in discussing a criterion, a topic, a specific policy measure, regardless of whether a question deals with factual issues (what is the case?) or with issues of evaluation (how should something be valued?).		

This analysis resulted in a synchronic summary of the presentations and discussions, listing the criteria that were produced and used by the participants to assess energy policy measures and the topics/questions they subsequently discussed.

3.2.2. Approach 2—Analysing the Participants' Perception

This analysis focused on how the participants experienced the setting and the discussions of *EdIn* and on what they had, according to their own perception, learned. In the first step of the analysis, the transcripts of the answers to the feedback question at the end of *EdIn* and the transcripts of the answers to the feedback question during the second round of (individual) interviews were analysed by inductively developing categories that were then used to encode the single statements (see Table 6 for the categories). Technically, this was done using the data analysis software MAXQDA. In the following steps, the text passages assigned to a category were generalised and reduced according to the rules of a summary qualitative content analysis (cf. [54]). In order to validate the result of each of these steps, we used the strategy of rater triangulation and discussed differences in aggregating the data until achieving consensus. This analysis resulted in findings about how the participants perceived and experienced *EdIn*.

Table 6. Analysing the participants' perception: Categories used to encode the feedback of the participants at the end of *EdIn* and their answers to the feedback question during the second round of (individual) interviews.

Categories	Coding Rules
Energy policy	Statements in which something about energy policy (or policy, politics in general) is said.
Feeling approached	Statements in which something is said about how someone felt approached with his/her background and perspective either in advance (by the invitation) or during <i>EdIn</i> . Statements in which something is said about how someone estimates that others felt or would feel approached by <i>EdIn</i> .
Atmosphere	Statements in which something about the working and discussing atmosphere during $EdIn$ is said.
Group composition	Statements in which something about the group composition is said.
Setting/focus	Statements in which something about the setting, the didactics and/or the focus of <i>EdIn</i> is said.
Individual learning effect	Statements in which something is said about <i>EdIn</i> having changed someone's way of thinking or about other individual changes induced by <i>EdIn</i> .
(Anticipated potential) Behavioural impact	Statements in which something is said about <i>EdIn</i> having (actually or potentially) impacted someone's acts.
Individual motivation	Statements in which something is said about someone's motivation to attend <i>EdIn</i> and to partake actively in the discussions. Statements in which it is said that someone found it interesting, exciting (or similar) without indicating a learning effect.

3.2.3. Approach 3-Analysing the Participants' Reaction

This analysis focused on how the participants reacted to *EdIn* in terms of the kinds of individual knowledge/concepts and values/concerns they voiced. In this approach, the epistemological interest applies to the types of knowledge/concepts and values/concerns by which participants approached the topic, and not to the exact content of their statements. In the first step of this analysis, the transcripts of the discussions in part 1 of *EdIn* and of the presentations and the discussions in part 2 of *EdIn* were analysed by inductively developing a category system by means of a qualitative content analysis (cf. [54]) that was then used to encode the single statements (see Table 7 for the categories). Technically, this was done using the data analysis software MAXQDA. To enhance credibility of coding, we used the strategy of rater triangulation and discussed differences in coding until achieving consensus. In the second step of the analysis, these categories served as comparative dimensions. This way, for each of the parts of *EdIn*, we identified which types of knowledge/concepts and values/concerns were voiced at least once. This analysis resulted in a table showing what types of individual knowledge/concepts and values/concerns were voiced in what part of *EdIn-GL* and in what part of *EdIn-NR*.

Table 7. Analysing the participants' reaction: Categories used to encode the statements of the participants according to the types of knowledge/concepts and values/concerns by which they approached the topic.

Categories	Coding Rules and Examples	
Approaching topic by voicing values	Statements in which something is said about what someone thinks is important, good or bad or about the criteria to be used in taking decisions.	
Assessing acts	Statements valuing a specific behaviour as good or bad. <i>"I think that taking four flights per year is untenable and completely unjustified." (EdIn-GL/162)</i>	

Categories		Coding Rules and Examples		
Ascribing values	Environment-related values	Statements ascribing a value to a specific issue/fact/idea because this issue/fact/idea is described to be valuable with a view to the natural environment and/or statements in which environment-related values are the object of reflection. <i>"I think, the damage one brings about to the entire environment with producing energy is extremely important. This is an important aspect." (EdIn-GL/116)</i>		
	Human-related values	Statements ascribing a value to a specific issue/fact/idea because this issue/fact/idea is described to be valuable with a view to humans and/or statements in which human-related values are the object of reflection. <i>"But, actually, it would be much more just to oblige all homeowners to do that."</i> (<i>EdIn-NR</i> /46)		
Approaching topic by a	lescribing phenomena	Statements in which something is said about what is the case (with the participant, with others, in society). These can be direct observations or considerations of how a phenomenon manifests itself.		
Describing	Societal human-environment relationship	Statements in which the societal human-environment relationship is described (incl. statements saying that human behaviour impairs the environment). "And yes, in producing wind power those living creatures are impaired that lose their sense of orientation, that are disturbed in their flying or migratory behaviour, and in the production of hydropower it is the fishes that are affected." (EdIn-NR/116)		
phenomena	Own consumer behaviour	Statements in which the own consumer behaviour is described (of the individual and/or the household). <i>"And because I have everything all the time at my disposal I use considerably more than is really justified by my needs."</i> (<i>EdIn-GL</i> /25)		
	Consumer behaviour in society	Statements in which the consumer behaviour in society is described (in general or of specific societal groups). <i>"I don't know. They have experienced other times. Older people turn off the light in a room much more, each time they leave the room thy make 'click, click'." (EdIn-NR/70)</i>		
Approaching topic by r change can/should be in	eflecting about how nduced	Statements in which something is said about possibilities and starting points to induce change, about how change should be enacted, about the effectiveness of measures or about the effects of specific measures.		
	Changing the own consumer behaviour	Statements about possibilities of changing the own consumer behaviour (of the individual and/or the household) and/or about the effects of changing this behaviour. <i>"We simply see that we have some leeway. To be precise, I think we have, seen</i> <i>relatively, considerable leeway in choosing the means. The car may serve as an</i> <i>example."</i> (EdIn-GL/18)		
Reflections about how change can/should be	Societal steering of consumer behaviour	Statements about possibilities of changing the consumer behaviour in society (in general or of specific societal groups) and/or about the effects of changing this behaviour. <i>"I have a feeling that if the infrastructure were better, if it would at least be approximately adequate, many individuals would feel safer und switch to biking."</i> (EdIn-GL/265)		
induced	Technical solutions	Statements about technological possibilities to enact change. "Actually, we nowadays invest too much grey energy in a house. We really should start thinking about good energy. Because instead of insulating that much, at some point it becomes if a house has that much insulation I ask myself whether this is sustainable any more." (EdIn-NR/183)		
	Processes of policy-making	Statements about what must be considered, or causes difficulties, in the design and enacting of policy-making processes (in general or with a view to policy measures). <i>"But tell that to someone, and the immediate reaction is 'And the noise and the birds and the disfigurement of the landscape and '. But just tell me, how on earth this can be solved." (EdIn-NR/114)</i>		

Table 7. Cont.

4. Results

4.1. The Cognitive Structure

4.1.1. Part 1: Discussion I and Discussion II

The cognitive structure of the discussions taking place in part 1 of *EdIn* shows the contents that were produced and the cognitive purpose they served, and it shows whether and in what kind of cognitive act they were taken up at some other point in the discussion by participants and facilitators. The analysis of the data resulted in flowcharts representing only the cognitive structure of the deliberations and ignoring their temporal development (see above, Section 3.2.1). In total, four flowcharts were produced, two for *EdIn-GL* (Figure 1) and two for *EdIn-NR* (Figure 2), one representing discussion I and one representing discussion II.

The flowcharts consist of objects and arrows (or similar), the objects representing speech acts (and their content) both of moderators (M) and participants (P), and the arrows (or similar) representing how these relate cognitively. In order to keep the graphs legible despite their complexity, we have refrained, firstly, from representing all speech acts (we left out the speech acts of "affirmation" and "answer/reaction"), and, secondly, from unfolding all contents of all speech acts. With a view to the overarching research question, neither the single examples provided by the participants (or those recalled to mind by them) nor the arguments used to confirm or object to statements nor the content of queries are of particular importance. For this reason, in the graphs, some of the speech acts are represented only by an object that reduces the content of all statements belonging to them to the speech act itself. This applies to the participants' speech acts "application own life", "application generalised", "confirmation", "correction/objection", and "recourse" (objects in grey in the flowcharts). The speech acts "broadening", "broadening focus", "conclusion", and "further consideration" (FuC), in turn, are unfolded insofar as, in the graphs, each further consideration, conclusion, etc. is represented by a separate object. The number of arrows targeting at and/or originating from an object shows this object's cognitive importance in the discussion. An object that is not the starting point of an arrow was not referred to in the discussion after someone set it. The same applies to an object that is not targeted by an arrow originating from an object representing a confirmation or a correction/objection. Tracking the arrows originating from an object allows to recognise the speech acts it caused, and in the case of the speech acts confirmation and correction/objection, it allows to recognise what was confirmed and objected to. In the case of "further considerations", "conclusions", "broadening", and "broadening focus", it also allows to recognise which content led to them and/or which content caused which kind of reaction.



