

## Article

# Change from Within: Exploring Transformative Literacy in Public Administrations to Foster Sustainability Transitions

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**Abstract:** Public administrations are designed towards efficient and effective problem solving. A division of work along the various issues of public policy-making is constitutive for most administrations. With the recent demands to develop comprehensive transformative environmental policies, new tasks and requirements arise, both for individual officers as well as administrative organizations. Two central questions emerge in this context: How do officers and public policy administrations cope with transformation processes and what competencies are needed for shaping transformations? Based on a comprehensive literature review on policies for transformation, organizational learning, and education for sustainable development, we present a concept for transformative literacy. We explored how this concept resonates with officers from the Ministry for the Environment and from the Environmental Protection Agency in Germany. To this end, we conducted 17 qualitative interviews with officers from various departments and levels of hierarchy. The analysis reveals four different types of actors with distinct perspectives regarding their own role and theories of societal and political change. We conclude that a collaborative mode among these types of actors to address the challenges of shaping transformations to sustainability can mobilize additional capacities by making use of their complementary skills and resources. The article suggests that this should be reflected in organizational reforms and in training programs for political administration.

**Keywords:** public administration; transformative literacy; sustainability transitions; transformative policymaking



**Citation:** Jacob, K.; Paulick-Thiel, C.; Teebken, J.; Veit, S.; Singer-Brodowski, M. Change from Within: Exploring Transformative Literacy in Public Administrations to Foster Sustainability Transitions. *Sustainability* **2021**, *13*, 4698. <https://doi.org/10.3390/su13094698>

Academic Editor: Eran Vigoda-Gadot

Received: 2 March 2021

Accepted: 16 April 2021

Published: 22 April 2021

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## 1. Introduction: Functions and Logic of Public Administrations in Germany

What role can public administrations actually play in shaping sustainability transformations? On the one hand, public administrations are part of the incumbent systems, and thus rather focus on their own stability. On the other hand, officers within the public administrations develop policy innovations to change society and economy. In order to understand the role of public administrations in sustainability transformations, first it is important to understand how such administrations are set up and how they operate. We use the example of Germany and the federal public administration for protecting the environment (both the ministry as well as the main agency) for an empirical analysis of their constraints and roles.

The federal ministerial bureaucracy in Germany fulfils core tasks in policy-making. Ministerial civil servants draft policy proposals (e.g., draft laws, ordinances, government programs) and are deeply involved in coordination processes: this concerns both internal (inter-departmental coordination, coordination with Länder governments and municipalities) and external coordination (with interest groups and other stakeholders) [1]. As the responsibility for the implementation of federal law lies with the Länder (unless otherwise

determined in the constitution, e.g., the implementation of the administration of the military, embassies, the border police, or inland waterways), ministries at the national level in Germany are first and foremost policy-makers. The ministerial bureaucracy in Germany is considered rather influential in the policy-making process: Ministerial civil servants are strongly involved in policy-making, albeit in recent decades—as in many other Western democracies—the monopoly of the civil service as the principle supplier of policy advice has been dissolved [2].

The German constitution outlines three key principles of government, which are: (1) the chancellor's guiding competence (chancellor principle), (2) the principle of ministerial autonomy (departmental principle), and (3) the principle of joint cabinet decision-making (cabinet principle). In practice, the Federal Chancellor's prerogative to determine the general policy guidelines is rather used in the sense of an "authority reserve" [3] than as hierarchical order to the ministries. This practice reflects the existence of coalition government and party competition on the one hand, as well as the importance of the two other key principles of government—the departmental principle and the cabinet principle—on the other hand. The chancellery has no responsibilities for substantive policy areas [4]. Thus, policy proposals are never prepared by the chancellery but by the responsible federal ministry (called the lead ministry). The core function of the chancellery in policy-making is coordination. It acts as arbiter of inter-ministerial conflicts, and ensures that draft bills are in accordance with the general policy guidelines of the government [5]. Due to the strong departmental principle and its lacking responsibility for substantive policy issues, the chancellery in Germany has been described as less powerful than other government headquarters in academic literature (see, e.g., [6]).

According to the departmental principle every minister manages their ministry and policy domain independently. Ministers are not subordinate to the chancellor, who cannot instruct them on how to handle specific questions within their ministries' affairs. The departmental principle implies that the ministers have the power to decide over matters of internal organization, finance and staffing for their ministry and all subordinated agencies. It furthermore implies that the lead ministry has wide-ranging competencies in the process of policy-making and law-drafting. This includes a large degree of autonomy with regard to procedural decisions and the consultation of, for example, interest groups and experts in the policy-making process.

