

The behavioural approach to energy conservation: An opportunity still not taken by energy policy

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1 - SYNOPSIS

The role of behaviour as part of future conservation policy strategies is reflected leading to a description of psychological tasks in current and future approaches to the problem.

2 - ABSTRACT

The apparently insufficient contributions of economy- or technology-based models to advise politicians how to initiate developments towards energy conservation led meanwhile to a beginning acceptance of social scientific contributions in this field, often referred to as „behavioural approach“. The individual behaviour is hereby considered as an important element in realising an energy efficiency option with the corresponding savings. Meanwhile this assumption has been set in doubt based on the argument that the individual bias of the behavioural perspective hampers to detect effects of, for instance, the infrastructure on individual decisions. Rather, to describe, explain and if possible influence the development of social and technological structures being the main underlying causes of energy demand should be the central contribution of social sciences to energy policy. This article strives to avoid such „or“-argumentations in favour of an „and“-approach. The potential of behavioural approaches to energy conservation has only just begun to become apparent and should be further developed to be considered appropriately by policy makers. A Psychology- and Marketing-based approach integrating psychological as well as economical knowledge provides useful tools to improve design and performance of energy conservation programmes, especially with respect to the often poorly elaborated „informational instruments“ of governmental actors. This is demonstrated in the areas of low-energy-houses, standby-losses, enhancing energy knowledge by more informative bills or consultancy and municipal conservation projects. By theoretical arguments as well as practical examples, the role of the individual within energy policy is discussed in detail leading to a description of a role for psychology in energy conservation activities.

3 - INTRODUCTION

In the late 80ies and beginning 90ies, the „Demand Side Management“ entered the arena of energy (conservation) policy keywords. Together with this shift in the energy policy debate, behaviour became more and more interesting as an important element in conservation strategies and discussions. Different authors tried to link conceptions from, e.g., social psychology and marketing with the task to reduce the energy consumption of individuals and/or households (e.g. Geller, 1989). Social scientists from different disciplines entered the scene and the behaviour or „behavioural approach“ became a conception more or less representative for the social scientific approach to the energy conservation problem. The individual behaviour, in this conception, is regarded as one key determinant of consumption and as the explanation, when given technical potentials are not or poorly realised. Thus, it seems to be logical that behaviour should play a certain role in future solution strategies of the energy problem. However, a comprehensive behavioural approach - at least one, which is regarded as politically accepted or relevant - does still not exist.

Meanwhile, Wilhite & Shove (1998), based on discussions of the so called „Geneva Group“ (energy experts and scientists attempting to improve the understanding of energy consumption as a basis to advise policy, see Giovannini & Baranzini, 1998) reviewed the different strategies to explain consumption and came to the conclusion that not only the rational economic approach or technology based models, but, within social science, approaches like attitudes and values, lifestyle segmentation, and generally the focus on the individual consumer also mislead the discussions. To explain consumption, they argue, means „to consider the interests and actions of organisations and bodies (such as manufacturers, policy makers, the media, sales people, designers, distributors and so on) implicated in the structuring of choice and the fabrication of opportunities for energy consumption“ (p. 8). Therefore, the driving forces within the society and the relationships between important actors all having directly or indirectly to do with energy consumption have to be analysed to find out new and promising possibilities to explain energy consumption in the future. Not the individual, the whole culture in a given society is the crucial element in order to understand energy consumption.

In many aspects, we certainly agree with this plea for analysing the social context of energy consumption „beyond technology and economics“. On the other hand, there is a danger and, with this article, we strive to prevent this danger: The danger is not to consider lots of results, especially in the area of marketing and psychology, which actually can be used as important parts of energy conservation strategies. Some promising developments show their potentials (see chapters below) and it would mean a step backwards if this process was interrupted. If individuals, attitudes, values, and lifestyles were „rejected“ as important elements to explain consumption, then the potential of, for example, psychology, to contribute to current solutions might be rejected, too, before seriously being translated into instruments for policy makers and all those, who want to reduce society's energy consumption. Concerning this specific question, we certainly disagree with Wilhite & Shove. But the crucial issue is: Are there any behaviour-directed instruments for policy makers? And which specific psychological contributions help to understand individual energy conservation decisions?