The Cognitive Structure in Part 1 of EdIn-GL

Figure 1. Cognitive structure in part 1 of *EdIn-GL*: The graph on the left shows how the discussion in *EdIn-GL* evolved following presentation I (covering premise 1, statements 1–4, stimulus 1 and providing examples; see Section 2.2); this discussion was initiated by the moderators' initiating question 1. The graph on the right shows how the discussion in *EdIn-GL* evolved following presentation II (covering premise 2, statements 5–7, stimulus 2 and providing examples; see Section 2.2); this discussion was initiated by the moderators' initiating question was initiated by the moderators' initiating question 2.

The graphs (Figure 1) show that after both presentations, participants applied the contents presented to their own experience (examples drawn directly from their own daily life or examples drawn from how they perceive their social environment). In the discussion, they did not refer back to the examples provided by the moderators but to the examples provided by themselves or by other participants. They used both their own experiences and those of other participants to develop further considerations and conclusions, in which they unfolded the content given in the presentation. They also used these examples to support, confirm or correct further considerations and/or conclusions from other participants.

The participants developed a number of further considerations (FuC-P1 to FuC-P15) and they drew a number of conclusions (conclusions P1-P5) from what they had heard and reflected, and the moderators uttered objections or corrections only to two of these considerations (broadening P FuC-P13, FuC-P15) and to one of these conclusions (conclusion P5). During the discussion, participants referred to ten of the further considerations developed by other participants (the exceptions are FuC-P6,

FuC-P7, FuC-P9, FuC-P11, FuC-P15), and to two of the conclusions (conclusions P1, P5), and they explicitly confirmed some further considerations that were stated by other participants (FuC-P1, FuC-P2, FuC-P8, FuC-P13, broadening P FuC-P13). Some of the further considerations did not emerge from examples but from previous further considerations or conclusions (FuC-P4, FuC-P6). Hardly any further consideration or conclusion was controversial; participants objected only to two of the further considerations voiced by other participants (FuC-P10, FuC-P12) and to one conclusion (conclusion P5).

Participants explicitly confirmed three of the statements by the moderators (statements M1, M3, M6), and they used one of the statements of the moderators (statement M4) as an argument to object to something that was said by the moderators. The only objection that was voiced was an objection to the relevance of the entire setting (leading to conclusion P5 and broadening focus P3), and this objection was criticised by other participants.

Participants left the given focus on good life by introducing three topics not corresponding to this focus (broadening focus P1-P3), and out of these three topics foreign to the focus, only one was taken up in the further discussion (broadening focus P3) by other participants, and this uptaking was an objection. Two topics foreign to the focus on good life that were introduced by participants (broadening focus P1 and P2) relate to environmental issues (relevance of energy source and grey energy), and these topics were not taken up in the discussion.

The dynamic of the discussion was mainly sustained by the participants; there was not much intervention by the moderators.



The Cognitive Structure in Part 1 of *EdIn-NR*

•	starting point, leading to (participants)	$\rightarrow \rightarrow$	confirmation of (participants)
▶ →	starting point, leading to (moderators)	> →→	confirmation of (moderators)
٥٥	referring to (participants)	→	correction/objection to (participants)
aa	referring to (moderators)	>+	correction/objection to (moderators)
speech acts modera	tors speech ac	ts moderators and participation	ants

Figure 2. Cognitive structure in part 1 of *EdIn-NR*: The graph on the left shows how the discussion in *EdIn-NR* evolved following presentation I (covering statements 1–2, stimulus 1 and providing examples; see Section 2.2); this discussion was initiated by the moderators' initiating question 1. The graph on the right shows how the discussion in *EdIn-NR* evolved following presentation II (covering statements 3–4, stimulus 2 and providing examples; see Section 2.2); this discussion was initiated by the moderators' initiating question II (covering statements 3–4, stimulus 2 and providing examples; see Section 2.2); this discussion was initiated by the moderators' initiating question 2.

The graphs (Figure 2) show that after both presentations, participants applied the presented contents to their own experience (examples drawn directly from their own daily life or examples drawn from how they perceive their social environment). In the discussion, they referred to the examples provided by the moderators as well, that is, the examples provided by the moderators played an equal important role as those provided by themselves or by other participants. They used their own experiences, those of other participants, and the examples of the moderators to develop further considerations and conclusions in which they unfolded the content given in the presentations. They also used these examples to support, confirm or correct further considerations and/or conclusions by other participants.

Participants developed a number of further considerations (FuC-P1 to FuC-P9) and they drew a number of conclusions (conclusions P1-P6) from what they had heard and reflected, and the moderators uttered objections or corrections only to one of the conclusions (broadening P conclusion P5). During the discussion, participants referred to four of the further considerations developed by participants (FuC-P1, FuC-P6, FuC-P8, FuC-P9), and to four of the conclusions (conclusions P1, P2, P5, P6), and they explicitly confirmed some further considerations and conclusions that were stated by other participants (FuC-P1, FuC-P5, FuC-P6, broadening P FuC-P6; conclusions P1, P2, P5, P6, broadening P conclusion P5). Most of the further considerations did not emerge from examples but from previous further considerations or conclusions (FuC-P2, FuC-P3, FuC-P4, FuC-P7, FuC-P8, FuC-P9). Hardly any further consideration or conclusion was controversial; participants objected only to two of the further considerations P2).

Participants did not explicitly confirm the statements by the moderators but objected to one of these statements (statement M1), and they added and thus broadened one of them (statement M2) by aspects not belonging to the focus natural resources.

Participants left the given focus on natural resources by introducing seven topics not corresponding to this focus (broadening focus P1–P7 and broadening P broadening focus P1, P2, P3, P4, P7), and out of these topics foreign to the focus, only two were not taken up by other participants in the subsequent discussion (broadening focus P2 and P5). Participants explicitly confirmed two of these topics foreign to the focus (broadening focus P1, broadening focus P7 incl. broadening P broadening focus P7) and objected to two (broadening P broadening focus P3, broadening focus P6). Two of these topics were subject of both confirmation and objection (broadening P broadening focus P1, broadening focus P4). The topics foreign to the focus on natural resources that were introduced by participants relate to issues of human behaviour (broadening focus P1, P2), and to human perception (broadening focus P6). Looked at from the perspective of a natural scientist, participants left the focus on natural resources at other points of the discussion as well, because in considering environmental impacts of energy production and use, they brought forward criteria related

to animal welfare and not criteria related to the environmental system, and because they brought in a notion of energy (defining human working power to be energy as well) not corresponding to how natural scientists define energy.

The dynamic of the discussion was mainly sustained by the participants; there was not much intervention by the moderators.

4.1.2. Part 2: Application of the Perspective GL (EdIn-GL) or NR (EdIn-NR) to Energy Policy

The cognitive structure of the presentations and the discussions in part 2 of *EdIn* shows, firstly, the criteria that were produced and used by the participants to assess energy policy measures in the working groups. Secondly, it shows the criteria that were used in the subsequent plenary discussions about energy policy and the topics that were discussed.

The Cognitive Structure in Part 2 of EdIn: Presentations of the Working Groups' Results

Table 8 shows the criteria that were developed and used by the working groups to assess energy policy measures (see Sections 2.1 and 2.3) in *EdIn-GL* and in *EdIn-NR*.

Table 8. Cognitive structure in part 2 of *EdIn* (working groups): The criteria developed and used by the working groups in *EdIn-GL* and in *EdIn-NR* to assess energy policy measures (WG1: Working group 1; WG2: Working group 2).