The division of competencies within the federal bureaucracy, as well as between the three levels of administration (federal level, Länder, municipalities), is coined by historical path dependencies and has been characterized by incremental rather than radical change in the past. This is the result of both political and functional considerations [7]. From a functional perspective, the establishment of new federal ministries or the restructuring of established ministries is a consequence of the formation of new or changing functions of the state. One example is the formation of the Federal Ministry of Environment in 1986 after the nuclear reactor disaster in Chernobyl.

In recent times, the number and political salience of cross-cutting policy issues (often referred to as wicked problems), which span the functional areas of competence of different ministries and state levels, has increased. Dealing with wicked issues involves substantial trade-offs. The established practice of coalition governments in Germany and the resulting political conflicts reinforce and interfere with those trade-offs. This implies that policy-making in those areas is particularly challenging. Established coordination mechanisms are in many cases not suitable for the development of sustainable policy solutions for cross-cutting issues. Traditionally, coordination within the ministerial bureaucracy takes place in the process of inter-ministerial coordination. Another traditional mechanism of coordination is inter-departmental working groups [8]. As a rule, conflicts between federal ministries are first to be resolved at the working level (that is at the level of divisions). If the conflict cannot be resolved at this level, the conflict is "climbing up" the administrative hierarchy: The higher the hierarchical level of involved actors in such a process of conflict resolution is, the more intense the involvement of the chancellery becomes. Administrative

state secretaries—the top civil servants in federal ministries—“act as negotiators and ‘final resort’ in inter-ministerial conflicts before the political level” [6]. One important characteristic of the German political-administrative system is that all conflicts have to be resolved prior to a cabinet decision. As a rule, information on internal conflicts is not passed on towards external actors. In external relations, the ministry represents the view of the government, and not its own interests.

The strong departmental principle and high autonomy of the departments on the one hand and the established practice of consensual policy decisions in the Cabinet on the other hand lead to a dominance of incremental policy-making in Germany [9]. Policies are shaped in a process that is characterized by negative coordination and mutual adaptation leading to small, step-by-step changes rather than fundamental change and innovation.

The tendency towards incremental change is enhanced by the legislative framework and established administrative culture. Civil servants conducting policy work are bound to budget law, administrative law and civil service law, and they act in a highly hierarchical organizational environment. There is little interchange with other labor market sectors (low inter-sectoral mobility), and across departments [10]. The German administrative system has been described as being quite resistant to changes and external disturbances, both with regard to historical phases of political instability [11], as well as to external demands for a more managerial administrative culture [12]. The high importance of legal considerations in administrative action is reflected in the notion of “legalistic administrative culture” implying that all administrative action is—in principle—legitimized by the law. Personnel recruitment and education for the upper career groups in the civil service (Higher Intermediate Civil Service and Higher Civil Service) reflects the demands of a legalistic civil service: Legal content dominates the education of civil servants for the Higher Intermediate Civil Service at Applied Universities of Public Administration [13]. For civil servants in the Higher Civil Service, a law degree was traditionally considered most appropriate. Nowadays, the share of higher civil servants with a university degree in law has decreased, and very much depends on the policy area in question [14]. For example, in the Federal Ministry of the Environment (BMU) as well as in the Federal Environment Agency (UBA), higher civil servants have diverse academic backgrounds (natural sciences, social sciences, law, etc.). This does not only reflect the changing requirements of policy making but does imply a need for interdisciplinarity.

Policy-making is facing new challenges—considering the goals of climate protection or achieving sustainable development, structural and transformative change is called for. Instead of reforming and fixing current systems of production and consumption, a replacement and fundamental reorganization is needed (see more details in Section 2). The main research question this article would like to address is: How does such reorganization of society and economy fit with the institutional framework conditions of the public administration in Germany, characterized by a strong hierarchy, strong departmental principles, a legalistic administrative culture, career civil service with low inter-sectoral mobility, coalition government and political consensus-orientation, and a dominance of negative coordination and incremental policy-making? The subsequent section provides some background information by briefly reflecting upon the role and relevance of public administrations for sustainability transitions. The section thereafter lays out the required competencies for transformative environmental policies (Section 4) based upon a thorough literature review. In addition to the literature review, the methods applied for answering the main research question are laid out (Section 4). The findings from the qualitative, problem-centered interviews with officers from both the German EPA as well as the Ministry for the Environment are presented (Section 5). We identified different personas, which have partly competing, partly complementary views on how transformations can be shaped (Section 6). The paper concludes with a discussion of the implications of the findings for the development of capacities on transformative literacy. The research is part of a consultancy-based research project commissioned by the UBA with the aim to develop a training program to develop competencies for transformative environmental policies.

## 2. Transformations to Sustainability and Their Shaping by Public Administrations—Opportunities and Limitations

Generally, a functional differentiation of governmental tasks makes sense to fulfill the historically grown range of responsibilities and competences. Despite all the criticism, modern states are capable of guaranteeing internal and external security, social security, education and the balancing and negotiation of different interests. Market-based democracies are designed in such a way that they limit themselves when intervening with individual rights. This applies in particular to economic action—the underlying assumption of such liberalism is that freedom from intervention yields a higher efficiency. As a matter of fact, however, economic activity is highly dependent on state regulation and frameworks. Conversely, the state is dependent on economic activity through tax revenues and social benefits and has an interest in its ability to function. In this respect, the state is an integral part of social production systems in various forms.