4 - IS THERE A ROLE OF PSYCHOLOGY IN (ENERGY) POLICY?

The task of psychology as a science is to analyse, i.e. describe, explain and predict behaviour and inner processes of the individual including his or her social relationships (social psychology) and the transaction (mutual influence) between the individual and his/her physical and built environment (environmental psychology). Thus, individuals together with their social and environmental relationships, are in the centre of psychological considerations. If „the system counts“ as - in short - Wilhite and Shove suggest, is the individual not superfluous as important element of the energy conservation science and practise? Indeed, some sociological system theorists (e.g. Luhmann, 1984) do not need individuals in their terminology to describe the world. On the other hand, it is a well proven experience of nearly everyone, how important the role of individuals (a person with specific traits and abilities) is, especially when social change processes are intended like those related to energy conservation (e.g. programme adoption by target groups, shift in the priorities of money spending, maybe even life style changes). This is also underlined by innovation theories like Rogers' (1995). „It depends on the person conducting a programme, if success or failure is the outcome“ can often be heard by experienced politicians or consultants.

The following arguments underline the importance of individuals for social change processes:

- Evidence for the importance of individuals can be gained from observing processes on the market place. Here, individuals are regarded as having a strong influence. They can, as a group, develop high market pressure on those companies, not oriented at the individual needs and preferences. This can currently be observed in the market of telecommunications. Even a company like the German Telekom with a turnover of billions of Euros is challenged by the mere possibility of lots of individuals to choose now their provider. Generally, the marketing activities of enterprises are directed towards individuals. One sector of psychology, advertising psychology, is almost exclusively occupied with comprehensive investigations of the individual understanding of communication contents, channels and effects in order to reach the goals of the contractors, which will normally be to increase the turnover and selling rates of the contractors' products.
- Additionally, individuals are in democratic political systems voters, and may, by this way, use their vote to change the top-administration of communities, regions or countries - for which the change in the German

nuclear policy after 20 years existence of the green party gives evidence for. Individuals may even become so powerful and develop such explosive strength for a seemingly stable system that the whole system changes in revolutionary processes like the Russian revolution, or, more recently, in the former GDR.

- Furthermore, decision makers even on higher levels of a given political or economical system are not only determined by their inner-organisational function. Each of them is also a person with specific preferences, habits and traits, his/her own learning history. This is also a topic for psychological, primarily individual- (or small-group-) directed contributions to conservation activities, which are of special importance because of the relative power of such people.
- Last, but not least: Once individuals are persuaded by a message featuring an idea or product, he or she will become a strong influence source for others (neighbours, acquaintances...), because personal communication is a very trustworthy information source, much more convincing in everyday-life than any statistics. Thus, a given idea or product will be further communicated and disseminated by personal networks.

How this first evidence that there will be a role for the individual and therefore, psychology, has been or can be put into the practice of energy conservation, is demonstrated in the next section.

5 - USING PSYCHOLOGICAL KNOWLEDGE TO REFINE THE INFORMATIONAL INSTRUMENT TOOL FOR CONSERVATION GOALS

5.1 Low-Energy-Houses

The primary question for the planning and construction of low-energy-houses is to avoid thermal heat losses. Besides special isolation of the cover of buildings, especially an energy efficient heating system and a maximum reduction of heating losses by the airing is necessary. The latter is often achieved by mechanical ventilation-systems. While there is no influence by the cover of houses on the every-day life of residents, the use and adjustment of mechanical ventilation devices requires some new and unusual activities for the residents of Low-Energy-Houses (LEH), where the mechanical ventilation system replaces the old airing habits. The appropriate use of the LEH-devices represent the necessary prerequisites for a minimised energy consumption.