EdIn-GL	EdIn-NR				
Criteria developed and used by the working groups					
 Environment: Potential to save energy (WG1) Justice (WG2) Policy-making: Costs to the public (infrastructure) (WG1) Policy-making: Effectiveness to change human behaviour (WG1, WG2) Environment: Grey energy (WG1) Environment: Reduction of CO₂-pollution (WG1) Housing comfort (WG2) Quality of life: Ability for all to move freely in public space (time and place) (WG1) Quality of life: Light pollution (for residents and pedestrians) (WG2) Quality of life: Security (WG1) 	 Environment: Potential to save energy (WG1, WG2) Justice (WG1, WG2) Policy-making: Costs to the public (implementation) (WG1) Policy-making: Effectiveness to change human behaviour (WG2) Benefit to national economy (jobs) (WG1) Environment: Light pollution (for animals) (WG1) Impairment for individuals (WG1, WG2) Need for infrastructure expansion (WG1) Policy-making: Comprehensibility and transparency of measure (WG2) Policy-making: Whether it belongs to the sector of energy policy (WG1) Policy-making: Whether the effort of implementation can be expected of individuals (WG2) 				

In both *EdIn-GL* and *EdIn-NR*, the working groups consensually identified policy measures they found particularly convincing (or unconvincing) and developed and named criteria they had used in their assessment.

The working groups in *EdIn-GL* produced and used ten criteria in total. Out of these criteria, four criteria strongly relate to the focus of *EdIn-GL* (justice and three aspects of quality of life) and one does so to a lesser extent, because it refers more to standard of living than to quality of life (housing comfort). Three criteria relate to the environment and two to policy-making. Working group 2 in *EdIn-GL* pointed out that they had struggled with the question of how to weigh the dimensions quality of life and energy efficiency, and working group 1 emphasised that each measure has its pros and cons. The working groups in *EdIn-NR* produced and used eleven criteria in total. Out of these criteria, two criteria strongly relate to the focus of *EdIn-NR* (potential to save energy and light pollution). Two criteria relate to justice (one of them, justice, directly; the other one, impairment for individuals, indirectly), five to policy-making, one to the national economy, and one to society infrastructure.

Four of the criteria used by the working groups are identical in *EdIn-GL* and *EdIn-NR* (potential to save energy, justice, costs of implementation, effectiveness of measures), five if the criterion impairment for individuals (*EdIn-NR*) is taken to be similar to housing comfort (*EdIn-GL*). None of the criteria, neither in *EdIn-GL* nor in *EdIn-NR*, puts the actual or potential impacts of a measure on the participants centre stage. All criteria are either oriented toward the common good or target the issue of policy-making in a general sense or other issues at the societal level.

The Cognitive Structure in Part 2 of EdIn: Overarching Discussions about Energy Policy

Table 9 shows the criteria that were used in the plenary discussions about energy policy following the working groups' presentations and the topics that were raised in these discussions (see Sections 2.1 and 2.3) in *EdIn-GL* and in *EdIn-NR*.

Table 9. Cognitive structure in part 2 of *EdIn* (plenary discussions): The criteria used in the plenary discussions about energy policy in *EdIn-GL* and in *EdIn-NR* and the topics raised in these discussions.

EdIn-GL	EdIn-NR			
Criteria used in the discussion				
 Justice Policy-making: Effectiveness to change human behaviour Quality of life: Security 	 Justice Policy-making: Effectiveness to change human behaviour Environment: Grey energy [after intervention by moderators that raised the issue several times] Environment: Potential to save energy Impacts on national economy Impairment for individuals Policy-making: Whether it belongs to the sector of energy policy 			
Topics raised in the discussion				
 What influences human behaviour and/or what kind of measures bring about changes in behaviour Whether and what kind of measure can be enforced or finds a majority in politics and in society Injustice of energy use Broadening the assessment of energy policy measures by the aspect of quality of life 	 What influences human behaviour and/or what kind of measures bring about changes in behaviour Whether and what kind of measure can be enforced or finds a majority in politics and in society How a specific measure is implemented and what exactly it encompasses [related to the measures they had discussed] Correct and sensible house renovation [derived from a measure they had discussed] Quality of life: Importance of cars (symbolic value or non-substitutable mean) [derived from a measure they had discussed] 			

In the plenary discussion in *EdIn-GL*, no additional criteria to assess energy policy measures were added, that is, the criteria used in this discussion were identical or only slight variants of those that had been used in the working groups. This applies to *EdIn-NR* as well, with one exception. This exception is the criterion grey energy, but the use of this criterion was caused by the moderators, who reminded the participants of this criterion several times. The effectiveness of measures as well as justice were criteria used in both *EdIn-GL* and *EdIn-NR*. Criteria related to the natural environment were no longer used in *EdIn-GL*, while one of them stayed present in *EdIn-NR*.

Of the four topics that were raised in the subsequent discussion about energy policy in *EdIn-GL*, two are in line with the criteria that were used, one deals with policy-making in a general sense (enforcing measures or finding majorities), and one deals with applying the good life perspective to energy policy. Of the five topics that were raised in the subsequent discussion about energy policy in *EdIn-NR*, one is in line with the criteria that were used, one deals with policy-making in a general sense (enforcing measures or finding majorities), one relates directly to the measures discussed in the working groups, and two are derived from the measures discussed in the working groups. In *EdIn-NR*, there was no discussion devoted to the application of the natural resource perspective to energy policy. Two of the topics were raised in both *EdIn-GL* and *EdIn-NR*.

4.2. Participants' Perception

The analysis of the participants' explicit feedback to *EdIn* shows how they perceived and experienced *EdIn-GL* and *EdIn-NR* and what they had, according to their own perception, learned (Table 10).

	EdIn-GL	Both EdIn-GL and EdIn-NR	EdIn-NR
Energy policy	 To look at energy policy from a good life perspective is perceived as a gain. The focus good life allows for a broadened and more complex understanding of energy policy. Putting good life centre stage is perceived as a chance for an appealing and effective energy policy. 	 A conception about the contribution to energy policy and to a discussion about energy policy of 'normal' citizens is lacking. Discussions about energy policy that are not influenced by party politics are unusual. A factual and differentiated examination of energy policy is appreciated. 	• For a discussion about energy policy a factual, open and unbiased discussion is appreciated and perceived to be a positive counter-image to a political debate.
Feeling approached	 An invitation to attend a discussion about energy policy does not appeal to people. It is assumed that only committed persons perceive a discussion about energy policy to be inviting. Some participants have to overcome themselves to attend a discussion in a bigger group. Conceptions about what energy policy is inform participants' expectations of the discussion. Good life as the focus of such a discussion is unusual for participants. In retrospect, to discuss energy policy from a good life perspective is perceived to be attractive. 	 The setting of such a discussion causes participants to reflect upon whether they are matching the event. The possibility to bring own political positions and individual opinions into the discussion is appreciated. 	 The party-political neutrality of such a discussion is appreciated. An invitation to attend a discussion about energy policy bears the risk of being misunderstood to be a marketing of a party politics.
Atmosphere	• The dominance of strong values and lifestyles of some participants is oppressive to other participants.	• A controversial but nonconfrontational discussion atmosphere is appreciated.	

Table 10. Participants' perception: The result of the analysis of the participants' feedback immediately at the end of *EdIn-GL* and *EdIn-NR* and in the (individual) interviews some months after *EdIn* took place (middle column: Results that were identical for *EdIn-GL* and *EdIn-NR*).

EdIn-GL		Both EdIn-GL and EdIn-NR	EdIn-NR	
Group composition		 A diversity of perspectives and life experiences is perceived to be enriching for a discussion about energy policy. For a discussion about energy policy, a value is ascribed to a group composition corresponding to the heterogeneity in the population. 		
Setting/focus	 The unusual setting of such a discussion requires a supportive methodical setting. The contents of the discussion are perceived as relevant for energy policy. 	• The chosen structure and the methodological design of the discussion is perceived to be exciting, activating and stimulating.	• The diversity of perspectives in the team of moderators (team-teaching) is appreciated.	
Individual learning effect	 To reflect upon energy policy differently than usual and to relate it to quality of life and sustainability is perceived to be enriching. Such a discussion allows to recognise and reflect upon one's own role in the energy policy. 	• Such a discussion provides food for thought and allows for a broadened and more complex perception of issues of energy policy.	 Such a discussion allows a conscious and appreciative perception of the positions and opinions of others and of the personal circumstances of life of others. Such a discussion does not lead to recognise solutions for the energy problem, and to not recognise any solutions is perceived to be depressing. 	

Table 10. Cont.

Table 10. Cont.

