Review

Conditions for Transformative Learning for Sustainable Development: A Theoretical Review and Approach

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Abstract: Continued unsustainability and surpassed planetary boundaries require not only scientific and technological advances, but deep and enduring social and cultural changes. The purpose of this article is to contribute a theoretical approach to understand conditions and constraints for societal change towards sustainable development. In order to break with unsustainable norms, habits, practices, and structures, there is a need for learning for transformation, not only adaption. Based on a critical literature review within the field of learning for sustainable development, our approach is a development of the concept of transformative learning, by integrating three additional dimensions—Institutional Structures, Social Practices, and Conflict Perspectives. This approach acknowledges conflicts on macro, meso, and micro levels, as well as structural and cultural constraints. It contends that transformative learning is processual, interactional, long-term, and cumbersome. It takes place within existing institutions and social practices, while also transcending them. The article adopts an interdisciplinary social science perspective that acknowledges the importance of transformative learning in order for communities, organizations, and individuals to be able to deal with global sustainability problems, acknowledging the societal and personal conflicts involved in such transformation.

Keywords: conflict; institutional; learning; social change; social practice; structure; transformative

1. Introduction

After thirty years with sustainable development as "the dominant global discourse of ecological concern" [1] (p. 147) there is deep-felt disappointment with its ability to confront key sustainability problems. The problems of continued unsustainability and surpassed planetary boundaries [2,3], require not only scientific and technological advances but also deep and enduring social and cultural changes. The accumulation of scientific data regarding the impact of humans on the environment has not translated into sufficient transformative societal action to mitigate the negative impact. Sustainability does not simply happen by itself; there is an urgent need to develop in-depth and comprehensive understandings of how societal transformation can be initiated, fostered and governed

towards sustainability. A variety of theories focus on such needed reform, including ecological modernization theory [4], transition management [5], informational governance [6], and social movement theory [7]. This article contributes to this discussion by stressing the importance of transformative learning, on both individual and collective levels, in light of a critical review of existing studies on learning for sustainable development. The perspective on learning we elaborate here acknowledges the structural and cultural inertias that prevent social change, and the societal and personal conflicts such change involve, which we argue need to be better taken into consideration in studies of sustainability transformation.

Appeals to learning have a long history within sustainability theory, research and policy (shown by our literature review, described below). Scholars frequently address 'learning', as a key driver for sustainable development, be it in traditional government institutions, multi-actor governance networks, settings for public participation, or civil society initiatives, or formal and non-formal educative spaces. These aspects of learning are important although there are dimensions still not sufficiently dealt with by existing research. First, if learning activities do not engage in issues of structural inertia, power, inequality, vested economic interests, denialism, resistance to change, and anxieties; that is, in the *conflict dimension* of sustainable development on societal and individual levels, these will likely be insufficient in terms of transforming society in a sustainable direction. Second, the common call for more 'competence', 'expertise', 'information', and 'evidence', carries a cognitive, optimistic, and individualistic bias. Crucial questions regarding how individual (experts, citizens, politicians and others) and collective (organizations, communities) actors—embedded in *institutions* and *social practices*—develop reflective capability to promote change by counteracting structural and cultural inertia are not sufficiently addressed in literature on learning and sustainable development. These shortcomings also reflect the limited role of social sciences within sustainability theory and research. The recognition that sustainable development is just as much about society as it is about nature also requires acknowledging the need for social science perspectives to gain an equally central role in sustainability research in general, and learning for sustainable development in particular.

The purpose of this article is to contribute a theoretical approach to understand conditions and constraints for societal change towards sustainable development. Based on a critical literature review within the field of learning for sustainable development, our approach is a development of the concept of transformative learning by integrating three additional dimensions—Institutional Structures, Social Practices and Conflict Perspectives. The aim of the review was to provide a starting point for problematizing learning for sustainable development constructively to encourage further theory development [8,9].

Transformative learning theory is a learning perspective [10,11] stressing the critical dimension of learning that enables actors to recognize and reassess the structure of assumptions and expectations, which frame their thinking, feeling, and acting. These structures of meaning constitute a *frame of reference* that encompasses cognitive, social, moral, and affective components. Profound change towards sustainable development involves not only technical challenges but also social challenges that require knowledge *transformation*, and not only the accumulation of more scientific knowledge but also targeting basic frames of references. The perspective of transformative learning for sustainable development elaborated on in this article acknowledges value conflicts, structural and cultural constraints, and contends that transformative learning is processual, interactional, long-term, and often cumbersome (see e.g., [12]). It can take place within existing institutions and social practices, but also transcend them—engaging all levels (micro, meso, macro) and spheres (state, civil society, market) of society in novel kinds of interactions. The general theoretical perspective promoted in this article acknowledges the critical role of knowledge, expertise, and science, but engages with a broader social scientific understanding of both individual and organizational learning.

This article takes its normative departure from the concept of sustainable development, understood as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [13] (p. 43), and recurrent references to the three

dimensions of sustainable development: ecological, economic, and socio-cultural. While frequently criticized for being largely symbolic and vague, this understanding is useful as a base-line definition as it captures core elements of a sustainable world that need to be recognized in all processes of learning for sustainable development.