From the motivational psychology - viewpoint, two prerequisites can be identified, which have to be fulfilled in order to result in some action: first, there must be a possibility to perform some action, and secondly, the individual must have the will to perform some action. This means that the inhabitants of an LEH must not only be able to use the technical devices in the correct way, they furthermore must have a personal interest to use them for achieving the whole potential of energy-efficient measures. As a consequence, there must be a fit between the resident (as a human being) and technology. This fit is not automatically given, it has to be elaborated carefully.

When developing technology based new products, there are at least two aspects which have to be carefully taken into account. On the one hand, there is the possibility of „misunderstanding“ of the correct use of a technical device. On the other hand, there can be some kind of „disproportion“ between the elaborated technical device and the real needs of the users of such device. In the case of mechanical ventilation systems in LEH, a misunderstanding occurs, when the correct use of the devices is not completely clear for the residents. A disproportion means, that the intended technical functionality (e.g. the calculated exchange of the air-volume) and/or the practicability for the intended user groups (e.g. comfortable use, perceived quality of the air) are missing. In order to avoid the effects of misunderstanding and disproportion, feed-back between product developers (engineers) and users has to be secured or improved, e.g. the special needs of the consumers as well as the requirements to handle the technical devices have to be communicated.

A behavioural evaluation of residents in an apartment LEH revealed clearly that there remain some problems within the use (Dittmann et. al., 1999). The most striking result is, that after a period of five years, most residents are no longer prepared to use the mechanical ventilation system in the correct way.

The analysis of interviews with the residents of LEH lead to the following results.

- (1) The residents felt not sufficiently informed about the way, in which the mechanical ventilation works and especially how to take care about the technical devices. From the first day on, some aspects were not clearly understood and related to a rather bad client service. (The client service could not fill the information gap).
- (2) The use of 'timers' (time controlled switches) was considered inconvenient and rather complicated (from the residents' point of view).
- (3) Point 1 and 2 lead to a low acceptance of these steering devices. The problems which occurred during the operation of the system could not be balanced by the quality of the system. On the contrary, the residents felt the devices would restrict their quality of life. (e.g. sounds coming from the system and disturbing air-streams occurring).
- (4) After this five year period, nearly all families lost the motivation for the technically correct use of the devices. Individual solutions were found, which in most cases occur to be a non-use of the devices.
- (5) The lack of functionality was reinforced by mistakes in the planning of the LEH and the construction and by the above mentioned bad service concerning problems and questions with the ventilation system.

The results of the interviews support theories in the field of architectural psychology. According to these theories, a direct contact between the engineer and the user helps avoiding misunderstanding and misuse. Therefore, the strict personal separation of planning and use should be abandoned (Gifford, 1987). The future user (resident of LEH) should already be involved in the planning phase. An example is the so called „user-needs analysis“ (UNA, e.g. Spreckelmeyer, 1987): On the one hand the user is prepared for later operations, on the other hand the building and especially the elements of the building are adapted according to the capacity, needs and preferences of the user. Once the residents have settled down in LEH, their experiences should be collected and evaluated (similar to the „post occupancy evaluation“ (POE), e.g. Preiser et al., 1988). In the meantime, the fit of user and building should be maximised while translating the experiences of the residents in improvements of the building. Both methods (UNA and POE) require direct communication between the residents (as end-user) and the engineer.

5.2 Stand-by losses of electronic devices

In a recently finished study for the German Federal Ministry for the Environment and the Federal Environmental Agency (Umweltbundesamt) the Energiestiftung together with the engineer company ebök developed a strategy how to realise the huge potential for diminishing stand-by losses of electronic devices, which were calculated to amount up to 100 billion kWh electricity. This equals to an emission of 40 million tons of CO₂. In Germany alone at least 11 % of electricity were estimated as being caused by stand-by losses of electronic devices (Rath et al., in press).

The interdisciplinary approach to develop a strategy included a written and additional telephone enquiry among central actors of the German discussion on this topic, for example big retailers, federal and regional ministries of environment, companies producing and selling TV's, videorecorders and computers, national environmentalist organisations and so forth. About 30 institutions/people were asked in order to find out which strategy would come out as the most promising way to diminish stand-by losses from the government's point of view. For our purpose here, the strategy regarding information policy will be described in more detail.