	EdIn-GL	Both EdIn-GL and EdIn-NR	EdIn-NR	
(Anticipated potential) Behavioural impact	 To look at energy policy from a good life perspective allows to overcome individual feelings of helplessness. To look at energy policy from a good life perspective is a stimulus to reconsider one's position and one's voting behaviour. To look at energy policy from a good life perspective is perceived as possibility to induce people to an ecosensitive thinking. 		 Such a discussion is perceived to be a possibility of providing stimuli for an individual's behaviour and for an individual's lifestyle. Such a discussion animates to converse about it with third parties. 	
Individual motivation		• Such a discussion is perceived to be activating and initiating to be concerned with the positions and opinions of others.		

In their answers to the feedback questions, the participants touched upon energy policy, the setting and didactics of *EdIn*, and upon the effects *EdIn* had on them (learning and behavioural impacts). Participants of *EdIn-GL* also addressed good life as a content to approach the topic of energy policy.

With regard to energy policy, the participants' feedback shows that they do not perceive energy policy to be something they can actually contribute to. Rather, energy policy, in their perception, is done only/primarily by politicians and other experts, it is strongly influenced by party politics, and it is characterised by nonfactual, undifferentiated, and confrontational debates (and it is often deterrently moralising). This applies to both participants of *EdIn-GL* and of *EdIn-NR*. The perception of energy policy, in turn, strongly influences not only the expectations of (potential and actual) participants, but also whether an invitation to attend a discussion about energy policy is appealing, as the following quote illustrates: "I thought: 'Huh? Energy policy: What does this mean?'. Because, actually, you are addressing people that do not have to know anything at all when it comes to energy policy. And as a matter of fact, I do not feel invited to such a discussion because I cannot contribute anything from a political point of view" (EdIn-GL/395). At the same time, a differentiated and controversial (but not confrontational) discussion about energy policy that is not biased with regard to party politics is highly appreciated.

With regard to the setting and didactics of *EdIn*, the participants both of *EdIn-GL* and of *EdIn-NR* uttered explicitly positive comments with regard to both the methodical design (in general and also with regard to the single elements, as, for instance, the introduction with images) and the diversity of perspectives (positions, opinions, life experiences), as the following quote illustrates: "My goodness! The things I said! These grandmas drove me mad. It was absolutely brilliant how you unleashed those people on each other. That is, all these different and also clashing opinions. But it was not at all a fight, it was just a conversation." (IN_NR/10:13). Participants of *EdIn-NR* also positively emphasised the diversity of perspectives in the team of moderators. The feedback answers show the importance participants attribute to both, a diversity of opinions that allows for comparison of perspectives and a neutral facilitation that does prevent the prevalence of the opinions and values of singular individuals or groups and does support individuals to freely voice their opinions and experiences. Participants of *EdIn-GL* pointed out that such a discussion is, at least to a certain extent, unusual and requires a careful didactical design supporting individuals in feeling at their ease.

In their feedback, participants of EdIn-GL and of EdIn-NR stated that attending the discussion had broadened their perception of energy policy and that they had learned from the exchange with the other participants and from being confronted with their different perspectives. Participants of *EdIn-NR* highlighted that such a discussion enhances an appreciative perception of the positions, opinions, and personal circumstances of others. Participants of EdIn-GL and of EdIn-NR said that such a discussion can impact not only how people think, but also peoples' behaviour, with the difference that participants of EdIn-GL put a greater emphasis on political behaviour, while participants of EdIn-NR put a greater emphasis on consumer behaviour. With regard to the effects listed by participants, there is one conspicuous difference between EdIn-GL and EdIn-NR: While participants of EdIn-GL said that the discussion had enhanced their understanding of their role in energy policy and had allowed them to overcome feelings of helplessness, participants of EdIn-NR said that the discussion had led them to recognise that the energy problem can most probably not be solved, as the following quote illustrates: "I find the issue extremely difficult. Everybody has given a thought to it, and then you are convinced that what you think is pretty much the obvious way to see things. And then you recognise: No, others actually think different about the issue than you do. That's what fascinated me. But it also depressed me. Somehow, it is also a depressing issue because you recognise that it will never come to an end" (IN_NR/10:11).

The analysis and comparison of the feedbacks given by the participants of *EdIn-GL* and *EdIn-NR* reveals one major difference: While participants of *EdIn-NR* did not comment on the content chosen to approach the topic energy policy, those of *EdIn-GL* did so quite explicitly. They felt enriched on a personal level by the good life perspective, although, at the same time, they stated the unusualness of

such an approach. However, in their estimation, adopting a good life perspective in discussing energy policy would also be a chance to enhance the effectiveness of energy policy, contribute to a more complex perception of energy policy (going beyond issues of efficiency, saving energy, and energy production), make energy policy more appealing for people, and could induce people toward an ecosensitive way of thinking.

4.3. Participants' Reaction

The analysis of the participants' reaction to *EdIn* shows the types of individual knowledge/concepts and values/concerns they voiced at least once in the discussions in part 1 of *EdIn-GL* and *EdIn-NR*, in the presentations in part 2 of *EdIn-GL* and *EdIn-NR*, and in the discussions in part 2 of *EdIn-GL* and *EdIn-NR* (Table 11).

Table 11. Participants' reaction: The types of individual knowledge/concepts and values/concerns voiced by participants (X = voiced at least once) in the different parts (see Section 2.3) of *EdIn-GL* and *EdIn-NR*.

		Part 1 of <i>EdIn</i> Discussions after Presentations by Moderators		Part 2 of EdIn			
				Presentations of the Working Groups' Results		Overarching Discussions about Energy Policy	
		EdIn-GL	EdIn-NR	EdIn-GL	EdIn-NR	EdIn-GL	EdIn-NR
Voicing values	Assessing acts	Х	Х				
	Ascribing environment-related values		х	Х	Х	Х	
	Ascribing human-related values	Х	Х	Х	Х	Х	Х
Describing phenomena	Societal human-environment relationship	х	х				
	Own consumer behaviour	Х	Х				Х
	Consumer behaviour in society	Х	Х			Х	Х
Reflecting about how change can/should be induced	Changing the own consumer behaviour	Х	Х			Х	Х
	Societal steering of consumer behaviour		Х	Х	Х	Х	Х
	Technical solutions		Х				Х
	Processes of policy-making	Х	Х	Х	Х	Х	Х

Both between the different parts of *EdIn* and between *EdIn-GL* and *EdIn-NR*, a number of similarities and differences can be noted with regard to the types of individual knowledge/concepts and the types of individual values/concerns that have been voiced by participants. The most conspicuous are:

While in *EdIn-NR* in part 1, all types of individual knowledge/concepts and values/concerns we inductively identified were manifest, this was not the case in *EdIn-GL*. In *EdIn-NR*, participants voiced human-related values right from the beginning, although such values were not addressed in the presentations and questions by the moderators. *EdIn-GL* and *EdIn-NR* do not differ with regard to the types of phenomenon-related knowledge/concepts that were voiced by participants, that is, participants activated knowledge/concepts about the human-environment relationship, about their own consumer behaviour, and about the consumer behaviour in society in both. In both, participants also activated knowledge/concepts about how to change the own consumer behaviour and about processes of policy-making.

28 of 36

The presentations of the working groups' results in part 2 of *EdIn-GL* and *EdIn-NR* do not differ with regard to the types of individual knowledge/concepts and the types of values/concerns voiced by participants. What is striking is that compared to part 1, the diversity of types is considerably reduced. In presenting the results of their assessment of energy policy measures, the participants voiced only environment-related values, human-related values, knowledge/concepts about societal steering of consumer behaviour, and knowledge/concepts about processes of policy-making. In the case of *EdIn-GL*, this reduction involves, at the same time, a partial change of types, because in part 1 of *EdIn-GL*, the participants had not voiced environment-related values and knowledge/concepts about societal steering of consumer behaviour.

In the overarching discussions about energy policy in part 2, the diversity of types that was manifested broadened again, much more so in *EdIn-NR* than in *EdIn-GL* (in the latter, the diversity increased by two types, while in *EdIn-NR*, it increased by four types). In both *EdIn-GL* and *EdIn-NR*, participants in the discussions uttered again (as in part 1) individual knowledge/concepts about consumer behaviour in society and about how to change their own consumer behaviour, but only in *EdIn-NR* did they voice knowledge/concepts about their own consumer behaviour. Those types that were voiced in the working groups' presentations were also voiced in these discussions, with one striking exception: The participants of *EdIn-NR* did not voice environment-related values.

Looking across all parts of *EdIn* shows, firstly, that in both *EdIn-GL* and *EdIn-NR*, participants after part 1 no longer voiced values/concerns by assessing specific human acts. Secondly, it reveals that human-related values as well as knowledge/concepts about policy-making processes were voiced from the beginning until the end in both *EdIn-GL* and *EdIn-NR*, and thirdly, that knowledge/concepts about technical solutions was voiced only in *EdIn-NR*.