Transformation is a comprehensive reconfiguration of such systems (e.g., [15]). This appears necessary, on the one hand, against the background of the urgent requirements arising from climate and sustainability goals and, on the other hand, the exhaustion of innovation potentials of previous trajectories [16]. Transformation goes beyond innovation for improvement: Societal needs for energy, mobility, food or housing, for example, are satisfied in a fundamentally different way than was previously the case [17]. Transformation refers to a systemic change, and thus also to a change in the role and functions of the state in these systems.

Transformations defy planning. They involve complex systems, i.e., systems whose future states are unpredictable and that are highly autonomous [18]. The direction of transformations is also hardly predictable, but determined by a competition of alternative configurations: How centralized or decentralized the energy supply should be, whether mobility should be organized on the basis of battery-electric vehicles, with hydrogen or predominantly with public transport, whether agriculture should be regionalized or made more sustainable through high-tech innovations, is disputed in each case [19]. State actors (and among these public administrations) do play a role in these negotiation processes, but by no means a dominant one. In addition, positions are often inconsistent even among state actors. The situation is further complicated by the fact that not just one department or policy level is responsible for the systems under consideration here, but that these are widely distributed—resulting in wicked problems ([19], p. 42). Comprehensive transformations therefore require an integrated approach across departments and levels of government. However, as shown in the previous section, this poses challenges to the political and administrative system. Even the integration of cross-cutting tasks such as environmental protection, gender equality, sustainability, etc., poses considerable challenges to sectorally organized administrative systems [20]. While a number of processes, institutions and instruments have been developed to integrate such cross-cutting concerns into the various policy fields, these often conflict with sectoral policies [21].

Nevertheless, transformation processes can be influenced in a formative way (see [16–18,22,23]) if key actors are able to understand the current systems, and envision and contribute to the emergence of alternatives. Transformations involve complex and largely autonomous systems—a first starting point for their shaping is therefore an analysis of the structures and functions of such systems: What are the elements, the associated actors, their frameworks and structures within which they act? Secondly, the innovation process and the framework conditions of the respective system can be examined. Transformations can be understood as processes in which sudden and profound change occurs when the legitimacy of previous practices is challenged. The loss of legitimacy manifests itself either in innovations that demonstrate alternative system configurations (niches) or in social discourses and trends that challenge notions of normality of existing configurations. Third, it can foster innovation, particularly social and regulatory innovation. The complexity of systems suggests that experimentation and small-scale approaches are needed—there is no blueprint for reconfiguration but competing ideas (new-new competition). Fourth,

when feasible alternatives are available, the task is to accelerate change by mobilizing and coordinating actors. The innovation process must be given a direction and, ideally, self-dynamic, co-evolutionary processes must be initiated. Shared visions play a central role here—but these are subject to negotiation processes. Finally, an indispensable part of sustainability transformations in particular is the elimination of non-sustainable structures and practices.

These tasks can also be conceived as strategic “turnaround” (Wende-)policies (Energiewende, Verkehrswende, Agrarwende, etc.) (s.a., [22]). Against the background of the difficulty of formulating integrated, cross-departmental and cross-level policies, especially because politics is also part of these systems and is interested in its own stability, such strategic policy designs are particularly challenging. Nevertheless, policies can also be formulated from niches, and transformations can at least be prepared [16]. It is precisely the assumption of far-reaching changes resulting from small changes, or the need to experiment with small-scale innovations that is compatible with the practice of small-scale, incremental, and quite possibly competitive policy development. This has implications for policy making at all levels of hierarchy—transformation to sustainability is not only a matter of large scale politics but also relevant for policy making at a lower level of hierarchy. What are competencies that officers require in order to meet these challenges?

### 3. Theoretical Approaches to Transformation Literacy in Public Administrations

Understanding and helping to shape transformation processes toward sustainability requires special competencies. According to Weinert ([24], p. 27, own translation), competencies can be defined generically as: “the cognitive abilities and skills available to or learnable by individuals in order to solve specific problems, as well as the associated motivational, volitional and social readiness and skills to be able to use the problem solutions successfully and responsibly in variable situations”. In addition to content-related knowledge, competencies are therefore also pivotal for the disposition and willingness to put something into practical action.

Besides competencies for special tasks or occupations, certain overarching key competencies have been identified, like using tools interactively, interacting in heterogeneous groups and acting autonomously [25]. Key competencies can be applied independently of contexts and are effective across different institutional settings, professions, and tasks. They typically include methodological competencies such as problem solving, IT skills, communication skills including writing and presentation skills, and judgment skills such as critical thinking ([26], p. 16). Thus, competencies are more than the consideration of different bodies of knowledge, namely a motivational, volitional, and social willingness ([24], p. 27) to use one’s abilities to solve problems.