Regarding the informational instruments, the following recommendations were developed in relation to different tasks and situations, where the information could be influential in the desired manner:

- (1) General information to enhance the awareness of the consumers:
Without information on the importance of stand-by losses and the potentials („to avoid two large power plants“, see Umweltbundesamt, 1999) the consumer would not have the informational basis for additional efforts when buying a product with potential stand-by losses. The continuous flow of „new“ information in the general media is as well necessary (and happens currently) as are special campaigns for different groups (in Germany realised 1998 by a group of municipal utilities and the national environmental organisation BUND - federation for environment and nature protection, an action supported by the Federal Ministry of the Environment). Considered alone, only poor saving effects could be expected. However, as described, this does not mean that general information is superfluous.

(2) Purchase preparation:

When a consumer already knows that he or she will buy for example a TV device, then obligatory declaration of the stand-by consumption and an easy-to-understand-label which gives the consumer the information needed will help to make a decision into the saving direction. At least by already environmentally conscious groups of consumers (about one third following our own investigation of lifestyle target groups in the state of Schleswig-Holstein, see Wortmann et al., 1996) will regard such information as worthwhile, if the easy-to-understand-precondition as well as the trustworthiness of the label as well as the agency who decides on the certification is given. Regarding labelling against stand-by losses, the study recommends not to create a new label, since lots of labels exist - the EU-label for white goods as well as the blue angel-certification (especially in Germany) are regarded as the preferred ones. A European-wide labelling to reduce stand-by losses should in one way or another be linked with such existing labels for environmentally friendly or energy conservation friendly consumption of goods. Such activities have already begun.

(3) Purchase situation:

The study recommends not to forget the trade sector in a political strategy and to negotiate, for example, how the climate protection responsibility of this part of the economy could be fulfilled, for example using the instrument of voluntary agreements. By such agreements, better information of the costumers in the shops could be secured. The best solution would be to motivate sales people to advise consumers with respect to stand-by losses.

(4) Post purchase situation:

Not every reduction potential with respect to stand-by losses is due to technical modifications of the devices. Each consumer has for example the possibility to separate a device from the net by using the power on/off function - except those devices (e.g. some radios), where even „power off“ means a continuous consumption (of, e. g., 2 W). Here again, an informed consumer who is intrinsically motivated to conserve may contribute to energy savings.

The knowledge of the attitudes of central actors in the field together with the technical knowledge of potentials and the „historical knowledge“ of already ongoing or earlier attempted activities allow to develop a strategy, which involves the interests and preferences of individuals without being contextless, as Wilhite & Shove suggest will be necessarily the case, if the individual is regarded important. The concluding remarks of the study go beyond the individual and integrate the theoretical and empirical evidence by recommending

- to show seriously the will of the government to act (by legislative initiatives, for example regarding „off must be off“ (i.e. no electricity consumption),
- to generate market pressure, for example by guidelines for the governmental sellers of products like PCs together with continuous consumer information in the form of campaigns, directed at avoiding stand-by losses,
- negotiations about voluntary agreements with the producing companies as well as with trade companies and finally
- to create the organisational preconditions for governmental activities by (1) being more active in the European discussion, for example in the „Group of Efficient Appliances (GEA)“ and - for the future - (2) developing a conception in order to secure funds for energy efficiency in liberalised electricity markets, for example by building up a federal energy agency using Dutch or Danish experiences and including social scientific knowledge.

5.3 Enhancing energy knowledge

5.3.1 Informative Energy Bills

Feedback is a decisive means to initiate and develop a process of behaviour and attitude change. Without feedback, for example, people may state when asked that they are highly environmentally aware and behave themselves accordingly. What they do after the questions have been answered is a totally different story. Feedback on what they really do lead people continuously to a confrontation of their actual behaviour with their goals and attitudes. In this case, if there is a gap between attitude and behaviour, normally a dissonance reduction takes place and the chance occurs to behave more in accordance to the stated attitudes and values. The energy bills are an important feedback instrument for consumers to control their energy consumption and

the related behaviour of household members leading to the consumption figure. The frequency and the consumer-friendly design of the bills decide about the effectiveness of this informational instrument to reduce the consumption. Of course, in our case, some sort of conservation goals are a prerequisite for the described process. Since more than 20 years the mechanisms of feedback and even the value of this instrument to reduce the energy consumption of private households has been demonstrated. But only in the 90ies, large scale field experiments (especially in Denmark and Norway) brought this instruments more and again on the political agenda in Europe.

