

## Adult Development Meets Social Sciences—Reviewing the State of the Art

Elke Fein  
University of Freiburg

Thomas Jordan  
University of Gotenburg

Neo-Piagetian theories of adult development (AD) have been received and used by social and political scientists in various ways during the last few decades. However, despite their potential to provide insights into previously neglected dimensions of social and political change, structuralist cognitive developmental approaches have, for various reasons, still not been systematically “discovered” by many of the established social science disciplines. This paper gives a tentative overview of some contributions that approaches informed by structuralist developmental perspectives have made to various fields within the social sciences in the past few decades. It looks at, first, how important AD frameworks have been used in political science in a broad sense, that is, including history and sociology. Our particular focus is on what kinds of methodologies have been used, and what they are suited for. On this basis, second, we discuss some of the methodological challenges that are connected to AD uses in the social sciences. Finally, we investigate to what extent developmental approaches can make accessible novel dimensions of knowledge and understanding of social and political change.

*Keywords:* adult development, social sciences, methodology, complexity, discourse, political reasoning

AD research has experienced a considerable differentiation since its Piagetian beginnings in the last three decades of the 20th century. The home turf of AD research has been and is still the microlevel of individuals. It has gained some, but still very limited, influence in psychology in general and in educational science. At the mesolevel of groups and organizations, AD frameworks have been used to shed light on leadership, change management, workplace conflict, and related themes. However, at the macrolevel of politics, societal structures and processes, and the management of complex public issues, the interest in using AD frameworks has been more limited, despite its potential to provide insights into previously neglected dimensions of social and political change. It is

our experience that there is both a lack of awareness in many of the established social science disciplines about the potential relevance of AD theory and a reluctance to consider, let alone integrate, AD approaches more systematically into their curricula and research designs. This is possibly due to a lack of experience in truly interdisciplinary research and bridge building between academic disciplines and fields, as well as to existing academic and disciplinary cultures and their prevalent habits and preferences. However, examples show that AD approaches have the potential to make considerable contributions to our understanding of the macrolevel of politics, political culture, and society. Also, they might provide a more solid and more differentiated basis for more effective and more sustainable politics.

Actually, these practical, real world-related analytic potentials have been important personal motivations for both of us to engage in AD research as social scientists. So let us start with a few words about our own backgrounds and how we got involved in AD research, which immediately links with the intention of this paper.

---

Elke Fein, Institute for Integral Studies, University of Freiburg; Thomas Jordan, Department of Sociology and Work Science, University of Gotenburg.

Correspondence concerning this article should be addressed to Elke Fein, Institute for Integral Studies, University of Freiburg, Mathildenstrasse 18, D-79106 Freiburg, Germany. E-mail: [fein.elke@gmail.com](mailto:fein.elke@gmail.com)

Elke Fein is a political scientist at the Institute for Integral Studies (Freiburg) specialized in large systemic and societal transitions, in particular, those in Eastern Europe after the end of the Cold War. Focusing on the difficult challenges of democratic transition in Russia, she soon took an interest in various dimensions of political, economic, and legal cultures and the many ways in which implicit sociocultural rules impact the (mal-) functioning of social, political, economic, and legal institutions. She also has a background in leadership and a strong interest in how politics can be invited to develop in complexity and thus, to be made more collaborative.

Thomas Jordan holds a PhD in economic geography and is a senior lecturer in work science and associate professor at the Department of Sociology and Work Science of the University of Gothenburg, Sweden. He also works as an educator outside the university in the field of conflict management. His research interests comprise workplace conflict and management of complex societal issues, with a theoretical basis in AD theory.

Based on our own experiences with both AD research and practical sociopolitical challenges, our aim in this paper is to give an overview of important contributions that AD theories have already made, and have the potential to make, in the social sciences that empirically study the macrolevel of political and other societal issues. In order to do this, we will review some of the existing literature and discuss prospects for further research. In our discussion we will examine the following questions:

1. What contributions have AD models made so far in the field of the social sciences?
2. What are distinct conceptual contributions AD models can make here? And what is the added value of AD perspectives as compared to other approaches to social problems?
3. Are different AD models particularly suited for analyzing (particular) social problems?
4. Which methodological problems do researchers have to face when applying AD models to social problems—and how are they already dealing with them?

This paper has to make a number of practical delimitations. Unable to give a thorough and comprehensive overview of the existing literature in the fields mentioned above or exhaustive answers to the above questions, we will rather briefly present examples of how AD theories have been used in empirical studies about social and political issues with these questions in mind. We will not provide systematic accounts of single disciplines, but rather introduce the empirically based research studies we have been able to find that use AD framework for analyzing (mainly) political phenomena.

We will focus on researchers we believe might deserve more recognition among the readership of the *Behavioral Development Bulletin*. We will therefore not include research based on the model of hierarchical complexity (MHC), which is well-known in this community. Our focus will be on examples of empirical research, rather than on efforts to construct theoretical or speculative frameworks, without any empirical application or support. We will also only briefly mention research that applies AD theories to the mesolevel of organizational management, such as Lasker (1978), Torbert (Fisher & Torbert, 1995), Brown (2011), and many others. Lastly, we will leave out research on religiosity, given the elaborate papers by James Day (Day, 2016a, 2016b). The same applies to educational science/pedagogy/adult learning where we point to the contributions of Rebecca Hamer and Eric van Rossum (Hamer & van Rossum, 2016), as well as Gloria Nogueiras and Alejandro Iborra (Nogueiras & Iborra, 2016).