5. Discussion

In Section 1, we raised the question of whether it is possible to promote citizen competence for sustainable consumption of adults by educational offerings, and how such offerings should be designed (with a view to both didactics and content). In this section, we discuss the answers to this question provided by our data. Before doing so, we engage in a short reflection about our approach to analysing the data.

5.1. Investigating Effects of Educational Activities

It is not new knowledge that the effects of educational interventions are hard to capture because, firstly, it is basically not possible to control for effects caused by the individuality of the participants and by group dynamics. Secondly, the effect of educational interventions cannot be isolated, that is, it is not possible to ascribe changes in the perspective (knowledge/concepts and values/concerns) and in the acts of people to educational interventions with certainty, because the influence of an educational intervention cannot be isolated. Furthermore, the influence of educational interventions must not necessarily be linear, and it is hard to predict when and how it will show. All of this applies even more to educational interventions that are as short and isolated (and attended on a voluntary basis) as EdIn and that have, as *EdIn* did, a limited (and small) number of participants. For this reason, we chose, firstly, to inquire into the immediate effects of *EdIn*, that is, into what happened while it took place. Secondly, we decided to use different and complementary methodical approaches in analysing the data and to focus on the comparison of the results of *EdIn-GL* with those of *EdIn-NR*. These measures cancel out, at least to some extent, the problem that other influences blur the immediate effects of *EdIn*, and the problem that the results depend on the individuality of the participants and the group dynamics. This procedure is rather time-consuming, but it has proven itself for investigating effects of educational activities if an interdisciplinary research team is at hand.

5.2. Does the Design We Developed for EdIn Work? What Can Be Achieved by Such an Educational Offering?

Citizen competence for sustainable consumption is the ability of individuals to assess consumption policies and to participate in societal decision-making toward sustainable consumption (see Section 1). According to the notion we adopted, this entails three elements, and in the following, before listing the limitations of our study, we discuss our results along these elements (see Section 1.2.2):

- 1. Individuals must be willing and able to engage in a deliberation aiming at developing policy options and achieving consensus.
- 2. Individuals must be willing and able to engage in individual, mutual, and collective processes of learning and reflection, that is, to acquire new information, to collectively integrate knowledge, to understand and compare perspectives, to question both their own perspective and that of others, and to revise their own (pre)conceptions and broaden their perspective.
- 3. Individuals must be willing and able to become involved and to take on responsibility, to move beyond their individual interest and toward the common good.

5.2.1. Engaging in a Deliberation Aiming at Developing Policy Options and Achieving Consensus

In fulfilling the task assigned to them in *EdIn*, the participants were, in both *EdIn-GL* and *EdIn-NR*, able to collaboratively and consensually assess policy options by identifying policy measures they found particularly convincing (or unconvincing). However, they did not only succeed in a consensual policy-assessment, they were also able to reflect on this act by developing and naming assessment criteria. In *EdIn-GL* as well as in *EdIn-NR*, this task supported participants in leaving the breadth of the immediately precedent discussions and focusing on a smaller number of types of individual knowledge/concepts and of individual values/concerns, namely on those that seem to be particularly important when it comes to policy-making (defining values and reflecting on how to induce corresponding change). In responding to this task, the participants no longer drew on knowledge about (changing) their own consumer behaviour as they had done in the precedent discussion and as they did in the subsequent discussion. That is, the design of *EdIn* provided an opportunity of gaining practical experience in a deliberation aiming at collectively assessing policy options.

The task was not only to assess policy options. Rather, in these acts of policy-assessment and reflection, the working groups were asked to apply a given perspective (that is, they had to translate a given perspective into criteria). This, in turn, has been done more concisely in *EdIn-GL* than in *EdIn-NR*: The criteria used were more focused, and the specific focal perspective was more prominent; that is, this application seems to have been easier in *EdIn-GL* than in *EdIn-NR*. This is backed by the fact that in the subsequent discussion, there was a debate about applying the given perspective to energy policy only in *EdIn-GL*. This cannot be explained by participants being more familiar with the good life perspective, because the feedback by participants of *EdIn-GL* shows how new and unusual this perspective had been for them. This allows for the conclusion that the task we have developed for *EdIn* supported especially participants in *EdIn-GL* in integrating a perspective on energy policy they were not familiar with into collaborative and consensual policy assessment.

5.2.2. Engaging in Individual, Mutual, and Collective Processes of Learning and Reflection

In both *EdIn-GL* and *EdIn-NR*, the presentations by the moderators, the initiating questions, and the discussions induced by these presentations and questions supported participants in drawing connections to own experiences and in inferring own conclusions, and they were effective in encouraging participants to activate a broad range of types of knowledge/concepts, of values/concerns, and of experiences. That is, they were effective in comprehensively activating the participants' perspectives and in linking the chosen content to their perspectives. Participants understood the presented content, and they were able to reflect and discuss it in a meaningful way by formulating further considerations and drawing conclusions. In these acts of reflection and discussion, they referred to and drew on what the other participants said, that is, they did not simply contribute individual

statements not connected to those of the others or lead a dialogue solely with the moderators but engaged in an integrative conversation.

According to the participants, *EdIn* provided food for thought and broadened their perception of energy policy, that is, they acquired and assimilated information new to them. This was caused not only by the content provided by the moderators but also by exchanging and comparing their own perspective with that of the other participants; in *EdIn-NR*, this seems to have been even more important in widening their perspectives than what was presented by the moderators. The participants' feedback shows that the methodical design of *EdIn* encouraged them to voice their opinions and concerns, invited them to exchange and compare perspectives, and supported them in reflecting and learning, and this did not depend on the focal content of *EdIn-GL* or *EdIn-NR*.

There are, though, differences between *EdIn-GL* and *EdIn-NR*: In *EdIn-GL*, participants were able to formulate more further considerations that were in line with the focal content, that is, they led a more differentiated discussion, although they found it unusual to approach energy policy from this angle (in contrast to the participants of *EdIn-NR*, who did not denote the approach to be unusual). Similarly, in applying the focal content to energy policy, the participants of *EdIn-GL* succeeded better than those of *EdIn-NR* in integrating this content in their assessment of policy options. This allows for the conclusion that *EdIn*, by its design, supported learning and reflection but that more observable learning happened in *EdIn-GL* than in *EdIn-NR*.

5.2.3. Becoming Involved and Taking on Responsibility, Moving Beyond the Own Individual Interest, and Moving toward the Common Good

In presenting the results of their collective assessment of policy options, all working groups in *EdIn-GL* and in *EdIn-NR* recurred to environment-related values, to human-related values, to knowledge/concepts about societal steering of consumer behaviour, and to knowledge/concepts about processes of policy-making. And all of them used only criteria that are either oriented toward the common good or target the issue of policy-making in a general sense (or other issues/impacts at the societal level). That is, none of the working groups recurred to knowledge/concepts related to the own consumer behaviour of the participants, and none of them used criteria putting the actual or potential impacts of a measure on the participants centre stage. This means that in fulfilling their policy-making task, they actually oriented themselves toward the common good and the community. The comparison, especially with the types of knowledge/concepts voiced by the participants in part 1 of *EdIn*, allows to conclude that the task given to the working groups supported the participants in leaving behind questions and issues dealing with their own consumer behaviour and in focusing on the common good and the political acting of the (Swiss) community.

This picture changes in the subsequent overarching discussions about energy policy. Although the participants did not drop these issues related to society, in these discussions, knowledge/concepts about their own acts as consumers gained importance again, and it did to a greater extent in *EdIn-NR* than in *EdIn-GL*. To our surprise, neither in *EdIn-GL* nor in *EdIn-NR* did participants voice knowledge about their own acts as citizens, and the question of their own responsible acting focused on their consumer acts. Additionally, while in *EdIn-GL* a general discussion about energy policy took place at least to some extent (dealing with the question of applying the good life perspective to energy policy), no such discussion took place in *EdIn-NR*, that is, in *EdIn-NR* the discussion mostly revolved around the measures of energy policy that had already been discussed in the working groups.

The feedback of the participants shows that at least *EdIn-GL* was effective insofar as participants started to think about their own acts as citizens and their own role in energy policy and started to feel responsible in their role as citizens (and not only in their role as consumers), but *EdIn* obviously did not provide a stimulus strong enough to turn this potential into observable manifestations. In other words: With regard to promoting this element of citizen competence, participants need stronger support by an appropriate method than was the case in *EdIn*.