In a follow up to the social scientific experiences and the experiences in Norway, where up to 10 % savings could be observed (Wilhite & Ling, 1995), a project with a Swedish, a German and a Spanish partner (the municipal utilities of Stockholm, Sevilla and Kiel) will take place beginning just now, ending in summer 2001. The transferability of the Scandinavian approach to other countries in Europe, the consumption reducing effect of the measure and the question, if this measure fits also (perhaps very well) to a liberalised electricity market will be tested.

Informative electricity bills, however, are not only interesting under the perspective how to design information given to consumers. More than that, the fact, that feedback is given more frequent than in current energy bills (in Germany still once a year) is a core issue for the dynamics of consumption or consumption reduction. Given that people are willing to conserve, feedback is a prerequisite to make this goal an anchor for a dynamic process developing over time with mutual influence of behaviour on attitudes and vice versa. Only by the way of feedback on the goals, the individual regards as decisive for his/here decision, can internal incentive mechanisms needed to generate intrinsic motivation (extrinsic is dependent on external reinforcement) be activated. Thus, energy bills as decisive feedback instrument is a good symbol for the mixture of informational and motivational components which occur if „informational instruments“ are regarded through the glasses of a psychologist.

5.3.2 Energy Consultancy

The main purpose of energy consulting is to give support to people so that they are able to orientate their daily actions towards energy conservation, i.e. towards climate and environmental protection. There is a big difference between the consultancy practice in the medical and/or psychosocial area and energy consulting, namely the perceived urgency level of the problem (perceived „level of suffering“) by the clients. The medical or psychological advice is offered in order to solve acute problems, which are felt and articulated by the clients. Compared to it, clients of energy consulting show a rather low individual „level of suffering“¹. Thereby, energy consultancy services get more and more under need of justification with their backer. The consultancy services face an increasing pressure to demonstrate the efficiency of their recommendations. Concerning energy consultancy by utilities (suppliers), the level of acceptance by the advisory boards depends on the degree of building up customer loyalty for the company. In a liberalised market, the customer loyalty is one key determinant for the success in the market. Governmentally funded advise systems have to show their efficiency too, because their financing will increasingly be coupled with the criteria of efficiency, independently whether the source of money is a fund system or other mechanisms. In Germany, this problem constantly occurs at conferences of the advisers roof organisations, which sometimes remind of crisis meetings. The main issue of these meetings is the efficiency of consultancy and its scientific demonstrability.

The efficiency of the advisory activities cannot be determined without a previous target definition. Taking a psychological point of view, the following consulting targets can be pointed out: The „information transfer“ (the transfer of facts), the „knowledge transfer“ (meaning the use of the facts), the „competence transfer“ (meaning the ability of the handling with the facts in certain situations), the „modification of attitudes and values“ and last but not least the „modification of behaviour“. But whatever target is the focus (in general several targets are focused simultaneously by an advisory board), it is well known by market-psychology and marketing, that the success of consulting depends on the level of the customer orientation. The „fine tuning“ of target-group related measures influences the acceptance of the message by these target groups.

¹ Perhaps one should better use other terms in the future like „marketing of conservation options“ instead of „consultancy“, which describes the task more accurate.

The prerequisite for this is the information about needs, wishes, and preferences of the target group because only with these information in mind it will be possible to select the interesting messages as well as the media favoured by these groups. To receive an empirical base for this task, particularly psychology contributes a well-founded theoretical background as well as the necessary methodological tools (e.g. Wortmann et al., 1996). The segmentation of target groups due to lifestyle-, attitude- and behaviour differences plays thereby an important role.