Key competencies are important in the context of Education for Sustainable Development (ESD), where different lists of competencies have also been described and synthesized (i.e., [27]). Students should acquire, under the guiding principle of sustainable development, competencies for an appropriate shaping of personal and professional life, social participation and global responsibility ([28], p. 84). The concept of shaping competency (Gestaltungskompetenz) [29] for example describes the capacity to recognize problems of unsustainability and apply knowledge about sustainable solution strategies. Such competencies follow both the OECD’s definition and selection of key competencies [25] and the European reference framework “Key competencies for lifelong learning”. The framework is based on an integrative concept of competencies and the goal of being able to use knowledge, skills and attitudes in a self-organized way against the background of the guiding principle of sustainable development. This corresponds to the basic elements of the curriculum framework Education for Sustainable Development ([28], p. 85), where competencies are divided into the areas of (a) recognizing, (b) assessing, (c) acting.

We suggest adding the competency of experimenting as a fourth competency dimension for actors from political administrations against the background of the need for small-step, experimental approaches to the design of complex systems. These different

conceptualizations are also addressed in the concept of “transformative literacy”. The concept of transformative literacy was developed to describe the “ability to read and utilize information about societal transformation processes, to accordingly interpret and get actively involved in these processes” ([30], p. 83, based on [31]). Transformative literacy does not only include cognitive processes of knowledge development but also entails the performative act to produce new actions based on this knowledge and shows therefore similarities to the description of key competencies. It zooms into understanding the processes of transformations that are taken place in the different political fields of sustainable development and describes four different dimensions, where transformations processes can be read and rewritten or shaped: technological, economic, cultural and institutional issues (ibid.). For this reason, transformative literacy emphasizes that the development and realization of certain competencies is always embedded into and intertwined with the (organizational) contexts or fields people are working in. Officers often do not focus on all dimensions, but on their particular field as a result of functional division of work (see above). To have transformative literacy means to better deal with complex and wicked sustainability challenges besides the own particular field of tasks, to grasp and understand the systemic roots and dynamics of these challenges of non-sustainability. Especially when transformation means the encompassing reconfiguration of systems (see above) and innovations in these systems cannot be steered, planned or regulated in detail, administrative staff need a sophisticated perspective on what is actually happening in these systems, who is involved with which interests, and which systemic dynamics are at stake. Based on this deeper understanding of societal transformation processes it is possible to better plan for activities that reshape old dynamics and co-create new contributions to sustainability solutions.

Against the background of the review of these slightly differing educational models in relation to sustainability transformations, we propose a four-part set of learning objectives based on the following considerations.

1. Active reflection on one’s own position and role: qualification profiles of change agents: role change as a governance instrument.
2. Acquiring and expanding system knowledge: Observing, recognizing and reading societal transformation processes and trends by political-administrative actors; spatial, temporal and sectoral components: Identifying interfaces between systems.
3. Create, bundle and disseminate target knowledge: monitor and shape public and professional discourses and develop mission statements and goals; narratives, visions, and framing; disseminate target knowledge.
4. Implement, promote and accompany transformation activities: building actor alliances, networks, and stakeholder/citizen\* involvement and participation; organizing targeted search processes/experiments; responding to societal transformations by promoting innovation; managing interfaces.

These four competencies do not occur as isolated dispositions within individual learners but are situated in concrete organizational contexts and applied in certain organizational cultures. Competencies to navigate transformation processes can be developed very well within a single person, but they are still limited and at the same time enabled through the organizational capacity to learn and develop itself in order to meet the challenges of sustainable transformation processes.

For this reason, we assume that the design of sustainability transformations does not require individual competencies alone, but that organizations must also develop and maintain knowledge and competencies in order to master the associated design tasks. The changing framework conditions and especially the complexity of transformation processes suggest that political-administrative organizations not only adapt their organizational routines, but also acquire relevant knowledge and methods and make them collectively available to their members. Organizational learning has individual learning as a prerequisite, but it goes beyond the addition of individual learning efforts [32]. Central elements are knowledge management and transfer as well as organizational self-reflection [33,34].

According to Probst and Büchel [35] and Argyris and Schön [36], three types of learning can be distinguished:

- Adaptation learning (single-loop learning): this refers to effective adaptation to given goals while maintaining the prevailing theories of action (“theory-in-use”).
- Double-loop learning: the prevailing theories in use are questioned and, if necessary, changed.
- Process learning (third-loop learning): the learning processes of adaptation and change learning are reflected. Behind this is the goal to improve the learning ability.