In what follows, we first present and discuss key insights from, and critically review, the literature on learning for sustainable development. Based on this review we argue for the need for a partial re-direction of learning research. Our critique is then followed by an elaboration of the concept of transformative learning and a discussion of how it offers a useful re-conceptualization that addresses important shortcomings, most importantly by targeting the structural constraints to learning and change toward sustainable development. We then draw on a range of social science theories to clarify how these structures may hinder transformative learning for sustainable development. These include institutional structures, social practices, and conflict perspectives, and attention is paid also on how the structural constraints can be overcome. The paper ends by summarizing our perspective and discusses how it can lay the ground for a new agenda for sustainability research.

2. Learning for Sustainable Development

Sustainable development essentially means a recognition of the interconnection between, and essential importance of, ecological, economic, and social values to the development of societies that can be prosperous over time. Even if indistinctive, the three dimensions play their role in setting the spotlight on core aspects of the sustainability concept and their interconnectedness [14–16]. The economic dimension takes on the use and allocation of common resources and the dispersion of wealth; the ecological dimension makes us pay attention to the vulnerability of ecological systems and often taken for granted ecosystem services. The social dimension of sustainability refers to issues such as human rights, public health, equality, inclusion and participation. Widening the social dimension further, it also comprises values and norms connected to democracy, dialogue, and a collective and open-ended learning process.

In almost all conceptualizations of sustainable development, learning plays an integral part, implicitly or explicitly. Without some way of adjusting course in a self-aware manner based on some sort of insight, it is hard to see how a path towards sustainability can be found. Sustainable development is thus the product of learning, but also a learning process, that is, a way of thinking and acting that is open to learning and changing [17–22]. This can be seen at the level of individual, where some social identities are more open to communication between different individuals and groups [23]. Similarly, at a higher social scale, 'business models for sustainability' are socially complex, dynamic, and committed to learning [24]. 'Wicked' problems; that is, complex social problems without a determinable end-point, require learning governance systems [25,26]. Macro-level entities for sustainable development are conceived as 'emerging learning organizations' [27] (p. 327) or 'learning societies' [28]. Learning shapes social institutions whilst also being shaped by them [29] (p. 488).

2.1. Reviewing the Literature on Learning for Sustainable Development

The initial starting point for this paper was generated through a 'rapid realist' review: the review aimed to pinpoint general patterns around the concept of learning for sustainable development [8]. These patterns were then interrogated to reveal the underlying assumptions in the reviewed literature, allowing for subsequent problematization. Mindful of the criticisms of 'gap-spotting' reviews (that they tend to reinforce rather than challenge dominant theories), the intention was to stimulate constructive theory development by critically confronting these assumptions with insight drawn from alternative theoretical approaches [9,30]. As such, rather than seeking to cover all possible sustainable development studies, this research seeks to identify and challenge the assumptions of the sample collected [30]. The initial research review utilized the database *Sociological Abstracts*, a database that indexes approximately 2000 serial journals in the social and behavioral science, including anthropology, education, and philosophy. The journals have geographically broad coverage and cover 29 research

areas. A decision was made early on to focus on *learning* rather than *education* for sustainable development. Whilst there are clear links between the two terms there was a desire to see how learning is conceptualized away from education research specialists. Indeed, numerous reviews are extant of different ways of integrating sustainability into education (e.g., the articles introduced in [31]). Following scrutiny of the articles uncovered by the review a sample of 53 articles (see Table S1 in Supplementary Materials), which were examined qualitatively. Broad as *Sociological Abstracts* is, it does omit several prominent sustainable development journals. Hence, to improve the validity of the review we, first, compared the findings to previous relevant reviews within sustainability science (notably [32]) to check for similarities, differences and missing themes. Second, this paper's 14 authors, with diverse knowledge and background comprising the disciplines of education, human geography, political science, psychology, and sociology, reviewed, commented, and added aspects and themes. What follows is a short summary of the review augmented by the authors' own disciplinary insights.

2.2. Problematizing Assumptions of Learning for Sustainable Development

Although learning is a central concept within the sampled literature, the concept itself is variably theorized. There is a shared general focus on learning engendering sustainable development, but different disciplines have different starting points [18] (p. 132). It is possible, however, to discern several clearly influential sets of assumptions within the literature as a whole.

First: methodological individualism. The dominant model for learning presented within the sustainable development literature is that of the individual, who may learn 'facts' but also 'values' (e.g., [33]). There is, however, often a cognitive bias in this literature. For example, in climate change research scholars have argued for the need of linking more complex theories of social change to the dominant paradigm, which assumes the simple attitudes–behavior–choice (ABC) model for information transfer and change (see [34,35] for critique). Also, the individualistic approach appears surprising as much of the literature focuses upon social groups and institutions. However, organizations at higher social scales are often only seen as macrocosms of individual learners, without a proper theory of how collective learning happens. This means that fundamental insights from organizational, institutional and critical theory are often neglected.

Second: diversity of knowledge. Some approaches go further and see learning as communication or cross-fertilization between separate knowledge worlds. Integral to much of this literature is the concept of separate 'knowledge worlds' or 'knowledge systems'. Diversity in knowledge systems is generally considered a strength (e.g., [36–38]) and necessary for ensuring the adaptability of human societies [39]. In contrast to the perspective based on methodological individualism, strong values of inclusiveness, partnership and plural participation are present alongside an ideal of communicative rationality [21]. Learning is then seen as social and mutual within a network, institution or system (e.g., [40–42]). However, for the learning opportunities that diversity offers, institutional arrangements need to be suitably organized [43–45]. Many times institutional structures, within academia, government, and business hinder rather than facilitate learning across knowledge worlds. Learning is, for example, still primarily taking place within disciplinary boundaries within academia. Also, research shows that groups and individuals tend to filter out information and knowledge that challenge their core values or interests, especially if the information comes from competing actors that are seen as less trustworthy [46].