In addition, with the background of many years of theoretical and practical experience in the area of therapeutical conversations, psychology can give a lot of support in order to optimise the concrete consulting process and its effect. It can be shown so far that it is necessary to integrate the knowledge and experience of behavioural sciences in order to create future conceptions for energy consulting.

5.4 Moderation as intervention: Climate protection town Kiel

Even a direct intervention of psychologists into the process of policy making is a possible individuals, resp. small group-related contribution to energy policy. In Switzerland, for example, since the beginning of the 90ies the project „Energiesstadt“ (Energy City) deserves interest, where environmentalists with support of a sociologist tried to convince local governments to create alternative energy-related action programmes. „Alternative“ means that the different measures of the plan to be developed are discussed and finally agreed to by the group of central activists in the community itself. And this discussion process is moderated by an expert with experiences in group dynamics. The Swiss sociologist with much expertise in group dynamics, Erich Otto Graf, relied in his work heavily on a special group dynamic theory coming from Latin America („Operative group conception“, see Graf & von Salis, 1997). His ideas were one of the sources of a project in Kiel with the goal of climate protection, but with other - and in some principles, however, similar - moderation techniques (like Metaplan working with pinwalls and paper cards to visualise the discussion progress). The process in Kiel developed over time since 1994 (see Wortmann & Schuster, 1997) and includes a so-called „community initiative for building insulation“, where people from different interest groups in the town work together to realise and market pilot projects for different target groups (single house owners, multi-family-house-owners, buildings owned by the town itself). A second step within this approach is the development of a climate protection plan developed by members of the community administration as well as the municipal utility, again with support of external moderation.

Here is not the place to explain in detail the sociological or psychological theories on group processes or small group dynamics to be applied in the practical work. But some important elements can be mentioned:

- The role of the moderator is extremely important. He or she should be neutral, show respect for each individual including his/her experiences represented in the group and he or she must aim at a „standing“ of the whole activity so that people (mostly decision makers) will be motivated to stay as part of the group over a long time period. It is more or less a course between being active (to make the whole thing attractive for the participants) and explicitly deny to be active to give the participants the possibility to conceive the actions which are finally agreed to as their own which secures a strong motivation to comply to the agreements also outside the group setting.
- Secondly, one should not underestimate that a psychologist and not an energy expert with an engineering education takes over the moderation role. His/her role can be described by the statement „My goal is climate protection and I don't know the solution, I only know something about the process how to help participants to find out, what specific projects they want to carry out under this umbrella“. Here, the often typical „midwife role“ of the psychologist comes to its right.

In Germany, a similar approach has been carried out under the headline „Runde Energietische“ (Round Energy Tables). In many cases, these activities led to agreements on the community level.

6 - CONCLUSIONS

If the individual, as we suggest, remains to be an important element of future conservation policy, this opens the door for still neglected ways of thinking about the problem and the corresponding solution strategies, especially with respect to the informational part of conservation programmes and projects. The main task of psychologists, so far we see, is to integrate a community goal like energy conservation into the personal goal system (the personal learning history) of individual deciders on their different levels of decision making. This integration or translation process generally makes it necessary to investigate the prerequisites of such change process. For this, the „medical approach“ provides the general framework for making psychology work for energy conservation:

- (1) First, to conduct an *anamnesis* to learn more about the history and earlier development of a given problem. The anamnesis phase can possibly integrate the ideas of Wilhite and Shove, i.e. to describe the context of a given individual decision or behaviour (note, that our perspective starts from behaviour, theirs starts from culture - both have to move at least a bit in the mutual opposite direction in order not to oversimplify the problem). To know more about historic roots of a given situation is also a part of strategic marketing (see for example Kotler & Roberto, 1989).
- (2) Secondly, a *diagnosis* has to take place, whenever possible founded on standardised and scientifically proven methods. The diagnostic phase means to use social scientific techniques concerning questionnaires, interviews, focus groups as., which allow to characterise a given situation for a group or an individual in a systematic way. Life style research with respect to energy or, more general, sustainability, fits into this category.
- (3) Thirdly, the *intervention*, derived from the results of anamnesis and diagnosis has to be chosen and carried out. There are lots of intervention techniques with a behavioural background (see for example Dwyer et al., 1993) including all kinds of behaviour modification, design of information and so on.