5.2.4. Limitations of Our Study

The semi-experimental setting of our study, the fact that we can compare the results of two interventions in two groups of respondents, and the interdisciplinary methodological triangulation we adopted in the analysis of our data cancel out, at least to some extent, the problem that other influences blur the immediate effects of *EdIn*, and the problem that the results depend on the individuality of the participants and the group dynamics.

Nevertheless, our study has some limitations that limit the possibilities of assessing *EdIn's* suitability to promote citizen competence for sustainable consumption in adults: Firstly, we have data about the self-perceptions of the participants, but no 'neutral' ex ante and ex post comparison that can tell us how the individual participants developed from before to after having attended *EdIn*. Secondly, we have data about the immediate effects of *EdIn* and, again, about the self-perceptions of the participants (some months later), but no data about long-term effects of *EdIn* on the participants. Finally, we have results for the field of energy policy, but no results from fielding *EdIn* in another field of sustainable consumption policy.

5.3. How to Approach Energy Policy in Educational Activities That Aim at Supporting Citizen Competence: By Focusing on the Content of Natural Resources or by Focusing on the Content of Good Life?

With regard to this question, our results sum up to the conclusion that the topic of energy policy should be approached by focusing on good life and justice and not by focusing on natural resources and the natural environment.

Firstly, the good life perspective connects well to the perspectives of individuals in their role as citizens, while the natural resource perspective does not connect equally well to their perspectives. In EdIn-GL, participants did not contradict what was presented to them by the moderators, while they did so in *EdIn-NR*. In *EdIn-GL*, participants neither left the given focus good life nor did they redefine it. By contrast, in *EdIn-NR* participants left the given focus natural resources by broadening and by redefining it, that is, participants had to redefine the focal content in order to be able to discuss it. Although the participants were, in both EdIn-GL and EdIn-NR, able to collectively assess energy policy measures, to reflect the criteria they had used, and to integrate new information in doing so, the application of the given perspective (good life in *EdIn-GL* and natural resources in *EdIn-NR*) succeeded more with the first than with the latter. Additionally, while the issue of policy-making in a general sense was discussed in both EdIn-GL and EdIn-NR, only in EdIn-GL was there a debate about applying the given perspective to energy policy. In their feedback, the participants of EdIn-GL emphasised the advantages of linking energy policy to the broader issue of quality of life, while the participants of *EdIn-NR* did nothing similar (this should not be overestimated, though, because it can be caused by the novelty the participants attributed to using a good life approach in discussing energy policy). With a view to the types of values/concerns participants voiced in EdIn, participants in EdIn-NR voiced human-related values right from the beginning, although such values were not addressed in the presentations and questions by the moderators, and they did not voice environment-related values during the overarching discussion about energy policy, although they used criteria related to the environment in assessing policy options. This seeming contradiction means that they used such criteria but did not ascribe corresponding values to issues/facts/ideas.

Secondly, focusing on good life and justice has, as our results show (see above), a bigger potential with a view to promoting citizen competence in each of the elements discussed above. While in *EdIn-GL*, the participants in part 2 of *EdIn* seized aspects that had been discussed in part 1 and that were related to the focus good life, the participants of *EdIn-NR* did not. The aspects the participants of *EdIn-NR* seized in part 2 that had been discussed in part 1 related to contents that were already a broadening of the focus (the only exception was grey energy, and this was caused by an intervention by the moderators). That is, it came more naturally to the participants of *EdIn-GL* as well as those of *EdIn-NR* said that attending *EdIn* had provided food for thought, but while those of *EdIn-GL* attributed this to

both the exchange with the perspectives of the other participants and the content of the discussion, those of *EdIn-NR* attributed this more to the exchange with the other participants than to the content of the discussion.

Promoting citizen competence should link to and proceed from the perspective characterising individuals in their role as citizens. That is, it should take up the knowledge/concepts, values/concerns, and experiences relevant to this perspective and support individuals in broadening, differentiating, reflecting, and revising these knowledge/concepts, values/concerns, and experiences. Environmental issues do not correspond equally well to this perspective as issues of good life and justice do. Trying to change this would mean to impose on individuals in their role as citizens another perspective instead of taking seriously and nurturing their specific perspective and, thus, their special expertise. Our results show that approaching energy policy from a good life perspective neither encompasses that environmental issues are neglected nor necessarily carries the risk that concerns related to the natural environment are set aside: The participants of *EdIn-GL* used criteria related to the environment in their policy-assessment in part 2 of *EdIn*, although they had not voiced environment-related values in part 1 of *EdIn*, and although such values had not been addressed in the presentations and questions by the moderators.

5.4. Does It Make Sense to Offer Such Educational Activities or Is It Even Necessary to Do So?

Despite the limitations of our study, the results we gained through our educational intervention show that it is possible to develop and implement effective educational offerings targeting the promotion of citizen competence for sustainable consumption in adults. The focus of our intervention was energy policy, but we are convinced that our findings apply to other policy fields in consumption as well. Thus, if this competence shall be promoted, it is not useless, but it makes sense to offer such short and isolated educational activities that are attended on a voluntary basis.

This raises the question of who does or would attend such activities. Our experiences show that things such as the duration of an activity and the necessity to travel to another place can be considerable obstacles for people to participate. Our experiences also show that such activities possibly systematically exclude specific groups of people (see Table 3). The individuals we invited to participate can be considered to be at least to some extent interested in energy policy, were willing to invest time in our project activities by volunteering for two interviews, and were personally invited to attend *EdIn*. Nevertheless, more women than men followed our invitation, more middle-aged than younger and older people, more individuals with a higher education, and more living in a town. Our results indicate some other points that might deter people from attending such activities: The fear of being subjected to an activity advertising a party politics, the fear of being subjected to a nonfactual, undifferentiated, and confrontational (possibly also moralising) debate, not knowing exactly what to expect, a reluctance to leave one's own comfort zone and/or to expose oneself to the unknown or not being sure of being able to live up to expectations. To be inclusive, considerable efforts must be made in reaching out to potential participants.

Our research produced one rather unexpected result that we think might be an argument not for the possibility, but for the necessity of providing such educational offerings: Although our sample consisted of individuals not being averse to talking about energy policy, the feedback by the participants of *EdIn* revealed that in their role of 'normal' citizens, they did not necessarily perceive themselves to be part of energy policy decision-making, they were not sure about being able to contribute to energy policy, and they did not really feel invited to become involved in energy policy processes. This is, especially in a Swiss context, rather irritating, because people are called to vote several times per year and because they are used to quite a number of political instruments. That is, despite them knowing much about the legal and political system and functioning of society, they did not feel part of political decision-making and were not sure what they could contribute. There is, in other words, a deficiency with regard to individuals knowing about their actual or potential role as citizens in energy policy. This explains, for one thing, why in *EdIn*, participants did not discuss their own acts as citizens (but only

their own acts as consumers). For another thing, this points to the necessity of providing opportunities for people in which they can reflect upon their role as citizens and recognise what they can contribute to societal decision-making in the field of sustainable consumption. Otherwise, people will not develop the feeling that they are invited to become involved and they will not recognise they are a part of decision-making and can participate in decision-making processes. And our research shows that such activities would be appreciated.

6. Conclusions

In this section, we draw some conclusions with a view to adult civic education for sustainable consumption, that is, to educational offerings aimed at promoting citizen competence for sustainable consumption in adults.

The first conclusion refers to the didactical design of the educational intervention, *EdIn*, we developed and tested. *EdIn* was both an intervention serving the purpose of providing data to answer research questions and an activity of civic education designed with the aim of being implementable by third parties (thus allowing to investigate a 'natural' educational setting and not an artificial one). Our results show that the didactical design of *EdIn* was successful in supporting learning processes related to citizen competence although EdIn was isolated and short. EdIn also met the criteria that activities of civic education for sustainable consumption should meet (see Section 1). This sums up to the conclusion that in terms of its didactical design, EdIn can be implemented outside the project's context. Because *EdIn* can easily be adapted to other policy fields of sustainable consumption, it can also be implemented beyond the scope of energy policy. With a view to its implementation, revisions should, however, be considered to the overarching discussion in part 2 of EdIn in order to increase the potential of stimulating a reflection about the participants' acting as citizens and their role in energy policy (or in other sustainable consumption policies). This should be considered not only with a view to encouraging participants to get involved in sustainability politics, but also with a view to helping them to overcome the impression that sustainable consumption policy is a "restricted area" for citizens (see, e.g., Reference [55] for the necessity to overcome this impression).