We will organize this paper in four parts. First, we make a few general remarks with regard to the relation between AD theories and the social sciences focusing on the macrolevel. Second, we will present an overview of research where developmental frameworks have been applied to empirical studies in the fields mentioned above. Third, we will summarize the strategies these existing approaches have used to offer developmentally informed analyses of social sciences problems. Finally, on this basis, we will discuss the most important methodological challenges which developmentally informed approaches in the social sciences have to face and comment on how these have been met by the research we present. On this basis, we evaluate the contributions AD approaches

can make to social analysis and reconsider some prospects for further research.

### AD and the Social Sciences: How to Bridge the Tension Between Social Structure and Individual Psychology?

The attempt to integrate sociology and psychology remains a topic of recurring interest, but efforts of this kind have been largely marginalized. In part, this is a result of how the social sciences have been institutionalized in the last seventy years. (Rosenberg, 2003, p. 430)

Given that the social sciences deal with how human beings act and behave in relation to each other, how they organize themselves, and which institutions their everyday interactions and collective wisdom bring forth, it is surprising that AD does, as yet, not play a more important role in the field. At the same time, the tension between *mind* and *society*, individual and social groups as entities and objects of analysis is as old as the social sciences themselves. As Rosenberg (2003, p. 447) put it, the fact that,

“individuals and collectivities are each subject to the constraining and potentially transforming influence of the other” seems widely accepted as a principle. However, not all social science research concludes from this that an adequate epistemological approach to studying social reality has to take into account both poles, as well as their interactions, on equal terms. Instead, the social sciences outside the psychology discipline focus primarily on social structures and how they frame individual behavior. This is particularly true for large parts of sociology and economics, and, to a lesser extent political science, anthropology and others. Inversely, they tend to neglect the fact that “substantive realities are not simply a manifestation of a structure, but are (also) operated on by it.” (Rosenberg, 2003, p. 445)

and how this happens. This might be due to a lack of anthropological inquiry, by which we mean an inquiry into what human beings ultimately are and can be. Admittedly—and understandably—this is not the main focus of most social sciences and therefore apparently mostly outsourced to psychology. Yet, since societies are made up of humans, failing to elaborate an adequate understanding of what and how humans “are” leaves research at least partly to either speculation; to biased, and mostly implicit, unquestioned assumptions; or one-dimensional theories lacking adequate empirical basis.

In our view, it is therefore high time for social analysis to bridge the gap between social structures and individual meaning-making in a more systematic way. Once again, we refer to Shawn Rosenberg whose work will be presented in more detail below and who has framed this challenge as follows:

“In order to move beyond the limits of contemporary social and political psychological approaches, a fundamentally new theoretical orientation is required. It must recognize that social life is *dually structured*, by both thinking, feeling individuals and by socially organized, discursively constituted groups. It must further recognize that these two sources of structuration may operate in significantly different ways. . . . On the one hand, a social interaction is structured by the understandings and purposes of the individuals involved . . . [and their] characteristic mode of coordinating [their] own actions. . . . As a result a particular interaction between individuals is subjectively structured. On the other hand this interaction occurs in a larger social context and is regulated accordingly. A social group or society has a characteristic way of coordinating the various social exchanges that occur among the members of the collectivity. . . .

(Hence,) the qualities or dynamics of either of these two dimensions of social life, individual and collective, cannot be collapsed onto those of the other. Culture and social organization on the one hand, and cognition and emotion on the other, . . . each must be analyzed in their own distinctive terms,” recognizing “the way in which any given social interaction unfolds (as) *dually structured by the purposive individuals involved and by the larger social context in which they are operating* [emphasis added]. . . . As . . . individuals and the collectivity are attempting to regulate the same concrete ground . . . , these two structuring forces are pragmatically intertwined and therefore are open to each other’s influence.” (Rosenberg, 2003, pp. 431f, 441, and 446)

Whereas studying the processes of social actors’ *meaning-making* in and between their respective communities of discourse (Sinngebungsgemeinschaften) has turned into a well established field of research ever since the multiple schools of hermeneutics and discourse analysis have emerged, it is, as yet, not a very commonly accepted insight that structures of meaning-making can also be differentiated and analyzed with regard to their (vertical) complexity (Fein, 2016). Political, moral, and identity claims can be structured in more or less complex ways in terms of the quality of their argumentation and meaning-making—and this has immediate social and political implications. For example, while certain institutions only emerge once a particular complexity level of

thinking has developed and spread out in a given community, many individuals, inversely, often seem to “lack the cognitive and emotional resources to respond in the way required” (Rosenberg, 2003, p. 432) after institutions have been “imported” from other contexts (Maalouf, 2014). In this case, societies and the functioning of their political regimes and institutions tend to be governed more by informal than by their respective formal rules. This is not only relevant for analyzing and better understanding current political conflicts inside and between cultures, states, and societies (see Wagner & Fein, 2016), but also in view of historical analysis (Fein, 2016). Moreover, studying the complexity of cognition and discourse can provide culture-independent criteria for what Clare Graves called “large scale psychological” challenges such as analyzing transformations of value systems and whole cultures.

In the next section, we will provide examples and some more detail as to how AD- informed approaches to sociopolitical analysis have started to bridge this gap by researching some of the implications that differences in cognitive structure have on the social and political level.

### Adult Developmental Approaches in the Social Sciences: Experiences So Far

The following examples of developmentally informed perspectives on sociopolitical problems go back several decades. They illustrate that the fundamental challenges we raised above concerning the relation between AD, society, and social analysis have been addressed by numerous researchers in varying ways. In the following sections, we focus on either comprehensive approaches developed by several researchers, or on individual researchers who have come up with innovative ways of using developmental perspectives in political and social analysis.