Third: learning as part of a system. Partially as an answer to the problem of different knowledge worlds, learning has been considered as part of a system; the study object exists within an *ecology*. In this model, reality is considered to be a series of connected socioecological systems and subsystems too complex for any individual scientific discipline to understand. Calls are thus made for trans- and multidisciplinary approaches to sustainable development. Systems thinking entails that the world is considered to be in a dynamic, inter-connected state, in contrast to a series of smaller, atomized research objects [47]. A system moves between various steady-states through various 'dynamics', 'mechanisms' and 'feedback links' and 'loops' [19]. The extent that a system retains its shape before entering a

new steady state is termed that system's *resilience* [19] (p. 77), or *adaptiveness* [39,48]. This idea about adaptiveness raises some important questions. For example, in a system that is expected to adapt to new circumstances such as a changed climate, how can we ensure that this "new" society is not, for example, an eco-authoritarian society? In a system that is expected to adapt, what are the possibilities for promoting transformative changes today to avoid an unwanted society tomorrow [49]?

Fourth: learning as process. The notion of system transformation brings us to an assumption: that an on-going process of dialogue, reflection, and critical discussions is an important prerequisite for all forms of learning. Social learning is integrally conceptualized as an ongoing process in which mistakes will be made. 'Learning by doing' is thus an apt mantra that captures this process dimension [24,39,48,50–52]. Such approaches to learning take as a given that the institutions in which learning is taking place are both open for experimentation and forgiving for the (inevitable) mistakes they will generate. However, public administration research shows that many public organizations may be characterized as anxious and careful in their approach to change and thus more often opt for the "safer choice" based on previous experiences ("the silent administration", [53].

Finally: learning as a 'win-win' across different social scales. Based on the notion of learning as basis for 'win-win' situations individuals, organizations and systems can and ought to be learning for sustainable development not only for the planet's sake but also in order to ensure their own success [54]. The networked dialogue that learning for sustainable development entails allows for the transferal of knowledge and skills, improving local capacities and competences [42]. Similarly, creating 'innovative societies' and 'adaptive policies' for sustainability, which will find sustainable technological solutions to environmental problems, is depicted as reliant upon the knowledge accumulated by learning [28]. Learning is thus largely assumed to entail no losses. This contradict much of what we know about learning as a "political" process in which knowledge and skills such as convincing argumentation are treated as unequally distributed resources (or capital) that are used to promote certain interests and values over others. Thus, rather than a win-win process, learning can here be depicted as a process that creates winners and losers.

In sum, the above account of dominant assumptions within the literature shows that the literature offers important and useful perspectives. At the same time, our review shows there is a tendency towards an individualistic, cognitivist, optimistic, and harmonious picture of learning for sustainable development. The literature suggests that dialogue will allow communication and learning across knowledge worlds to the benefit for all. This will allow diverse publics to grasp the concept of limits and effect meaningful societal change. However, there are a number of gaps or topics less covered and theorized in the literature: how much difference will dialogue make if those with vested interest in the current system have the power to prevent change? What about structural inertia? What knowledge is considered worth learning; what perspectives are considered relevant, and who is it that decides? What resistance is there to learning? What about rising climate denialism? What social tensions and conflicts will transformation spur? Even if there are exceptions, within the greater body of literature on learning for sustainable development, inertia, conflicts, anxiety, anti-reflexivity, and power remains largely undiscussed and untheorized.

Based on this review we have identified a number of aspects that need to be better addressed in research on learning for sustainable development. Table 1 summarizes the main assumptions and neglected aspects in the literature on learning for sustainable development and corresponding openings through the concept transformative learning.

Table 1. Summary of main assumptions, neglected aspects and ways forward.

Main Assumptions in the Literature on Learning for Sustainable Development	Neglected Aspects	Towards Transformative Learning
Focus on the individual	Narrow view of learning, often with a cognitive bias No theory of collective learning	Collective and organizational learning Learning includes cognitive, social, moral and affective components. Acknowledges that change is anchored in practice and institutions
Learning between separate knowledge worlds	Disregards institutional structures and disciplinary boundaries	Advocates inclusive, deliberative learning processes, but pays attention to social and political context, and power
System approach—focus on resilience and adaptation	Narrow view of change and future possibilities	Includes epistemological change and 'knowing differently'
Learning as an ongoing process based on the willingness to change	Disregards social and institutional inertia as well as anxiety	Pays attention to institutions, social context, social relations and power
Learning as win–win situations across different social scales	Ignores that knowledge is an unequally distributed resource	Pays attention to institutions, social context, social relations, affect and related defenses, and power

In the following section we present the transformative learning perspective. This perspective, while partially integrated with the extent literature on learning for sustainable development, also complements and partly contrasts with that literature. This perspective (1) acknowledges that learning and change are anchored in practices and institutions; (2) emphasizes that learning is a process of examining, questioning, and revising perspectives hitherto taken for granted; (3) acknowledges that learning includes cognitive, social, moral and affective components; and (4) most critically—setting it apart from other approaches to learning for sustainable development—it awards social context, social relations, conflicts and power conditions a central place as integral parts of learning processes.