Against this background, we asked if the described competencies are in line with the needs officers themselves articulate for reading and shaping transformation processes. Is there a shared view on transformations and the related requirements for competencies? Are these views shared by officers in the administrations or is there diverging views? How do the officers link their own competency needs to organisational routines? These were the guiding questions of a comprehensive qualitative survey within the administration presented in the following.

#### **4. Analyzing the Demand for Transformative Literacy within the German Federal Environmental Ministry—Methodological Approach**

##### *4.1. Methods for Data Gathering*

The approach to explore transformative literacy and the demand for acquiring new competencies in this context is a qualitative analysis. So far, insights on transformation competencies within the political administration are limited. This is why we selected a theory-generating method based on a problem-centered interview (PCI). The concept of PCI aims to gather empirical evidence without formulating a-priori assumptions but nevertheless enables an interplay of inductive and deductive reasoning [37]. A total of 17 qualitative interviews were conducted at the BMU and at the UBA in October and November 2018. The interviewees came from different divisions (policy, technical and central departments) and hierarchical levels (from officers to heads of the organizations). The selection of interviewees is based on the heterogeneity in terms of organization, divisions and levels of hierarchy. The interviews focused firstly on expectations about the need, forms and tasks with regard to transformations to sustainability. Secondly, we asked about expectations and possibilities for a related training program. The conversations aimed to capture the professional and personal perspectives of the interviewees with regard to their perceptions and assessments of transformations, their organizations’ role in them, and with regard to a possible learning program. The interviews lasted between 45 and 90 min. Interviews were recorded and transcribed. The anonymity of statements was assured.

##### *4.2. Method for Interview Analysis*

The information gathered through the interviews was interpreted in a structured manner. Synthesizing the information is an analytical step that involves discovering guiding stories, overarching themes, and decoding patterns in the interviews. With this approach, hypotheses are not formed in advance, but emerge from the examination of the field of interest. The focus lies on individual evaluation of interactions ([38], p. 47) not the exact representation of the social world. It is more about the understanding of basic constructs rather than taking an objective stance ([38], p. 130).

Guided by this methodological background, we searched for patterns in the narrative of different people in all interviews. Based on these findings, we synthesized problem statements for different key user types. That way we determined what provided most inspiration for the development of the learning program.

#### **5. Findings**

One major finding is that the majority of interviewees see a pressing need for sustainability transformations. Further, they expressed that in order for key environmental goals to be reached, fundamental and structural changes are required:

*“That this ‘just more of the old, more of the known’ is not appropriate when climate change is getting stronger (...) that there have to be pattern changes and that it has to be something radical.”*

This is not only seen for climate change, but also for central areas of society—fundamental change is necessary for transport, chemistry, nutrition, consumption, tourism, digitalization, etc.—transformation needs are seen by the interviewees almost universally for their respective areas of responsibility.

An integrated, cross-departmental collaboration in design and problem solving was mentioned as key across the board:

*“The more complex anything gets, the more interdepartmental it becomes, we need interdepartmental solutions.”*

*“This is an interdepartmental problem, and several people have to pull together in the same direction. Unfortunately, this happens less and less in reality.”*

The last quote also points to the fact that integrated approaches are more and more lacking, with departments competing with each other instead. A number of explanations are offered for this, ranging from personal animosities, wrangling over responsibilities, party competition, to competition over responsibilities between the federal and state governments.

Current sectoral policies are not seen as transformative, but affirmative:

*“Almost all structures, i.e., legal instruments, funding instruments, institutional arrangements, are after all not designed to organize transformative processes, but they are designed to keep the existing system (...) running.”*

Instead, unsustainable practices and structures have to be ended:

*“But rather the harmful things that stand in the way of that, or that steer that in a wrong direction, have to be removed.”*

In addition to integration, communication is seen as a key to shaping transformations by a majority of interviewees, as expressed in the following statement:

*“People don’t even understand what we want, what we mean. They also don’t know what to make of the term. It triggers more fears than anything positive.”*

*“The professionalism of communication and publicity (...) certainly needs to be developed further.”*

The communication of transformation needs is predominantly seen as a task that affects all units and is not just a task of units in charge of public relations. It should be developed with citizens at an early stage:

*“We need to develop ways of involving people in the discourse at an early stage, i.e., not only when the political decision has been made but at the beginning of the debate.”*

However, such a participatory approach is also contrasted with a frequently expressed image of instrumental communication: the communication to convince citizens that what they are doing makes sense, not necessarily to enter into a dialogue:

*“My claim here is not just (to) administer, but we are here to shape society. And to dare to do that. And I believe what it requires at the top: communication skills.”*

The ambition to change society is contrasted by the sceptical assessment of being able to have an impact at all, or instead of having to react to changes rather than triggering transformation:

*“I find it almost a bit arrogant to think that transformation can really be done by an environmental ministry.”*