### The Integrative Complexity (IC) Framework

The roots of the integrative complexity (IC) framework go back more than half a century. Two influential books were published in the 1960s, *Conceptual Systems and Personality Organization* (Harvey, Hunt, & Schroder, 1961) and *Human Information Processing. Individu-*

*als and Groups Functioning in Complex Social Situations* (Schroder, Driver, & Streufert, 1967). The original key concept was conceptual complexity, focusing on to what extent subjects differentiate and integrate different perspectives. In the early days, levels of conceptual complexity were conceived of as personality traits. Later, this framing was abandoned in favor of a framework that simply defined different levels of IC, leaving it to empirical studies to investigate whether the complexity patterns are stable properties of individuals or contingent on situational factors.

Schroder, Driver, and Streufert defined four levels of IC (using the terms “levels” and “scores” in their texts). By introducing three transitional levels the framework was expanded into seven levels using the same term (“level”) for all of them (Baker-Brown et al., 1992). A brief characterization of the framework by Philip Tetlock, one of the most active scholars in this field, reads:

Low scores indicated low differentiation and integration (denial of ambivalence and shades of gray); moderate scores reflected moderate differentiation but no integration (recognition of divergent viewpoints but no means of synthesizing or tying perspectives together); high scores reflected high differentiation and high integration (explicit attempts to grapple with contradictions, to understand their sources, and to cope with their consequences). (Tetlock, 1996)

Later research has deemphasized the developmental view, that is, exploring how people with different levels of IC reason and act, and emphasized the reverse type of causality: how situational factors may lead to changes in levels of IC (Suedfeld, 2010). However, both aspects have continued to be explored in a large number of studies.

In the 1960s and early 1970s the framework was used in experimental settings, measuring the conceptual complexity of subjects using paragraph completion tests (similar to Jane Lovinger’s sentence completion tests, but asking subjects to write three sentences instead of just completing one). In the mid-1970s scholars started to use the IC framework in the political psychology field by scoring documents according to seven levels of IC (Suedfeld & Rank, 1976; Suedfeld & Tetlock, 1977), in particular, for studying levels of IC among political leaders before, during, and after international political crises and wars. A considerable number of em-



pirical studies based on analyses of speeches, policy documents, and other texts were made in the following few decades. Peter Suedfeld summarizes one of the main findings from these studies (IC stands for integrative complexity):

Past research has shown consistent patterns of IC change in advance of the culmination of international confrontations. IC remains stable, or rises, preceding peaceful solutions, as in the cases of the 1911 Agadir crisis, repeated crises over Berlin during the Cold War (including the Berlin Blockade), and the Cuban Missile crisis. integrative complexity drops, usually on the part of both protagonists, within approximately six months prior to the outbreak of war in confrontations involving cycles of escalation (e.g., World War I, the Korean War) and intermittent major warfare in persistent international rivalries (the half-century of conflict between Israel and Arab nations, and between India and Pakistan). . . . (Suedfeld, 2010, p. iii)

The IC framework has been used for studies of politicians and high-ranking military officers, political ideology, party support, Supreme Court judgments in the United States, environmental issues, religious hostility, decision-making by managers, and many other topics (for an overview with references, see Suedfeld & Tetlock, 2014).

The framework lends itself well to text analysis of documents and transcribed speeches. In order to become a competent IC scorer, a 3-day intensive training workshop or a comparative time spent with practicing scoring is needed. Compared with the MHC, the Lectical Assessment System (LAS) and the complexity of information processing (CIP; Jaques, 1989) framework, the IC framework is less concerned with determining precise structures of reasoning in terms of coordination of concepts at different orders of abstraction. The framework focuses on the extent to which a subject recognizes and integrates different perspectives. The IC framework is probably easier to learn and use in document analysis than MHC and LAS.

### **Shawn Rosenberg, Stephen Chilton, and Dana Ward**

Shawn Rosenberg is an American political scientist and professor of Political Psychology and Social Behavior at the University of California in Irvine where he coordinates the Graduate Program in Political Psychology. Since the early 1980s, he has explored Piagetian perspectives and made accessible their analytical po-

tential for the study of politics and political reasoning. Since then, he has developed his own model distinguishing three complexity levels of reasoning (sequential, linear, and systematic, roughly corresponding to Piaget's preoperational, concrete-operational, and formal operational stages). On this basis, he has presented numerous publications on how developmentally informed approaches can provide qualitatively new insights into the analysis of political reasoning and deliberation, mainly using his own model in various applied settings (Rosenberg, 1988, 1995, 2002, 2007a, 2007b, 2013).

Rosenberg's work is motivated by a general critique of the then dominant and still rather widespread research paradigms studying political attitudes and belief systems, largely based on questionnaires and surveys, which he holds to be inadequate for analyzing political reasoning. In relation to this, he also criticizes a couple of fundamental theoretical assumptions, concepts, and methods of mainstream social and political sciences research, most of which are grounded in liberal political theory. Based on his Piagetian, developmental perspective, Rosenberg, in particular, deconstructs the assumption that all humans think alike, which, in liberal political theory, is often combined with the assumption that all citizens, in principle, behave rationally, provided they are given sufficient information (Rosenberg, 2007a, 2007b).