2.3. Transformative Learning

In addition to the general field of learning for sustainable development reported on above, the perspective of transformative learning has been prominent within sustainable development research for several years [55–63]. It has been found to be particularly useful in this field since sustainable development involves not only technical challenges but also social challenges. That we need to transform frames of reference and change social practices, and the institutions and values that facilitate them, can hardly be questioned in light of increasing knowledge about global degradation of life-supporting ecosystems. The transformative learning in relation to sustainability issues has been theorized from a number of perspectives (1) reflexive social learning and capabilities theory, [64,65] (2) critical phenomenology, [66,67] (3) socio-cultural and cultural historical activity theory [68,69]; and (4) new social movement, postcolonial and decolonization theory [70]. It is not our intention to here go deeper into these different strands but rather to provide a foundation for broader reasoning on how the transformative learning perspective and theories of institutional structure/change, social practice and conflict can cross-fertilize each other.

Transformative learning can be contrasted against *informative* learning [71], which concerns how valuable new content is brought into the existing form of our way of knowing. In transformative learning not only do we change our meanings; we change the very form by which we make meanings. Transformative learning therefore always to some extent involves an *epistemological change* rather than merely a change in behavior or an increase in the quantity of knowledge. It may involve shifts in understandings of ourselves and how we are situated in society as well as how we perceive possibilities for change [72]. Such a process demands that we become critically aware of our assumptions and how they influence our perceptions of and actions in the world [73], [74] (p. 231). This entails both a focus

on critical thinking and group deliberation and a need for learning to be anchored in practice for it to gain transformative power—a form of transformative learning called transgressive learning [75].

A transformative learning process thus requires examining, questioning, and revising much of what we hitherto have taken for granted. Transformative learning includes changing frames of references and targets the meaning-making processes of individuals. Originally, transformative learning focused on individual learning, but later developments have included organizational learning, investigating groups and organizations and how their social context, social relations and power condition their learning [12].

Transformative learning theory stresses the critical dimension of learning that enables us to recognize and reassess the structure of assumptions and expectations that frame thought, feeling and action. These structures of meaning constitute a *frame of reference* that encompasses cognitive, social, moral, and affective components. According to Mezirow [10,11], founder of the transformative learning perspective, a frame of reference is composed of two dimensions: a *habit of mind* and resulting *points of view*. According to this definition, transformative learning is the process by which we transform frames of reference that we find problematic.

Transformative learning theory is based on the *critical-constructivist* notion that our interpretations of the world are based on past experiences [12]. We develop habitual expectations by assimilating perspectives from our social world, community, and culture. They guide our decision-making and actions until we encounter a situation incongruent with our expectation. At that point, we may reject the discrepant perspective or enter into a process that could lead to a transformed perspective. Transformative learning is thus the process of examining, questioning, and revising those perspectives that we hitherto have taken for granted. Transformative learning also draw on the *humanistic* assumption that people have the ability to deliberately change their frames of reference and in this way have an inherent potential for personal growth and development. Transformative learning theory shares *critical social theory's* assumption that state of affairs are reproduced and appear normal, natural, and inevitable through the dissemination of dominant discourses and beliefs. When we recognize these discourses and beliefs as oppressive, unfair or unsustainable we can enter into a transformative learning process.

The transformative learning perspective generally agrees with the common assumption of the learning for sustainable development literature that openness and pluralism are necessary, yet insufficient and without the concomitant overly optimist assumptions (see Table 1). Indeed, transformative learning processes that are collective, open-ended and reflexive are a vital part of sustainable development [73,76]; dominant ways of knowing can be challenged through the inclusion of a diverse sets of actors with multiple perspectives and knowledge claims, which serves to open up deliberative processes [62,63,74,77].

As stated in the introduction, the normative starting point for this paper is that solutions to continued unsustainability and surpassed planetary boundaries require not only scientific and technological advances but also profound social and cultural change. Although acknowledging the importance of changing the basic frames of reference and the importance of social context, social relations and power condition for the process and outcome of learning e.g., [12], the learning process studies based on transformative learning theory generally lack a systematic theorizing of structural and cultural forces that prevent transformative learning in the first place. Frames of reference are embedded in established societal structures. Unsustainable rules, norms, habits and practices set critical structural and cultural constrains for transformative learning and change towards sustainable development more generally. Thus to capture the process of transformative learning for sustainable development the concept transformative learning needs to be supplemented by deeper engagement with the structural and cultural barriers preventing change. For this reason we now turn our attention to theories and concepts of institutional structures, social practices, and conflicts. By juxtaposing these theories with the concept of transformative learning this paper develops a social science perspective that offers enhanced opportunities to understand and study societal transformation

towards sustainable development. The next sections review these concepts under three thematic headings: Institutional Structures, Social Practices, and Conflict Perspectives.

3. Institutional Structures

Transformative learning takes place in different institutional settings, decision-making levels and geographical locations, as well as in public, private, and civil spheres. Understood broadly, institutions provide rules, norms, and institutionalized practices that are embedded in traditions and legacies and that are expected to shape frames of reference as well as the behavior of the individuals existing within said institutions [78,79]. Institutions provide stability and predictability to social and political life. They help actors to understand 'how things are usually handled around here' and thus work as a guide for actions. Well-established institutions are even taken for granted and tend to produce path-dependent action [80]. These institutions condition the development and implementation of policies and actions [81]. Transformative learning for sustainable development can both stimulate and require institutional change, potentially leading to a 'chicken and egg' situation. Unsustainable status quo institutions need to be scrutinized, criticized, and dismantled in order to find ways to move society in a more sustainable direction. Transformative learning both facilitates and is facilitated by such scrutiny, but institutional inertia may hinder such a processes from the outset.