But starting points are seen in picking up on ongoing processes of transformation such as digitalization and utilizing them for the own ambition, at least to prepare robust strategies:

*“The most I can do is orient my work in such a way that I can take into account what is happening and perhaps somehow safeguard against it.”*

The political process is seen as a bottleneck in the realization of a formative and integrated policy. Whether and which proposals are taken up by the house leaders or in parliaments is crucial for many interviewees, but not predictable or comprehensible:

*“Getting that into a decision-making level and into an implementation level, that’s sort of this difficulty. And there is also, how shall I put it ( . . . ) a black hole ( . . . ). You don’t know exactly how to get in and out of it.”*

*“(…) a point, where I do not manage to transport to the head of the ministry.”*

Intra-organizational cooperation is considered as desirable to address transformational issues:

*“Actually, one would have to be invited (from other units) or hear something that they have evaluated something. So that doesn’t happen. So everyone is doing this for themselves.”*

This is also linked to the hope that expertise on political processes will be gained for the various projects. Agile structures are considered desirable. However, the results of the work would have to be tied back to hierarchical processes.

*“One position must come out afterwards.”*

The fact that expertise in political processes is available corresponds to the self-assessment of some interviewees:

*“If you imagine the legislative machinery as a big Charlie Chaplin machine, then (our task is) to run around with the oil can and to grease everywhere a little bit or to reattach a cog or something like that, that is, the laws and regulations that we make pass as quietly as possible (…).”*

The same person also complained about the lack of time to deal with new scientific findings. A mismatch becomes clear here: On the one hand, there are employees who develop policy proposals by gathering scientific expertise and complain about being distant from the political process, and on the other hand, there are employees who are close to the political process but have lost touch with science.

However, the division of roles is also problematized. Some complain that the BMU acts as a filter and does not sufficiently and, above all, comprehensibly take up UBA proposals. Others complain either that the UBA is not pursuing enough political calculations or that the distribution of roles is unclear, because the UBA does not limit itself to the role of a specialist authority, but also wants to exercise a political mandate:

*“I would say that UBA also sees itself as a political body. And perhaps that is how it was actually set up. But it would be helpful for me to have a scientific institution where (…) I could get a scientific assessment and not a political one.”*

A high potential for transformation to sustainability is seen by several interviewees in social change processes:

*“So (…) I personally believe that there is an overall social movement towards change.”*

*“And society is much further along than politics. And it would be nice if a different way of thinking would take hold.”*

There is a desire to get better connected to these processes of change:

*“I believe that the world is somehow not being saved by us but is being saved somewhere out there with great ideas that people have. And what I really miss is the transfer into the administration.”*

This would require new and additional competencies:

*“I think what is important, what’s really essential, is a very great openness and also going outside the house: talking with others.”*

*“A high degree of self-reflection, openness to others, talking to others outside the institution, at least these are things that would be important to me (...).”*

From this perspective, environmental policy should not only look for technical improvements, but also take up social dynamics:

*“Repair cafés are another good example. It is also about social togetherness: people meet, they repair things, they learn from their older neighbours, and simply because they would otherwise be sitting alone at home, they want to meet other people.”*

Overall, a higher degree of flexibility in the organization is desired, which offers greater freedom for individuals, encourages (internal) contradiction and discussion. There is a perceived need for more integrated and systemic work and for this to be reflected in the forms of collaboration:

*“Agility is very important, being able to form teams very quickly on topics. In a way, we are super heavy-handed.”*

*“Many people find it difficult to think systemically, and they don’t learn this at school. Linear thinking is particularly widespread among engineers, i.e., ‘I screw here, this comes out the back’. That is how they are trained.”*

Human resources development must work to ensure that employees are innovative, flexible and willing to experiment.

What becomes clear throughout the interviews is a shared desire for fundamental structural change, but divergent views and theories on the own role, if at all and how such change may be achieved. Furthermore, it can be concluded that there is a desire to collaborate in the shaping of transformation within the organizations, but the complementarities are not fully exploited.

## 6. Discussion: Development of Personas

The material as briefly sketched here, reveals a diversity of views on transformations, opportunities and restrictions regarding the ability to read and shape transformation processes through public administrations. Accordingly, the interviewees have different views on the need for competencies and for organizational change. The can be synthesized to stylized actors, i.e., personas. Personas represent a group of people, such as key stakeholders, who share common interests, behavioral patterns, or demographic similarities.

### Four Transformation Design Types within Political Administration

We distinct variations of how individual officers and administrative organizations cope with overall transformation processes. We identified four profiles that we perceive as “transformation designers” within the political administration. These types are exemplary and correspond with distinctive policy-making styles, motivations and demands found within German political administration. When strengthening the role of administrative organizations for societal transformations, these types must be considered even for processes of organizational learning. Recognizing different learning types and policy-making styles is also important to further organizational learning in terms of interlinking the individual and organizational demands. The four typical profiles (personas) are concerned with different aspects of change processes. Broadly they can be categorized into: persona A who thinks in organizations, persona B who is concerned with political processes, persona C that focuses on societal processes and persona D who concentrates on policy-relevant research.