The following picture gives an overview of how a psychologist can contribute to energy conservation:

fig. 1 about here

The first step for psychologists according to the picture is to participate in designing political interventions. This is obviously at least partially the case with NOVEM, the state-owned Dutch Agency for Energy and the environment. The department of NOVEM dealing with behavioural issues has become an instance to check for possible individual based improvements of energy conservation programmes of the government (Egmond, 1998).

The second step includes direct contact (for the psychologist as mediator) to the (potential) target group of a measure by, for example, making an enquiry using the different interview and questionnaire techniques to find out how target groups/individuals think about the issue in question. The political conceptions have thus a better empirical foundation than in step 1.

The third step is the most direct one with personal intervention of the psychologist in favour of the political goal. That is to moderate/co-ordinate/lead - dependend on the theoretical background the psychologist has how to work with groups - a group of mostly influential people, so called multipliers, to help to find out consensus solutions, if possible, which allow the participants of such process to learn, i.e. integrate new requirements into their existing cognitive (and emotional) structures.

These three steps can be ordered along two dimensions:

- the directness of the influence of the psychologist on the political process (x-axis of the graphic) and
- the theoretical versus practical integration of the needs of the target group into the policy activity (y-axis).

For each of the three steps mentioned, examples have been given in chapter 5. The creation of and work within practical learning settings will exert the greatest influence on the individual learning (behaviour change) process. Participation in theoretical policy conceptions, on the other hand, has a much higher range, thus increasing the chance that many people will benefit from more user-friendly conceptions. Psychologists thereby take over the not untypical role of a „midwife“ to allow a „smooth“ fit of political goals (which in this consideration are regarded as „fixed“...) with current individual or group interests (... whereas individuals in their context are regarded as the „dynamic elements“).

From a psychological viewpoint it is necessary to strengthen the informational instruments tool for conservation goals in such a way that information - when designed, disseminated and received carefully oriented at the mind of the recipient - has the potential to serve itself as an incentive to follow conservation goals. This information design process including feedback between sender and recipient can be supported by the valuable assistance of psychological knowledge. The analysis of Costanzo et al. (1986), for instance, suggests that conservation messages have to overcome the following hurdles: A conservation message has to be

- (1) perceived,
- (2) understood,
- (3) positive evaluated, and
- (4) remembered

in those situations, when e.g. a recommended action could take place. These categories can be used as demonstrated in section 5.2 to advise policy concerning conservation strategies.

By the design of information as well as the whole communication process, information can be reconsidered as an instrument for future energy policy of at least the same importance as the other „traditional“ policy instruments like economic incentives and normative prescriptions (in reality, all these instruments are of course linked to each other). The traditional consideration of the informational instrument tool is more or less - roughly speaking - general information collection and dissemination by booklets (or even computer programmes), which is normally not targeted to specific consumer groups, not to speak of consumer interests and preferences. This sort of informational instruments really can be regarded as a weak tool, and should be overcome to be considered as representative for what „information“ is and can perform as a tool.

But is it not a strange paradox to recommend persuasion of the society as a governmental task? Companies pay for such activities knowing or at least hoping to get benefits from it much larger than the sum of money invested. For a government there will be no pay-back in the narrow sense of monetary pay-back. But we hope to have demonstrated that targeted efforts to use existing knowledge on how individuals learn, resp. change their behaviour, contributes heavily to the success (or failure) of conservation efforts. Additionally, sometimes no

other instrument is feasible because governmental control is impossible (regard for example AIDS-campaigns in different countries - one cannot control the bedroom behaviour of millions of people). Other instruments at hand for politicians also need social or individual support to avoid reactance effects, another important topic for political psychology. Our plea is not one for another „or“-alternative, but for an „and“ in favour of a more complete „tool-box“ of policy measures for energy conservation.

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Figure 1: The role of psychologists in energy conservation policy.