Beyond old ideas of rational policy-making the broad body of institutional theory includes a plurality of perspectives that help us understand institutional change and continuity [79]. Common to all is that institutions produce some level of a 'stable, valued, recurring pattern of behavior' [82] (p. 12). More precisely, institutions are structural features in society with both formal status, e.g., legislatures and organizations, and informal status, e.g., networks and norms. Institutions both constrain and enable individual behavior through rules, norms, practices, and incentives [78,79]. Institutions thus have a conservative nature. Institutional theory accordingly tends to focus on continuity rather than change, and on structure rather than agency [78,83–86]. In normative institutionalism, institutional stability follows from the logic of appropriate action [87,88]. People in various organizations are assumed to learn and adapt to existing rules, norms, and practices, rather than to question or undermine dominant frames of reference or patterns of behavior. Other scholars focus on path-dependent behavior driven by evaluative feedback and 'increasing returns' [89] or by experience-based induction [90].

In institutional theory and policy change literature, transformative change is most commonly assumed to emanate from external or internal shocks and critical events with abrupt consequences for existing institutions, when what was previously considered fixed or stable suddenly is not. This has been conceptualized in terms of punctuated equilibrium [91,92], critical juncture [93], external shocks [94] and windows of opportunity [95]. In such circumstances weaknesses or inconsistencies in the dominant frame of reference appear, which opens up for alternative interpretations and transformative learning.

Institutional change may however also occur more continuously through endogenous, standard processes of interpretation, learning, and adaptation [87,88]. An example of gradual change in the green governance literature is envisaged by the school of ecological modernization. In this tradition, the modern project is supposed to continue if political and economic institutions can successfully adapt to new environmental and development problems as well as make use of emerging opportunities such as technological innovations [4], implying that learning is primarily expected to be so-called "single-loop". This means that learning takes place within the dominant institution, as contrary to "double-loop" learning in which the framework itself is revised in the light of new knowledge [46,96–99]. Learning across institutional settings is approached through research on policy transfer; raising critical questions on how, why, where, and with what effect policies—often labeled as 'best practices'—are mobilized, learned and reformulated across contexts. In these learning processes (political) agency and ideological and institutional contexts have been identified as of key importance for what is learnt, but also how and by whom [100–102].

The central, critical question is whether or not incremental change has 'real' transformative capacity. This perspective has been developed further in the school of 'transition theory', which focuses on how niche experiments can challenge dominant regimes and subsequently be scaled up and mainstreamed [5,103,104]. Such upscaling involves a complex interplay with new and existing technologies and social structures, involving both inertia (path-dependencies) and change. Considerable investments, policy support, strategic niche-management, and extensive collaborative efforts among a variety of actors are needed to challenge existing socio-technical regimes that govern particular production and consumption practices.

In recent contributions to institutional theory, it has been argued that gradual processes also can lead to transformative change, understood as a fundamental renewal of rules, norms and practices on the ground [83]. Lowndes and Roberts [78] argue that institutional change is stimulated by both endogenous and exogenous forces, that transformative effects can follow from gradual change, and that both change and stability are the products of human agency. Olsson [85] argues that gradual processes can result in transformative change in terms of a 'tipping point'. In a slow and hardly noticeable way, gradual change can undermine some institutional rules and norms until reaching a point of no return, where fundamental disruptions take place.

To summarize, institutions can be major structural barriers to transformative learning. Following insights from institutional theory, these structures have a formidable impact on the thought and action of the individuals working and living within them. While learning is recognized as an important feature of human agency within these theories, it is primarily expected to result in adaptation and to incremental change. Learning with the ability to transform institutions, that is, double-loop learning, is primarily portrayed as depending on external events ("shocks") that create discrepancies between the institution and the values and expectations in the surrounding society. However, more recent research [e.g., 85] also indicate that learning inside an institution can result in more transformative change, for example by creating discrepancies between actual practices and the values and goals upheld by an organization. We now turn from institutional structures to the more mundane social practices that structure agency.

4. Social Practices

The transformative learning perspective acknowledges that change is anchored in social practices. But, what does this mean? Social practice theory can provide further insight into the norm-governed and habitual nature of agency [105–108]. Applying such a framework helps us to understand how different dimensions of society contribute both to the stability of practices and the emergence of new practices through transformative learning. Using this framework provides guidance in identifying and locating where changes are needed to facilitate the formation of sustainable practices and for these to become normalized and result in new institutions. Theories of institutional structures and social practices have, in part, different disciplinary backgrounds. For example, whereas institutional theory is core in political science and common in sociology, social practice theory has a firm tradition in sociology, commonly seen in human geography, education, and increasingly in psychology. While there are some overlaps, we see clear opportunities for theoretical cross-fertilization, particularly if the task is to understand both formal and informal as well as more mundane structures at different societal decision-making levels and sectors (both formal public and private organizations as well as more disorganized everyday life).

Like institutional theory, social practice theory challenges assumptions tied to individualized solutions and expresses a view of the actor as routinized and socially embedded [35,109–112]. It rejects the overly rationalist and individualist understanding of behavior, which approaches human choice primarily as an individual and cognitive matter. For example, strong habits and norms make people less inclined to take in information from the outside world, and less likely to deliberate on alternative actions [113]. Social practice theory thus entails studying actors, their thinking and doing, as thoroughly embedded in material infrastructures, cultural norms and various social relations. It pays attention

to the socio-material and cultural lock-ins that actors face, which can be extremely hard to escape or even comprehend.