Shawn Rosenberg has conducted extensive research exploring the complexity of political reasoning of average United States citizens. In a number of empirical studies, he has analyzed comparatively small but carefully selected, heterogeneous samples of the United States population, covering various age groups, educational backgrounds, genders, and other relevant criteria, on several reasoning and logical thinking tasks. For testing the complexity of individuals' performance on those tasks, Rosenberg has used qualitative interviewing and clinical methods. In his main study, he conducted in-depth interviews on issues of domestic United States politics. Then, he did the same thing on current United States foreign and international politics. Finally, he compared participants' performance in political versus nonpolitical domains. For the latter, he used classical Piagetian-type physical and chemical experiments. Given that structures of thought are not directly observable, but only via inferences, extensive probing was practiced

both during the interviews and the experiments. On this basis, he was able to test the stability of participants' performance across domains which, in fact, he found to be quite significant. Even though his samples are not statistically representative of United States society, they do strongly confirm Rosenberg's theoretical stance that individuals reason at differing levels of complexity while mostly reasoning on the same level across domains. This obviously has implications for individuals' understanding of politics, as well as for their political behavior. Party affiliation, for instance, is of differing importance and has different meanings on each of the three levels he has identified.

While Rosenberg does not explain in detail the methodological steps of how he arrived at his model of three levels of complexity of political reasoning, he describes those three levels (sequential, linear, and systematic), as well as typical ways of reasoning and behavior performed on them in a very differentiated way. Also, he provides examples from his in-depth interviews showing what reasoning at all three levels looks like. Due to the relatively small size of his sample (166 individuals in his main study), he does not make inferences with regard to the United States population as a whole. However, his results reveal that a majority of the participants of his studies did not demonstrate systemic levels of reasoning, in other words, do not think systematically. This means that those individuals have trouble dealing with ambivalence and have not necessarily internalized the dominant political ideals.

Rosenberg rightly argues that these differences in reasoning not only run counter to the assumptions of large parts of political theory that all individuals reason and understand politics in the same way, it also has important implications with regard to the relationship between cognition, culture, and social structure (Rosenberg, 1995, p. 134). Moreover, he concludes that many "individuals seem to lack the cognitive and emotional resources to respond" in the way that is required, sometimes implicitly, by liberal democratic institutions. "They do not seem to fully understand what is required of them and how to proceed. The result is often discomfort, withdrawal or various minor forms of psychopathology" (Rosenberg, 2003, p. 431).

Shawn Rosenberg's more recent work includes research on identity and on political de-

liberation. In a paper on how female Muslim Americans understand their religious and national identities and how this implies attitudes toward immigrants in the United States (Rosenberg, 2012) he equally uses his three-stage model. While he doesn't refer to the work on ego and self development in this regard, his approach does provide new insights as to how people construct their various identities and sociopolitical relations at different levels of cognitive complexity. His most recent work on the political deliberation and on the relationship between cognition, communication, and democracy (Rosenberg, 2013) also involves experimental research on the limitations of conventional deliberation formats, and, on this basis, suggestions to reconstruct them in a more realistic and more differentiated, developmentally sensitive way, as well as a reconsideration of democratic theory as a whole.

Overall, Rosenberg claims that political science needs to pay more attention to how meaning is constructed at each level and how objective conditions contribute to the formation of cognition; in other words, how the individual and collective realms mediate the interplay between them, and how culture is ultimately emerging from this process. So rather than studying the contents of what people think, Rosenberg suggests that political science should look at *how* they think, and how the competence to think develops in complexity—or sometimes doesn't. In short, he calls for including an adequate concept of learning which also accounts for the fact that some individuals stop learning at some point. While this too has political implications, the failure to learn is generally ignored by political theory to date.

Shawn Rosenberg has also published a joint book together with two colleagues, Dana Ward and Stephen Chilton (Rosenberg, Ward, & Chilton, 1988), all of whom were associate professors of political science at American universities at the time. They gathered around the common mission to challenge the then dominant Lockean approach to the study of political beliefs by a structuralist, Piagetian view of political reasoning. Their book, *Political Reasoning and Cognition. A Piagetian View*, is the product of their collaboration which started at a meeting of the American Political Science Association in 1982. It contains a thorough discussion of the shortcomings and false assumptions

of nondevelopmental approaches to political analysis, followed by a detailed account of Piaget's genetic epistemology and some suggestions for how it needs to be further developed in order to be used as a basis for social and political analysis. Crucial elements are

- the structural complexity of reasoning and the independence of the quality of reasoning of whatever is the object of thought;
- the fact that many adults never reach formal operations, some not even concrete operations;
- therefore, the focus on the embedding sociocultural environments and the degree to which they provide individuals with opportunities for cognitive growth; and
- the demands placed on individuals by their respective environments and the different capacity to adequately respond to them by different individuals.

Dana Ward, in his contribution, focuses in particular on the concept of egocentrism as opposed to sociocentrism which is central in Piaget's description of development. From a social and political scientist's view, defining development in terms of decreasing egocentrism and dogmatism, on the one hand, and increasing accommodation to societal norms, rules, and objectifications, along with a growing capacity for conceptualization, social perspective-taking, and critical self-reflection, on the other hand, is very helpful and easy to grasp. In an empirical study, Dana Ward has therefore used this set of criteria for analyzing the political reasoning and meaning-making of a selected sample of citizens of Eastport which is presented in Chapter 4 of the joint volume (Rosenberg, Ward, & Chilton, 1988). In this case study, Ward has found significant relations between the structure of reasoning of his interviewees and their level of education, group membership, political activism, and moral reasoning. Based on numerous examples, he can show that what he calls "egocentric" and "sociocentric" notions of democracy differ substantially in terms of their structural complexity. By the way, these empirical prototypes align quite well with Rosenberg's concepts of sequential and linear thinking (even though this cross-comparison is not made explicitly in the book).

Stephen Chilton's contribution to the collective volume, which is elaborated in more detail

in his own book, *Defining Political Development* (Chilton, 1988), is a more differentiated theoretical account of the sociological dimension of cognitive development and its implications for social and political analysis. It is included here even though it is not making an empirical contribution, because it offers a thorough discussion of why and how which tools from AD research can be used for macrosocial analysis.