The different types are representative of different problems that the political administration faces, as well as different competencies individual officers and administrative organizations have. These types will be presented in greater detail in the following paragraphs by looking at different problem perception, needs, and experienced good practices.

Persona A (Paul): Organizational Processes

The first persona is Paul, who has extensive experience with organizational processes and with the control of organizations. He is motivated to change his own organization in order to improve the internal collaboration and external effectiveness: “We are not role models at all. (...) I myself am totally inconsistent.” Paul knows the limits of his organization and recognizes the limits of the controllability of political and social change processes. When it comes to detecting problems within the organization, Paul self-critically acknowledges that there is a huge discrepancy between how he behaves and how he should behave. Paul identified the need for greater appreciation at the management level and more encouragement for building trust rather than being reprimanded for mistakes.

The demands that Paul recognizes for his organization focus on a different learning and feedback culture. Paul sees merit in changing certain behavioral aspects and finds a high degree of self-reflection and openness to others outside the institution important for change within organizations. At the same time, Paul finds that these behavioral patterns are deeply anchored within a person and are difficult to change. As a result, Paul recommends to make organizational restrictions more transparent and also reflecting upon emotional as well as cognitive aspects as part of learning processes. The aspect of mutual learning, and a change of perspectives through presenting different work approaches to each other and co-designing processes was mentioned as a good practice for organizational learning. In the future, Paul would find it worthwhile to finish things, as there is a current tendency to start too many different things at once. From the perspective of the organization Paul can be classified as a person with a functional pattern of interaction [39].

#### Persona B (Anja): Political Processes

Anja has extensive experience in accompanying political processes. She is well networked with political actors and sees politics as a central element in shaping processes of social change. She brings positions from her own organization into current political developments and uses her knowledge to further develop strategic processes in her work environment. In her daily routine, Anja is confronted with a lack of time and the problem of simultaneous commitments. Anja also stresses that co-workers constantly block each other and always see a fly in the ointment. Anja is in need of greater political leeway through for instance the active use of media, “because politicians orient themselves to what is in the media.” She criticizes that political processes are limited when it comes to experimenting, and that changes are overwhelmingly prevented by legal frameworks. According to Anja, politicians have too little courage to try out regulatory experiments. Anja argues for cooperative management models: “The hierarchy mode could be temporarily and experimentally replaced by the network mode.” In addition to small, trustworthy networks, Anja thinks that communication and narratives take a core role and finds merit in simple language, as well as translating politics into visions. Elsewhere this has been characterized as a structure-transcending positioning [39].

#### Persona C (Marianne): Societal Processes

Marianne has many years of experience in designing projects that demonstrate how and in which direction environmental policy can be advanced. She has extensive knowledge of innovative (work) approaches and opens up new opportunities (and expands leeway) for environmental policy based upon the implementation and evaluation of projects. She works closely with social actors and sees them as major drivers for change.

Marianne sees a problem in the impermeability of the political administrative apparatus, which is characterized by strong, persistent forces: “For too long and too comfortably they [employees within the political administration] have worked out things that then just work that way but are no longer permeable to new solutions and to the fact that the world has changed.” At the same time, Marianne emphasizes the issue of mindset and training, and that many people within the political administration find it difficult to think systemically: “Linear thinking is widespread, that is training. We need training that trains systemic thinking.”

Marianne articulates the need for greater agility in terms of being able to quickly form teams on important topics and integrating different realities. “I can act out something in the

laboratory, but I need to know whether it works with the frame outside. So the laboratory has to involve people from outside.”

Persona D (Alexander): Policy-Relevant Research

Alexander is an expert in his field and uses his knowledge both in science and with decision-makers. He supports environmental policy by preparing scientific knowledge for decision-makers, preparing and implementing laws and ordinances based on knowledge, and initiating policy-relevant research. He is committed to better cooperation between politics and science in order to make social change processes more effective.

Alexander criticizes the gap between knowledge and action: “We do not have knowledge deficits, but implementation deficits.” Alexander finds it problematic that new research is constantly produced, despite already knowing what needs to be done. Another major problem that Alexander emphasizes is the lack of overarching exchange. He describes that in light of increasing complexity, urgency also often increases but everyone in their department is trying to do what they are responsible for, “because it’s so nice and simple ... we do not know what the others are doing.”

Alexander identifies the need to become more European and to develop a better understanding of EU processes. He believes that there are innovative approaches at the EU level which the German administration can learn from. He is interested in the transfer of best practice in the field of a new work culture, not just regarding his own organization but also in international comparison. According to him, current best practice is characterized through the vast creation of new studies, which he sees as a product of an intensive reflection and thought process. Another best practice example provided is a short excursion which enabled a hands-on target-group experience and “a look at what we only think up on paper.”