In this regard, much behavior related to sustainability issues takes place at a crossroad of, for instance, material infrastructures (including everything from physical transport systems to eco-labels on product packages), social norms (what is proper to eat), and tacit knowledge (how to store and prepare food, how to use energy) [107]. When different components clash, for instance deeply socialized habits clash with the new demands of eating in an environmentally friendly way, ambivalence can be triggered. Ambivalence has often been seen as negative leading to inaction [114,115]. However, others argue that ambivalence can make people more reflective and aware of their habits, opening up for learning and create possibilities for change [116,117].

Activities in everyday life are also central in new forms of sustainability movements [118–121], which are about changing interactions and group living with the aim to disrupt unsustainable norms and habits in everyday living [122]. In this form of prefigurative politics/practice people aim for societal change that bypasses the status quo by creating local alternative social relations and practices [122]. By finding cracks in the system to do things differently, one evokes hope in oneself and also becomes a role model for others, evoking hope in them, and thereby, possibly, eroding the current unsustainable order and *prefiguring* more sustainable futures [116,120]. This could be seen both as a form of practice-based hope theory [123] and as transformative/transgressive learning [56].

New insights can be gained by combining social practice theory with theories attentive to the role of competence, reflexivity [124] and transformative learning. As everyday practices are mostly the result of un-reflected decisions, reflection and learning are crucial to developing awareness of practices and new skills. Hence, to seriously involve actors in change-related action requires more fundamental learning processes. This includes self-learning about unsustainable practices currently considered normal, taken-for-granted, and socially supported.

There are studies showing that segments of people do 'wake up' and start to think and deliberate when faced by a situation that provokes anxiety/worry. Subsequently these people base their sustainability decisions on new strong information rather than habits [125,126]. For example, this could be when people come into contact with global sustainability problems in everyday life through media or school. For instance, climate worry has been linked to an inclination to search for more information about the problem [127,128]. Change in practices may be induced through alterations between materials, meanings and forms of competence [112,129]. Change can also be induced by introducing reflective approaches. One is reflexive monitoring in action [73,130], a methodology to encourage learning for change within multi-actor groups/networks/institutions. In this case, appointed reflexive monitors promote collective learning through, for instance, prompting periodic collective reflection on the results of actions undertaken. Another approach suggested is critical emotional awareness [123] where actions, emotions, and emotion regulation strategies are pondered in a deliberate and critical manner.

5. Conflict Perspectives

Transforming society to become more sustainable is often portrayed as a conflict-free process, where all sectors and actors appropriate the value of sustainable development and start to move in the same direction (see critique in [131]). However, most often, social transformation creates winners and losers; companies have to adapt to new markets simultaneously as old ones are diminishing, political parties have to reorient themselves in a changed landscape of values and priorities, and people have to change habits and lifestyles. This means that there are actors and sectors that will not necessarily welcome change, and there may also be actors that share the goal of sustainable development but interpret it differently, or consider other solutions better than those suggested. Environmental justice scholars highlight how vulnerable societal groups often face the greater burden of environmental problems, but without resources or decision-making power to achieve any change of their life conditions [132]. As shown in our review, inequalities (ethnicity, gender, income, etc.) and divergence

in values, priorities, and interpretations are too infrequently addressed in research on sustainable development [133]. By stressing the social context of learning processes the transformative learning perspective makes addressing this issue possible and enables experimentation on how to handle diverging conditions, goals and claims.

There is thus a need for complementary theoretical perspectives that explicitly address conflict at both societal and individuals levels. Social institutions and society are often assumed to be stable, whereas conflicts are ever-present, creating tensions and ambivalence. As Laclau and Mouffe [134] argue, there is no such thing as a given society [135]. That is, every social order is a contingent articulation of power relations in which society represents a product of practices, including habits and norms, which attempt to create a certain order. In order to make our actions meaningful and social life predictable, individual and collective actors (organizations, communities) need to behave as if there was an objective totality, a given society in the contingent context. However, things could always be otherwise and society is continually reconstructed anew. From a transformative learning perspective, change is always a possibility; society and social institutions can transform to something different. A conflict perspective is therefore about the ability to critically approach assumptions that may be taken for granted and to trace the use and interpretations of dominant concepts, ideologies, and policies.

Through conflict human life is organized, with social movements and groups forming to fight for what they prefer, need and believe in. Every ethical, moral, religious, economic, or technical conflict can be transformed to a political one if it is strong enough to group humans into friends and enemies, or at best political adversaries [135,136]. In a situation of (political) conflict there is the possibility not just for violence but also for openness and, thereby, transformative learning, which recognize and respect alternative ideas, values and possible solutions, which in turn make possible joint deliberation and decisions regarding handling us/them group relationships. In these processes, rather than placing hope on reaching consensus, difference, disagreement, and conflict need to be handled, rather than suppressed, in democratic decision-making [49].