The second conclusion refers to the content of *EdIn* and, on a more general level, to the question of whether in adult civic education for sustainable consumption the topic of sustainable consumption policies should be approached by adopting a good life perspective or a natural resource perspective. Our results show that the former links better to the perspective of individuals in their role as citizens and allows to a greater extent to broaden, differentiate, reflect, and revise their perspective (knowledge/concepts, values/concerns, experiences). Choosing quality of life and justice as the core content of civic education for sustainable consumption is, thus, more suitable to support the development of citizen competence. Negating this and insisting instead that the goal of adult civic education should be to improve the environmental literacy of citizens (or similar) and thus to build an informed citizenry with regard to environmental issues equals to proceeding from what experts define to be the relevant knowledge and not taking seriously and nurturing the special perspective and expertise of citizens. This, in turn, sums up to not taking citizens seriously as a distinct actor in societal decision-making with regard to sustainable consumption policies. By contrast, activities of civic education that take the perspective of citizens seriously might contribute to people feeling invited to societal decision-making and perceiving themselves as a part of politics for sustainable consumption. This, in turn, could contribute to establishing deliberative politics (according to Carcasson and Sparin [32], a necessary complement to adversarial politics and expert politics often neglected not only in policy-making, but also in civic education) and, thus, to a more consensual sustainable consumption policy.

This last point leads to our third conclusion referring to the necessity of providing adult civic education for sustainable consumption focusing on deliberation and interaction. McGregor writes that "learning and citizenship are lifelong activities" [16] (p. 4). Accordingly, opportunities to enhance citizen competence for sustainable consumption should not be reserved to formal education but should

be available for adults as well. Our results show that people do not necessarily feel part of societal decision-making and do not feel invited to contribute. In order to change this, it does not suffice to provide people information about possibilities to engage. Rather, it is necessary to provide people with opportunities that help them to prepare for and to participate in deliberative decision-making (the necessity of providing active and not only passive education is emphasised also by, e.g., Sinclair and Diduck [29]). An "action-oriented education" [29] (p. 178) could encourage adults to get involved in politics (see also, e.g., Reference [55]) by integrating actions and, thus, leading over from learning to acting, that is, to the third step of "real participation" emphasised by Bohn and Fuchs [28]. Acting, in turn, should, when it comes to citizen competence for sustainable consumption, be clearly focused on political participation and neither on "micro-gestures" [20] nor on "service and volunteerism" [32] (similarly also, e.g., Reference [38]). For this reason, it is necessary to offer action-oriented adult civic education for sustainable consumption that integrates activities simulating a political deliberation aiming at consensus as *EdIn* does.

Author Contributions: Conceptualisation, A.D.G., C.R.S., and R.D.; methodology, A.D.G., C.R.S., and R.D.; validation, A.D.G., C.R.S., R.D., and P.H.; formal analysis, A.D.G. and C.R.S.; investigation, A.D.G., C.R.S., R.D., P.H. and P.B.-H.; data curation, A.D.G. and C.R.S.; writing—original draft preparation, A.D.G.; writing—review and editing, A.D.G., C.R.S., R.D., P.H., and P.B.-H.; visualisation, A.D.G. and C.R.S.; supervision, A.D.G., R.D., and P.B.-H.; project administration, A.D.G., C.R.S., and R.D.; funding acquisition, A.D.G., C.R.S., R.D., P.H., and P.B.-H. (applicant).

Funding: This research was funded by the Swiss National Science Foundation (SNSF), grant number 407140_153828. This research is part of the National Research Programme "Managing Energy Consumption" (NRP 71) of the SNSF. Further information on the National Research Programme can be found at www.nrp71.ch.

Acknowledgments: We thank the SNSF for funding our research and the respondents of our research for participating in our educational intervention and for allowing us to interview them. Furthermore, we thank three anonymous reviewers and the editor of the Special Issue, Daniel Fischer, for their most valuable contributions to improving the quality of this paper.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

References

- 1. Fuchs, D.A.; Lorek, S. Sustainable consumption governance: A history of promises and failures. *J. Consum. Policy* **2005**, *28*, 261–288. [CrossRef]
- 2. Stern, P.C. Individual and household interactions with energy systems: Toward integrated understanding. *ERSS* **2014**, *1*, 41–48. [CrossRef]
- 3. Stern, P.C. How can social science research become more influential in energy transitions? *ERSS* 2017, *26*, 91–95. [CrossRef]
- Mont, O.; Plepys, A. Sustainable consumption progress: Should we be proud or alarmed? *J. Clean. Prod.* 2007, 16, 531–537. [CrossRef]
- 5. Harring, N.; Jagers, S.C. Should we trust in values? Explaining public support for pro-environmental taxes. *Sustainability* **2013**, *5*, 210–227. [CrossRef]
- 6. Kalkbrenner, B.J.; Roosen, J. Citizens' willingness to participate in local renewable energy projects: The role of community and trust in Germany. *ERSS* **2016**, *13*, 60–70. [CrossRef]
- Kallbekken, S.; Sælen, H. Public acceptance for environmental taxes: Self-interest, environmental and distributional concerns. *Energy Policy* 2011, *39*, 2966–2973. [CrossRef]
- 8. Schweizer-Ries, P. Energy sustainable communities: Environmental psychological investigations. *Energy Policy* **2008**, *36*, 4126–4135. [CrossRef]
- 9. Steg, L.; Dreijerink, L.; Abrahamse, W. Factors influencing the acceptability of energy policies: A test of VBN theory. *J. Environ. Psychol.* **2005**, *25*, 415–425. [CrossRef]
- Dowd, A.-M.; Hobman, E. Mobilizing citizens for a low and clean energy future. *Curr. Opin. Environ. Sustain.* 2013, 5, 191–196. [CrossRef]
- 11. Berglund, C.; Matti, S. Citizen and consumer: The dual role of individuals in environmental policy. *Environ. Politics* **2006**, *15*, 550–571. [CrossRef]