Based on his definition of politics as "any way people relate to each other" (Chilton, 1988, p. 3) he makes clear that governing the way in which these social relations are publicly organized always includes a moral project: "To establish a certain way of relating as a culture is a moral act, because one must justify the culture's implicit claim about how people should treat one another." Therefore, "public policies are essentially moral projects" (Chilton, 1988, p. 37). Consequently, Chilton argues that analyzing political culture in a structural, developmentally sensitive way calls for Kohlberg's theory and model of moral development as an important cornerstone.

Chilton also presents a differentiated discussion of the relations between the individual microlevel and the societal macrolevel of development. In this context, he frames culture as the intermediate mesolevel, in other words, as the realm where meaning is negotiated between individuals, a process which ideally leads to an agreement on culturally shared rules and institutions on the systems (macro) level. Moreover, he argues that social development occurs precisely on this mesolevel, namely, as a result of conflicts which arise around ambiguities between various moral claims. Therefore, he holds that in order to best grasp how meaning-making is structured within a specific social context, we have to study political culture which is defined as "all publicly common ways of relating" in that specific context.

The best way for doing this, in his view, is "to look at ways of relating in terms of reasoning structures," since "any way of relating is founded on reasoning rather than fixed rules" (Chilton, 1988, p. 24f). At this point, Chilton offers a number of methodological considerations that are important in view of how AD perspectives can be used in the social sciences. Whereas he concedes that the classic Piagetian and Kohlbergian interviews are difficult to use

in social-scientific and especially in historical research, he suggests that moral reasoning on the cultural level is even easier to study than on the individual level. This is, first, because “cultural system reasoning is easy to find” and second, because it “can cast aside the classical experimental strictures to isolate the respondent” and instead use existing materials (Chilton, 1988, p. 41). Given the “near-omnipresence of cultural reasoning” (Chilton, 1988, p. 40) and the fact that moral reasoning appears in many forms, any material that contains “cultural moral reasoning,” that is, that “attempts to persuade of or to explain a desired course of action” can be used and scored. As examples, Chilton mentions “inaugural addresses, letters . . . press conferences, Supreme Court decisions, strike demands, theological arguments, congressional speeches, television shows, introductory college textbooks, public prayers, advertisements, editorials, and newspaper stories” (Chilton, 1988, p. 40).

Another aspect of political development that Chilton pays special attention to is its specific dynamics, since “a culture is not subject to the same forces as an individual” (Chilton, 1988, p. 58). Whereas moral development on the individual level is generally thought to take about six years for each new structural level to emerge, cultures and societies can develop in different ways and at different paces, depending on their internal composition and their interrelations and experiences. Even though there are certain similarities, for instance, a general tendency toward upward development in the long run and the impossibility of stage skipping when a stage is emerging for the first time inside a culture (Chilton, 1988, pp. 95, 97), there is no simple linear teleological development of cultures. Since societies are complex, diverse, and multilayered phenomena, the ideal typical hierarchy of forms of political culture and related social arrangements is likely to emerge only if societies can develop without major external or internal shocks, and over a long period of time. The more complex a society and the more it is interacting with the external world, the more likely will its various arenas develop at a different pace rather than synchronously (Chilton, 1988, p. 61). Moreover, external or internal shocks can cause societies to regress to less developed forms of social relations (Chilton, 1988, p. 79).

As a rule, we will thus find that different societies have different mixtures of stages, often visible as subcultures, within themselves (Chilton, 1988, p. 64). Chilton calls this “horizontal decalage,” similar to Kohlberg’s finding that there is a “horizontal decalage” in the order in which cognition, social perspective taking, and moral development are usually developing (Chilton, 1988, p. 62). Between social groups, such decalages can be quite large (Chilton, 1988, p. 93). So an important practical challenge when analyzing the developmental complexity of cultures and societies is to choose the right focus of analysis and to identify which (sub) culture is operative to what extent.

Chilton thinks of his approach as a “culture-free theory of structural development” (Chilton, 1988, p. 74), based on the fundamental assumption that development is “unilinear in structure but multilinear in specific content” (Chilton, 1988, p. 94). This is an immediate consequence of his Piagetian, developmentally sensitive anthropology, regarding individuals and society as being engaged in constant interplay, and the construction of meaning as a dynamic, intersubjective, and ongoing activity. One of the merits of Chilton and colleagues’ approach to political analysis is to have made clear that “theories assuming one form of human nature will only work until the next cultural transformation” (Chilton, 1988, p. 108)—if at all. One of the practical learnings from Chilton is that in order to be successful, “leaders must justify their leadership and decisions with reasons at or one stage above that of those they expect to lead” (Chilton, 1988, p. 83).

### Kegan’s Subject-Object Framework

Robert Kegan, developmental psychologist and professor at Harvard is well known for his research on self and ego, which he has been developing since the 1980s. His most influential books so far have been *The Evolving Self* (Kegan, 1982), *In Over Our Heads. The Mental Demands of Modern Life* (Kegan, 1998), and *Immunity to Change* (Kegan & Lahey, 2009). While there is no need to summarize his general framework here, we wish to point out applications in empirical research and practice in the fields of social and political analysis.