Conflicts may be situated on the macro-, meso- and microlevels. Sustainability conflicts at the macro-level are built into the very foundation of modern societies and their economic growth rationality [137]. Many of the activities that makes productive and exploitive use of the environment are economic activities, and thus those institutions through which economization becomes possible are potentially central for achieving positive change. Commodification of nature [138,139] along with continuous industrial expansion towards a greater volume of production of goods [140], are major processes that underpin unsustainable relationships between societies and the environment. As commodification takes place, such as the patenting of genetic material or the carbon credit system, it transforms natural artifacts into economic units; a process whereby qualitative features are reduced to quantitative measures [138](p. 408). The extensive commodification of the biophysical sphere typifies the general instrumentalization of nature, Carolan points out, and thus what may be critically examined is how knowledge generation takes place mostly in relation to the atomized and reductionist perspective that guides economic action. The knowledge and power to distinguish between sustainable and unsustainable is transposed from a public political sphere where conflicts and inequality may be recognized, into a market sphere characterized by vested interest and unequal access [141].

A related major sustainability conflict on the macro-level is what Allan Schnaiberg [142,143] terms 'the treadmill of production'. This can be comprehended as the interconnected mutually-reinforcing interests of different actors resulting in a primary concern for profit maximization and resultant intensified consumption. At the left of an expanding economy, Schnaiberg argues, are the three cornerstones of capital, labor and the state that constitute the economic growth coalition [143](p. 280). Each actor that represents a part of the coalition acts upon a logic that effectively marginalizes other interest groups and supports status quo.

An additional remark, at the macro level, concerns the question of sustainability framed as a challenge 'for humanity' [144,145]. But what does 'humanity' mean in terms of action and

decision-making? Decisions and agency are necessarily part of economic activity, but humanity as such is not taking any decisions. Interests as well as learning can only happen where agency, knowledge and reflexivity take place, and humanity consists of differentiation and struggle between motivations and needs rather than of some cohesive social productive force [146]. It is precisely through highlighting such agency and reflexivity (in other words: politicization) that such conflicts, and the underlying power structures, can be revealed [131]. Particular framings and scalings of sustainability are thus integrally political.

On the meso-level one should consider organized denialism and anti-environmental movements. A particular challenge in all efforts to achieve sustainable development is how to relate to actors neither interested in transforming society nor in taking part of processes of transformative learning. They may even consciously counteract learning processes and initiatives to transform society. Studies have shown that there are strong, organized and skilled counter-movements, not least with regard to the climate change issue, which aim to hinder transformative learning and social transformation [147]. Current anti-environmental movements have learned a lot about counteracting successfully environmental claims and initiatives for change. Whereas earlier movements opposed environmental protection directly, current anti-environmental movements instead stress scientific uncertainty and argue their may be insufficient empirical evidence for taking action [148]. As Dunlap and McCright [149] show in their study of the US climate denial movement, anti-environmentalists have created a parallel scientific universe with scientific counterclaims. This is used to construct a picture of strong and far-reaching scientific disagreements and controversies about climate change, a picture which is widely distributed nationally as well as internationally through social media and social networks. Despite strong institutional principles for not letting the absence of absolute scientific certainty stand in the way of action, that is, the precautionary principle, these messages resonate well with politicians, business leaders and individuals who benefit from the current order as well as with those who would rather put their head in the sand (see discussion on coping below).

This particular case of denialism shows that learning is not just a feature of social movements normally considered progressive but also occurs within anti-environmental movements; they have learned to be better equipped to counter-act other actors' strategies and goals. In this sense they are strategically reflexive, learning and reflecting on how to best achieve their goals: how to fight against social transformation, how to configure their own expertise and develop counter-claims, how to mobilize sentiments on social media to voice their opinion against environmental initiatives, how to influence decision-makers, general public, and other target groups. In this sense, it is a reflexivity which is not part of transformative learning because it does not include any re-assessing of structures, assumptions and expectations which frame our way to perceive and act in the world. What this case shows is that reflexivity and learning in a narrow sense can be used to counteract transformative learning, hide taken-for-granted assumptions, and hinder questioning of institutionalized practices and routinized behavior. In short, such learning aims to foster un-reflexivity and deny the need to know differently, establish new social practices or change structures.

Finally, there is the micro-level dimension of conflict, which includes issues of identity and anxiety. In prefigurative politics/practice one aims to create conflict deliberately in the sense that people and movements try to disrupt deeply held and taken-for-granted unsustainable norms and habits by acting in surprising, creative, and boundary-crossing ways. By examining the inconsistency between these material practices and pre-existing beliefs, people learn that a different way of being is possible [150]. But to disrupt and do things differently is also painful and can lead to negative emotions and ambivalence [151]. How people cope with their ambivalence most probably influences whether they will change their actions in a more sustainable direction or not [152]. Given the abstract and distant character of many sustainability problems, art and literature can be utilized to spark inner conflicts and emotions such as empathy, worry and moral outrage [153,154]. These conflicts and emotions can then be used as constructive forces in the learning process, but as with ambivalence people may cope with upsetting emotions in ways that stifles learning and lead to inaction, distancing and

denial [117,155,156]. What seems to be important to ensure more constructive handling of such tensions is the ability to create meaning, evoke positive emotions, and to work collectively [117,155,157,158]. In sum, there is an urgent need for increased knowledge about how conflicts and related emotions such as worry, anger, and ambivalence can promote transformative learning.