For the development of a training program that aims to support transformative literacy within German political administration, these personas must be considered in order to reflect the different backgrounds, rationales and capacities that different actors within the administration have when designing transformations. What becomes obvious is their diversity of theories of change—which relates back to the understanding of both the role of their organization as well their own individual roles and need for competencies. The personas spread across organizations and divisions. Although we did not explore frequencies, there is no indication that the one or the other persona prevails in UBA or BMU. Frequently, there is competition between the underlying world views, sometimes even open conflicts on roles and responsibilities. It is rather rarely that theories of change and world views expressed by others are acknowledged and valued. Despite this, an intensified collaboration across divisions is considered as crucial for achieving an impact.

These findings provide further detail and direction for the competencies that form transformative literacy as derived from literature and presented in Section 3. The reflection of one’s own position and role as change agent would need to consider other—possibly competing, yet more often complementary—roles in the organization. Furthermore, the findings imply a need for a critical self-reflection of the role of the organization in transformation processes in general. Does the organization actually enable or rather constrain transformations to sustainability? How is this perceived by other societal actors? Complementarities would pay off in particular on the second and third dimension of the learning objectives developed (see above): acquisition of system knowledge and the creation, bundling and dissemination of target knowledge would benefit from multiple perspectives capturing the complexity of socio-economic systems and possible entry points for change. Bundling and valuing the different perspectives would add value to the competencies and learning processes both on individual as well as organizational level. The fourth learning objective (implementation, promotion and accompanying transformation activities) seem to be relevant across the board, for all of the identified personas. So far, experimental approaches are limited. It is mostly Marianne with her focus on societal processes who has some openness on trial and error approaches and handing over of responsibility to stakeholder in shaping change.

## 7. Conclusions

The paper contributes to research on political administrations and the roles they (can) take for designing and accompanying transformations. In order to foster change, the article suggests to build different transformation competencies as part of a training program. The analysis of the fields of action for transformative environmental policy (Section 2), the concept of transformative literacy derived from educational research (Section 3), and the interviews conducted at the BMU and UBA (Sections 4 and 5) together form specific challenges for the development of competencies that should enable employees and organizations to shape sustainability transformations. A central starting point is the high motivation of employees of both organizations. Regardless of the level of hierarchy and the departmental responsibility, they see a high need for fundamental social change. There are differences in terms of the perceived possibilities for steering or shaping change. But regardless of whether the interviewees see themselves in an active or passive role, the need for change is emphasized. Holding on to the status quo or focusing on small-scale change within the previous development is ruled out. For the transfer of competencies, this means that in particular:

- A realistic assessment of one's own creative possibilities;
- The examination of ongoing change processes;
- The identification and exchange with related actors should be conveyed.

It is also clear that the development of transformative literacy is not just about cognitive knowledge about the process and shaping of transformations. It is also about methodological competencies to understand and shape systemic processes. Communication skills are seen as particularly essential by the interviewees. The uncertainty of the course and outcome of transformations poses particular challenges.

A surprising finding is the diversity of theories on change processes (see [40] for the relevance of theories of change). The interviewees each place knowledge, politics, social dynamics or their own organization at the forefront of their assumptions about the drivers of change processes. Only rarely do they refer to each other. It is highly plausible that transformation processes have different drivers that complement each other. In order to become effective as an organization, these perspectives and the associated dynamics would have to be bundled. In principle, there is a high level of interest in this. However, perspectives other than one's own are sometimes viewed critically or alienated. The development of competencies would therefore also have to include the attitude of empathically responding to other people and looking for commonalities instead of emphasizing differences. The formation of intra-organizational networks that pool different competencies emerges as a central goal of organizational learning.

However, the formation of competencies and, in particular, organizational structures must always be judged against the background of the restrictions that result from the hierarchical structure of departments and agencies, the division of labor between departments and political actors and, not least, the separation of powers between the executive and legislative branches. Within this framework, however, the possibilities do not appear to be exhausted.

**Author Contributions:** K.J., concept, lead author for Sections 2, 4 and 6, contributing author for Sections 1, 3 and 5; C.P.-T., lead author Section 5, contributing author Section 6; J.T., contributing author Sections 2, 4 and 5; S.V., lead author Section 1; M.S.-B., lead author Section 3. All authors have read and agreed to the published version of the manuscript.

**Funding:** Umweltbundesamt: FKZ 3717 11 01 2.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Acknowledgments:** Many thanks go to Sabine Junginger, who supported the development of the learning program early on. We also thank our three reviewers for their fruitful comments and Maria

Petrova for supporting the revision of the article. The publication of the paper was funded by Freie Universität Berlin.

**Conflicts of Interest:** The authors declare no conflict of interest.

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