Given that the self-development dimension is highly relevant for leadership development,



Kegan has gotten increasingly engaged as a business consultant working both with individuals and organizations across sectors, including large companies. Kegan also points out socio-cultural implications of his developmental model throughout his books. *In Over Our Heads* discusses widespread developmental challenges imposed on the majority of the population in most western societies, given that the dominant cultural practices and institutions are constructed around self-authoring values whereas a large portion of the average adult population has not (or not fully) reached that stage. “Immunity to change” presents numerous examples of the applied value of Kegan’s developmental framework in personal and organizational coaching contexts (Kegan & Lahey, 2009). More recently, Kegan and Lahey have evaluated some of their year-long experiences in consulting and further developed their model into a concept which they call “deliberately developmental organizations (DDO)” (Kegan & Lahey, 2014). In essence, it identifies the core features of organizations, which actively invite and promote the personal development of their members. Instead of implicitly expecting them to adapt to whatever kind of pre-given organizational culture, they show how fostering team member’s personal development will ultimately benefit the whole organization. These features include principles such as a holistic culture, actively working with the members’ “interior life” and a lack of hierarchies, that DDOs seem to share (and which have recently been described in more detail by Frederic Laloux in his bestselling book, *Reinventing Organizations* (Laloux, 2014)).

Other applications of Kegan’s work have been undertaken by a number of (doctoral) students. In her dissertation on defining a developmentally sensitive strategy for “ecosystem-based management” of marine resources in the state of Massachusetts, Verna DeLauer (DeLauer, 2009; see also DeLauer, Rosenberg, Popp, Hiley, & Feurt, 2014) analyzed a selected sample of stakeholders of a coastal development project with regard to their personal development and how this impacts their capacity to constructively collaborate in finding sustainable solutions. Her subject-object and content-based semistructured interviews have shown clear relations between respondents’ developmental stage and their preference for either rather in-

flexible interest-based behaviors (lower stages) or more collaborative approaches (higher stages) with regard to both content and procedures.

Another application of Kegan’s framework is Richard J. McGuigan’s (2006) dissertation looking at conflict resolution skills in a public dispute about the use of river resources. McGuigan studied differences in how 20 subjects, stakeholders in different roles, made sense of the conflict, using the subject-object interview in order to assess the subjects’ orders of consciousness according to Kegan’s model. Exploring the patterns of meaning-making around the conflict characteristic of people at different stages and substages of ego development, McGuigan shows how structures of consciousness impact disputants’ construction of meaning in conflicts, as well as the quality of their coping capacities. He can also show to what extent conflict is potentially transformational in the sense that it promotes personal development in participants. On this basis, his study increases our understanding of the preconditions for developing our societies’ capacities for managing complex issues.

Pamela Steiner’s doctoral dissertation (Steiner, 1996) is a case study of meaning-making in a decision-making process about the siting of an incinerating facility for medical waste. Twenty of the 23 participants in the study were members of the siting council that was established in order to evaluate and make a decision about the siting issue. Steiner used two types of interviews, a standard subject-object interview according to Kegan’s and his colleagues’ protocol, and a situated interview about the subjects’ experiences and views about the process they participated in as members of the council. One of Steiner’s findings is that third-order subjects are more likely than fourth-order subjects to adapt to group majority views (groupthink). Fourth-order subjects made decisions according to their own system of principles, and were less sensitive to the views of others.

### The Dialectical Thinking Framework

The dialectical thinking framework was developed by Michael Basseches in his doctoral dissertation, and then published in book form as *Dialectical Thinking and Adult Development*

(Basseches, 1984, 2005). In his dissertation study, Basseches interviewed 27 subjects (9 freshmen, 9 seniors and 9 faculty members) in a university about their views on the nature of education. The transcripts were analyzed for “schemata” or “moves-in-thought” that could be regarded as postformal, or dialectical. He found 24 dialectical thought forms, which were organized into four categories: motion-oriented, form-oriented, relationship-oriented, and meta-formal schemata. The dialectical thinking framework does not emphasize stages of development, but conceives of cognitive development in terms of an increasing use of an increasing range of dialectical thought forms when subjects make sense of complex issues. After the dissertation study, Michael Basseches devoted himself mostly to clinical work and, recently, research on psychotherapy (Basseches & Mascolo, 2010). A coding manual for the dialectical thinking framework was published in Michael Bopp’s doctoral dissertation (Bopp & Basseches, 1984).

Very few researchers adopted the dialectical thinking framework in the decades following the publishing of Basseches’ (1984) book. However, renewed interest in the framework was triggered by the work of Otto Laske, who used an adapted form of the dialectical thinking framework as one of several components in his leadership coaching methodology (Laske, 2009; see also Laske, 2006). Laske reorganized the framework in several ways and developed a corresponding coding manual. One of the changes Laske introduced was to rename Basseches’ four categories of dialectical schemata. Laske called them process, context, relationship, and transformational thought forms.

The dialectical thinking framework seems well suited to make flexible analyses of sophisticated forms of how people construct meaning in relation to complex social issues. However, only some tentative efforts have been made in this direction. One exception is Iva Vurdelja’s doctoral dissertation (Vurdelja, 2011) which, however, addresses the mesolevel of analysis rather than the macrolevel. Vurdelja made a detailed analysis of the occurrence of dialectical thought forms in interviews with 10 subjects who successfully led complex organizational change processes. Her analysis demonstrates one promising methodology for identifying the properties of meaning-making that contribute to

effectiveness in managing complex tasks. One strength of the dialectical thought forms framework is that it is more flexible than frameworks defining a linear stage sequence.

A somewhat similar study, but relating to the macrolevel, was made by Keith Johnston in his doctoral dissertation (Johnston, 2008). Johnston explored to what extent 31 managers in environmental agencies in New Zealand made sense of their challenges through systems thinking, using a simplified version of Basseches’ dialectical thinking framework. He also used Kegan’s subject-object framework to assess the managers’ levels of “self-complexity.” Both Vurdelja and Johnston refer to a considerable practical drawback of using the full dialectical thinking framework: the coding process is very time-consuming.