- 12. Spaargaren, G.; Oosterveer, P. Citizen-consumers as agents of change in globalizing modernity: The case of sustainable consumption. *Sustainability* **2010**, *2*, 1887–1908. [CrossRef]
- Defila, R.; Di Giulio, A.; Ruesch Schweizer, C. Two souls are dwelling in my breast: Uncovering how individuals in their dual role as consumer-citizen perceive future energy policies. *ERSS* 2018, 35, 152–162. [CrossRef]
- 14. Benn, J. Consumer education between 'consumership' and citizenship: Experiences from studies of young people. *Int. J. Consum. Stud.* **2004**, *28*, 108–116. [CrossRef]
- 15. Fischer, D.; Barth, M. Key competencies for and beyond sustainable consumption: An educational contribution to the debate. *GAIA* **2014**, *23*, 193–200. [CrossRef]
- McGregor, S. Consumer Citizenship: A Pathway to Sustainable Development. Keynote at International Conference on Developing Consumer Citizenship. Hamar, Norway, April 2002. Available online: https: //www.consultmcgregor.com/documents/research/norway_keynote.pdf (accessed on 31 December 2018).
- 17. Acikgoz, C. Renewable energy education in Turkey. Renew. Energy 2011, 36, 608–611. [CrossRef]
- 18. Chen, K.-L.; Huang, S.-H.; Liu, S.-Y. Devising a framework for energy education in Taiwan using the analytic hierarchy process. *Energy Policy* **2013**, *55*, 396–403. [CrossRef]
- 19. Zografakis, N.; Menegaki, A.N.; Tsagarakis, K.P. Effective education for energy efficiency. *Energy Policy* **2008**, *36*, 3226–3232. [CrossRef]
- 20. Balsiger, P.; Lorenzini, J.; Sahakian, M. How do ordinary Swiss people understand social change in relation to energy usage? Grappling with cultural repertoires. *Sociol. Perspect.* **2018**, under review.
- 21. De Vries, B.J.M.; Petersen, A.C. Conceptualizing sustainable development: An assessment methodology connecting values, knowledge, worldviews and scenarios. *Ecol. Econ.* **2009**, *68*, 1006–1019. [CrossRef]
- 22. Shaw, K.; Hill, S.D.; Boyd, A.D.; Monk, L.; Reid, J.; Einsiedel, E.F. Conflicted or constructive? Exploring community responses to new energy developments in Canada. *ERSS* **2015**, *8*, 41–51. [CrossRef]
- 23. Sovacool, B.K. What are we doing here? Analyzing fifteen years of energy scholarship and proposing a social science research agenda. *ERSS* **2014**, *1*, 1–29. [CrossRef]
- 24. Perlaviciute, G.; Steg, L.; Hoekstra, E.J. Is gas perceived as sustainable? Insights from value-driven evaluations in the Netherlands. *ERSS* **2016**, *20*, 55–62. [CrossRef]
- 25. Wagner, A.; Grobelski, T.; Harembski, M. Is energy policy a public issue? Nuclear power in Poland and implications for energy transitions in Central and East Europe. *ERSS* **2016**, *13*, 158–169. [CrossRef]
- 26. Fischer, D.; Michelsen, G.; Blättel-Mink, B.; Di Giulio, A. Sustainable consumption: How to evaluate sustainability in consumption acts. In *The Nature of Sustainable Consumption and How to Achieve It. Results from the Focal Topic "From Knowledge to Action—New Paths towards Sustainable Consumption"*; Defila, R., Di Giulio, A., Kaufmann-Hayoz, R., Eds.; Oekom: München, Germany, 2012; pp. 67–80, ISBN 978-3865813022.
- Blättel-Mink, B.; Brohmann, B.; Defila, R.; Di Giulio, A.; Fischer, D.; Fuchs, D.; Gölz, S.; Götz, K.; Homburg, A.; Kaufmann-Hayoz, R.; et al. *Konsum-Botschaften. Was Forschende für die gesellschaftliche Gestaltung nachhaltigen Konsums empfehlen*; Hirzel: Stuttgart, Germany, 2013; ISBN 978-3-7776-2371-9.
- 28. Bohn, C.; Fuchs, D. Transformation through participation? The pivotal role of political judgement formation. Paper presented at the Third International Conference of the Sustainable Consumption Research and Action Initiative (SCORAI), Copenhagen, Denmark, 27–30 June 2018.
- 29. Sinclair, A.J.; Diduck, A.P. Reconceptualizing public participation in environmental assessment as EA civics. *Environ. Impact Assess.* **2017**, *62*, 174–182. [CrossRef]
- 30. Arnstein, S.R. A ladder of citizen participation. J. Am. Plan. Assoc. 1969, 35, 216–224. [CrossRef]
- Apel, H. Von der Ökologie zur Nachhaltigkeit—Herausforderung für die Erwachsenenbildung. In *Handbuch politische Erwachsenenbildung*; Hufer, P., Lange, D., Eds.; Wochenschau: Schwalbach/Ts, Germany, 2016; pp. 220–230, ISBN 978-3-89974-943-4.
- Carcasson, M.; Sprain, L. Deliberative democracy and adult civic education. *New Dir. Adult Contin. Educ.* 2012, 135, 15–23. [CrossRef]
- Elkin, S.L. Citizen Competence and the Design of Democratic Institutions. In *Citizen Competence and Democratic Institutions*; Elkin, S.L., Soltan, K.E., Eds.; Pennsylvania State University Press: University Park, PA, USA, 1999; pp. 385–404, ISBN 978-0271042435.
- 34. Gaventa, J. Citizen knowledge, citizen competence and democracy building. Good Soc. 1995, 5, 28–35.
- Hufer, K.-P. Zwischen Aktion und Reflexion—Handlungsorientierung in der Erwachsenenbildung. POLIS 2015, 2, 8–11.

- 36. Lange, D. Bürgerbewusstsein. Sinnbilder und Sinnbildungen in der Politischen Bildung. *GWP* **2008**, *3*, 431–439.
- Negt, O. Versuch einer Ortsbestimmung der politischen Bildung. In Handbuch politische Erwachsenenbildung; Hufer, K.-P., Lange, D., Eds.; Wochenschau: Schwallbach/Ts, Germany, 2016; pp. 10–22, ISBN 978-3-89974-943-4.
- 38. Widmaier, B. Politische Partizipation—wirklich ein Ziel der Politischen Bildung? POLIS 2015, 2, 12–14.
- Bertschy, F.; Gingins, F.; Künzli, C.; Di Giulio, A.; Kaufmann-Hayoz, R. Bildung für Nachhaltige Entwicklung in der obligatorischen Schule. Schlussbericht zum Expertenmandat der EDK: "Nachhaltige Entwicklung in der Grundschulausbildung—Begriffsklärung und Adaption". Januar 2007; Schweizerische Konferenz der kantonalen Erziehungsdirektoren: Bern, Switzerland, 2007. Available online: http://edudoc.ch/record/24373/files/ BNE_Schlussbericht_2007_d.pdf (accessed on 31 December 2018).
- 40. De Haan, G.; Kamp, G.; Lerch, A.; Martignon, L.; Müller-Christ, G.; Nutzinger, H.G. Nachhaltigkeit und Gerechtigkeit: Grundlagen und schulpraktische Konsequenzen; Springer: Berlin, Germany, 2008; ISBN 978-3-540-85491-3.
- 41. Wals, A.E.J. Mirroring, gestaltswitching and transformative social learning: Stepping stones for developing sustainability competence. *Int. J. Sustain. High. Educ.* **2010**, *11*, 380–390. [CrossRef]
- 42. Arnold, R. Konstruktivismus und Erwachsenenbildung. *Literatur- und Forschungsreport Weiterbildung* 2003, 26, 51–61.
- 43. Duit, R.; Gropengießer, H.; Kattmann, U.; Komorek, M.; Parchmann, I. The model of educational reconstruction—A framework for improving teaching and learning science. In *Science Education Research and Practice in Europe*; Sense: Rotterdam, The Netherlands, 2012; pp. 13–37, ISBN 978-94-6091-900-8.
- Jablonski, L.M.; Klemow, K.; Puttick, G. Achieving energy and ecological literacies for all: Linking ecology and energy education. Perspectives from sessions at Ecological Society of America (ESA) 2014 Annual Meeting. *JSE* 2015, 8. Available online: http://www.jsedimensions.org/wordpress/wp-content/uploads/ 2015/01/Jablonski-JSE-Vol-8-Jan-2015.pdf (accessed on 31 December 2018).
- Kandpal, T.C.; Broman, L. Renewable energy education: A global status review. *Renew. Sustain. Energy Rev.* 2014, 34, 300–324. [CrossRef]
- 46. Poortinga, W.; Steg, L.; Vlek, C. Values, environmental concern, and environmental behavior: A study into household energy use. *Environ. Behav.* **2004**, *36*, 70–93. [CrossRef]
- 47. Di Giulio, A.; Brohmann, B.; Clausen, J.; Defila, R.; Fuchs, D.; Kaufmann-Hayoz, R.; Koch, A. Needs and consumption—A conceptual system and its meaning in the context of sustainability. In *The Nature of Sustainable Consumption and How to Achieve It. Results from the Focal Topic "From Knowledge to Action—New Paths towards Sustainable Consumption"*; Defila, R., Di Giulio, A., Kaufmann-Hayoz, R., Eds.; Oekom: München, Germany, 2012; pp. 45–66, ISBN 978-3-86581-302-2.
- 48. Ritschie, H.; Roser, M. Energy Production & Changing Energy Sources. 2018. Available online: https: //ourworldindata.org/energy-production-and-changing-energy-sources (accessed on 31 August 2018).
- 49. Letcher, T.M. (Ed.) *Future Energy. Improved, Sustainable and Clean Options for Our Planet,* 2nd ed.; Elsevier: Amsterdam, The Netherlands, 2014; ISBN 978-0-08-099424-6.
- 50. Dresing, T.; Pehl, T. *Praxisbuch Interview, Transkription & Analyse. Anleitungen und Regelsysteme für qualitativ Forschende,* 5th ed.; Eigenverlag: Marburg, Germany, 2013; ISBN 978-3-8185-0489-2.
- 51. Flick, U. Managing Quality in Qualitative Research; Sage: London, UK, 2008; ISBN 1446238733.
- 52. Schröder, P.; Steger, H. (Eds.) *Dialogforschung. Jahrbuch 1980 des Instituts für deutsche Sprache;* Schwann: Düsseldorf, Germany, 1981; ISBN 3-590-15654-6.
- 53. Ehlich, K. Schulischer Diskurs als Dialog. In *Dialogforschung. Jahrbuch 1980 des Instituts für deutsche Sprache;* Schröder, P., Steger, H., Eds.; Schwann: Düsseldorf, Germany, 1981; ISBN 3-590-15654-6.
- 54. Mayring, P. *Qualitative Content Analysis: Theoretical Foundation, Basic Procedures and Software Solution;* Klagenfurt, Austria, 2014. Available online: http://nbn-resolving.de/urn:nbn:de:0168-ssoar-395173 (accessed on 30 August 2018).
- Predescu, M.; Darjan, I. Promoting political participation through adult education. *Procedia Soc. Behav. Sci.* 2010, 2, 3241–3245. [CrossRef]



© 2019 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).