6. Discussion and Conclusions

Based on the assumption that societal change towards sustainability not only requires scientific and technological advances but also profound social and cultural changes this paper presents an approach for understanding conditions for and for studying transformative learning for sustainable development. In our critical review of literature on learning for sustainable development we identified a bias towards an individualistic and cognitive view on learning as transfer of information. In addition, we identified a notion of learning outcomes in terms of adaptation within current structures and institutional arrangements and an overly optimistic view of possible win-win situations. One approach within the learning literature that placed learning as a way to transform society at its left, the transformative learning perspective, was then discussed. This perspective contributes by (1) acknowledging that learning and change are anchored in practice; (2) emphasizing that transformative learning is a process of examining, questioning, and revising frames of references and perspectives hitherto taken for granted; (3) acknowledging that learning includes both cognitive and social, moral and affective components; and (4) most importantly acknowledging that social context, social relations and power conditions are integral to learning processes. This emphasis, in turn, implies the need to better understand these aspects of and conditions for the learning process.

In this paper we have suggested that the concept of transformative learning is a good starting point for this endeavor, but needs to be theoretically elaborated and complemented with other social scientific concepts. The notion of transformative learning is based on a critical theory tradition with the aim of going beyond the identification of key shortcomings in existing ways of addressing the challenges of sustainable development. It does this by offering a perspective suggesting constructive pathways for realistic change, primarily by focusing on the constraints of unsustainable structures and on deliberative ways for overcoming such hindrances. In addition to this concept we have suggested that there is need for a theoretical perspective and approach providing a deeper understanding of the societal, contextual aspects of learning, in particular institutional structures, social practices and conflicts on macro, meso, and micro levels.

These contextual aspects are important since all three can both hinder and facilitate transformative learning for sustainable development. It is always a subject that learns, but this learning takes place in a particular context, embedded in social practices and institutions that provide formal and informal opportunities and constraints. In addition, much learning takes place in the wake of critical events or (trans)formative moments. These kinds of moments present windows of opportunity that can facilitate transformative learning and institutional change—but can also be used to strengthen already appropriated frame of references, knowledge and values. Also, even if transformative learning takes place in a particular organization, setting or location, it does not necessarily mean that it influences other fields in society or society at large. In a loosely organized system, counteraction (such as a denialist campaign) may obstruct learning in other sectors and on other levels of society. A key-questions for future research is therefore: how can individuals (experts, citizens, politicians and others) and collective actors (organizations, communities) develop reflexive capabilities to promote change and counteract structural and cultural forces that prevent change toward a more sustainable society?

Considering institutional structures is an important avenue for further research, this will enable better understanding of the conditions leading both to situations of inertia, such as path-dependency and unwillingness to change, and to opportunities for profound changes, including changing frames of references, altered social practices, and institutional change. This could be complemented by valuable research on organizational unlearning—commonly defined as abandoning something "obsolete,

misleading, redundant, or unsuccessful" [159] (p. 1437)—as well as the intertwinement of learning and unlearning.

Learning to understand, interpret and do things differently implies a process of change for both organizations and individuals. This process can never be entirely about knowledge in terms of appropriation of information. Much of both individual and organizational activities and performance are rooted in routines and rules and embedded in social relations and norms. Combined with the transformative learning perspective social practice theory can instigate and elucidate important research questions, such as: how are new meanings created? What norms and routines hinder change? How can norms and ingrained routines be changed? How can practices that break with social norms be configured?

Another important consideration is how learning processes are conditioned by power and inequalities, necessitating attentiveness to how conflict permeates the concept of sustainability. It is important to better understand both acts of resistance and willingness to change in terms of power and conflicts. Conflicts can both facilitate and prevent transformative learning. Dominant discourses and beliefs may hinder change towards sustainability. However, the often taken for granted idea that sustainable development entails so called win-win situations conceals the fact that changes almost necessarily produce both winners and losers. There is no conflict-free transformation. Furthermore, economic and social loss tend to be more short-term than environmental gain. Crucial research questions thus concern who has the power to hinder or instigate change and who is in the position to define what is desirable and/or necessary.

The approach for studying transformative learning for sustainable development presented in this paper calls for a multidisciplinary approach. The interconnectedness of different practices and institutions at different levels and social spheres requires research design and theoretical inspiration from across the social sciences. To cover the broad range of questions instigated by this perspective there is a need for empirical studies in different contexts and with different actors. These diverse studies—with qualitative, quantitative or mixed methods—should pay attention to comparative analyses of practices, organizations, institutions, and contexts. Furthermore, longitudinal qualitative and quantitative studies following actors, practices, and institutions over time are urgently required in order to analytically capture critical processes and moments for transformative learning, including both hindrances and promoters of this form of learning. In this, the role of emotion should not be overlooked, because emotions, if constructive handled, can trigger learning and collective action. Moreover, sustainable development is a broad goal that cannot be restricted to a particular organization or institutional setting. As such, transformative learning must be related to long-term macro-social change and to multiple, different, diverse settings and conflicts through exploration of historical societal transformations in light of more contemporary challenges.

Societal transformation will not simply happen based on progress in the knowledge base. This article has argued for moving beyond simplistic, win-win understandings of learning for sustainable development. To enable sustainable transformations of modern societies we need a more elaborate understanding of learning; one which accounts for the institutional, social, and conflictual dimensions of learning. We need insights on how transformative learning could be managed. The approach outlined here constitute an important step in such direction. It calls for transformative learning rooted in disciplines across the natural and social sciences taking a holistic approach that acknowledges how power permeates differing notions of sustainability across the world's globalized societies. Learning for sustainable development is too important for anything less.

Supplementary Materials: The following are available online at http://www.mdpi.com/2071-1050/10/12/4479/s1, Table S1: Sampled literature (53 articles).

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