Promising but still very tentative work using the dialectical thinking framework has been made by Bruno Frischherz and colleagues, not only to analyze interviews, but also in document analysis (Ulmer & Frischherz, 2012; see also Frischherz, 2013a and 2013b). Ulmer and Frischherz coded two policy papers on green economy from the European Commission and the United Nations Environment Program for the presence of dialectical thought forms, demonstrating that the methodology can yield meaningful results. Here is a first articulation of a particular type of discourse analysis which might appeal to social science researchers familiar with using “nondevelopmental” discourse analysis as a method for exposing patterns of meaning-making around political issues. A dialectical discourse analysis of, for example, policy and strategy documents or speeches may allow for a keener understanding of what is *missing* in statements that fail to consider systemic, processual, relational, and transformational aspects of complex issues to varying degrees (for a general discussion on how discourse analysis might integrate developmental perspectives more systematically, see Fein, 2016).

### Deanna Kuhn’s “The Skills of Argument”

Deanna Kuhn, professor of psychology and education at the Teacher’s College, Columbia University, has applied AD theory on the study of inquiry and argumentation skills, and how the development of such skills can be promoted

in educational settings. Her book, *The Skills of Argument* (Kuhn, 1991), presents a comprehensive study of how young people and adults form and defend ideas about complex social issues. One hundred sixty participants in a stratified sample were interviewed about their understanding of the causes of three issues: “What causes prisoners to return to crime after they are released?”; “What causes unemployment?”; and “What causes children to fail in school?” Rather than analyzing the data using a stage model of cognitive development, Kuhn focused on analyzing the skills involved. One crucial distinction made by Kuhn is between (a) having a conception of a causal sequence, and (b) having, in addition, a conception of how the correctness of the idea of the causal sequence can be evaluated. This concerns the differentiation between theory and evidence. Evidently, many people have “theories” about causal relations, but do not think in terms of evidence that might support the theory’s validity claim. Kuhn shows that many people only offer “pseudoevidence” when asked how they could prove to someone that their theory is valid. Pseudoevidence can take different forms; a common one is to offer an illustration of the theory through an example, or through a more elaborated narrative about how the causal sequence is supposed to work. This is not evidence, because it only asserts the plausibility of the theory, but does not provide arguments in support of the correctness of the theory. Kuhn stresses the capacity to imagine the possibility of different types of explanations as a crucial thinking skill. Only when there is a conception of the possibility of alternative causal sequences—that is, the insight that even though one’s own theory seems plausible, it need not be the (only) true explanation of the phenomenon—our attention is drawn to the need of assessing what evidence might possibly exist for the correctness or incorrectness of the theory.

Some people come to convictions about causality based on personal experience, on observations of instances where some variables occur together, or on hearing a seemingly plausible account of a causal sequence by someone else. They then fail to examine whether the assumption of correctness is robust. This could be done by examining evidence, by specifically searching out if there are instances that contradict the ubiquitousness of the causal relation (antecedent is present, but outcome is not; antecedent is absent, but outcome is nev-

ertheless present), by considering the possibility of alternative causal sequences, or by critically reviewing the internal logical consistency of the theory. Kuhn’s research indicates that people who have ideas about causality regarding a specific issue, but do not consider the possibility of alternative explanations or of the theory not being valid, are often very certain that their convictions are true. These people sometimes even deny that counterarguments to their own theory are possible. Their own practical experience of the co-occurrence of a certain antecedent and outcome is, to them, incontrovertible proof that the theory is true.

Even though Kuhn did not take the path of continuing researching political meaning-making, her research demonstrates the considerable potential of using cognitive-developmental frameworks for analyses of very significant societal issues, such as different ways of forming opinions about complex issues.

### **Alison Brause’s Use of the CIP Framework**

In her doctoral dissertation, Alison Brause (Brause, 2000; Brause, Cason, & Spelman, 2005) used the CIP framework of Elliot Jaques (1989) and Jaques and Clement (1994) in order to test whether the levels of CIP of presidential candidates in the United States could predict the outcome of the elections. Transcriptions of debates between the presidential candidates of the Republicans and the Democrats were analyzed using the CIP framework, yielding complexity of information process scores for both contenders in each of nine elections between 1960 and 2004. The analysis showed that in all cases where one candidate had a higher level of complexity in information processing than the other candidate, the former won the election. Brause’s hypothesis, which cannot be tested with the methodology she used, is that voters intuitively recognize which candidate has the higher capacity for processing complex information.

### **Other Approaches**

In addition to this selective presentations of approaches that have used AD frameworks in empirical studies of political and social phenomena, we wish to point to a number of other developmentally based contributions to social and political analysis, which we consider im-

portant and worthwhile mentioning without being able to give them extensive attention here.

In the field of leadership and organizational development, Bill Torbert (Starr & Torbert, 2005; Torbert, 2004), Barrett Brown (2012), Linda Trevino (Brown, Trevino, & Harrison, 2005; Trevino, 1992; Trevino, Hartman, & Brown, 2000), and many others have used developmental lenses to inquire into leadership skills. Since this generally relates to the capability to deal with complex challenges in business contexts, an important focus of this work is organizational change processes. These are also the main focus of Frederic Laloux's recent best-seller, *Reinventing Organizations* (Laloux, 2014), demonstrating what he calls a "teal" mode of organizing based on 12 case studies from different countries.

In sociology, Günter Dux has spent about 30 years developing, testing and refining his historic-genetic theory of culture based on extensive intercultural field work using Piaget's theory of cognitive development. In an archeology of human cultural development, Dux (2010, 2014) explores the interrelations between changing social environments and the gradual increase in complexity of thinking and reasoning capacities from the beginning of human history to modernity.

In political science, Sara Ross (2007) has made interesting contributions to complexity analysis of deliberative processes, while Ross and Commons (2008) have used the MHC for theorizing political development. Last, but not least, Elke Fein has proposed several applications of developmental frameworks in different areas of political science, sociology, and history such as the study of political identities (Fein, 2010, 2014), the politics of history (Fein, 2014), the (historical) analysis of corruption (Fein, 2012; Fein & Weibler, 2014; Wagner & Fein, 2016), and (political) leadership (Fein, Deeg, & Reams, in press; Wagner & Fein, 2016)—to name only a few.

### **Summary: A Comparative Overview of Developmentally Informed Social Science Research Strategies—What Are Their Contributions to Social and Political Analysis So Far?**

To sum up, our overview of developmentally informed approaches to social and political

analysis shows a broad panorama of research topics, theoretical lenses, and methodological approaches. Table 1 gives a comparative overview with regard to the models and approaches discussed here. For more examples of approaches using the MHC, see Kjellström and Stålné (2016).

Developmentally informed approaches are primarily used to study the complexity of social actors' cognitive concepts: their causal thinking, reasoning, and meaning-making; their identities, leadership, and decision making skills; as well as the impact of the former on the workings of political, legal, and economic cultures. There is, as yet, a conspicuous scarcity of research using AD theory to study societal, political, and organizational systems (as opposed to individual meaning-making).

While some researchers (Harvey, Hunt, Schroder, Driver, Streufert, Tetlock, Suedfeld, Rosenberg, Basseches, and Kuhn) have created their own frameworks and worked with models they have mostly developed in view of addressing specific research questions, topics, and interests, others have used existing developmental models (DeLauer, Vurdelja, Johnston, Frischherz, Dux, Ross, Fein) and applied them as analytical tools for investigating social and political problems in novel ways. Topics include both historical and current societal issues, which have been addressed equally on the level of macro-, meso-, and microperspectives.

Many of the researchers have focused their complexity analysis on individual subjects, including clinical experiments, drawing inferences from their subjects in view of larger social contexts. At the same time, text, discourse, and document analysis also play a considerable role as compared with more conventional psychological applications of developmental models.

Often, methodologies known from psychological research into developmental structures are combined here with classic social science research strategies, for instance, grounded theory approaches, qualitative interviewing, and document and discourse analysis. All of these typically use coding techniques that are similar to those used by developmental psychology to assess test takers' performances.

Among the findings and interpretations generated by the developmentally informed social science research presented here are the following:



This document is copyrighted by the American Psychological Association or one of its allied publishers. This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

**Table 1**  
*Overview of Developmentally Informed Frameworks*

Framework/approach	Topics, research focus, applications	Level of data analysis	Methodology used	Results	Overall contribution
Integrative complexity (IC) framework	Conceptual complexity, perspective taking, Reasoning of political leaders Party support Environmental issues Political reasoning of citizens Causal factors determining reasoning levels Social identities Leadership skills Relation between ego development and decision making/collaborative skills Leading complex organizational change processes Systems thinking and self-complexity of managers Dialectical thinking in policies Ways of forming opinions about complex issues Leadership skills, dealing with complex organizational change challenges	Individual subjects Decision making Text analysis: e.g. documents, transcribed speeches Individual subjects Text analysis, e.g., policy related documents, speeches Individual subjects Text analysis	Scoring of IC in texts Paragraph completion tests combined with simulations In-depth interviews and probing Scoring of texts Clinical experiments Subject-object interviews, combined with qualitative interviews Dialectical thought interviews Coding policy papers Interviews and probing	IC varies among individuals and over time depending on situational conditions IC changes in relation to international crises Many adults don't think systematically, fail to meet institutional demands Stability of reasoning across domains Personal development fosters organizational success Structures of consciousness impact conflict resolution and collaborative skills Dialectical thought forms vary considerably among individuals. Successful leaders use many different dialectical thought forms	Predicting certain political actions Rethinking the foundations of political science, including an awareness for differences in complexity of reasoning skills Explain and predict adaptive behavior (groupthink) How to develop societies' capacities for managing complex issues Clarification of the properties of skillful reasoning about complex change processes
Deanna Kuhn, argumentation skills Ego development	Relations between the evolution of culture and cognition How cognitive development impacts political, legal and economic cultures on macro level	Individual subjects Organizational culture Large scale historical sociology, public discourse: printed materials, media, historical documents, speeches, statements etc.	Sentence completion tests, interviews, qualitative data Document analysis, clinical experiments Discourse analysis, qualitative interviews	Skills of argumentation and meaning-making differ considerably across populations Personal development can predict leadership effectiveness Cognitive development is crucial for explaining the evolution of social institutions Cognitive and cultural development can predict the functioning of social institutions	Potential for analyzing political meaning-making Understanding the role of developmental in dealing with complex tasks Including the vertical, developmental dimension into sociological research
Combined approaches					

- The skills of reasoning, argumentation, and meaning-making differ considerably across the typical population.
- Large proportions of the adult population in western societies do not think systematically, whereas they do perform in rather stable ways across domains. This implies that they likely lack important resources to meet certain institutional demands.
- Conceptual complexity has an impact on collaborative skills and thus, on conflict management and resolution on all levels of politics.
- Personal development fosters organizational growth and success. It can also predict leadership quality and effectiveness in politics, business, and organizational life.

However, since the volume of empirical research applying AD approaches to macrolevel social science themes is still quite small, much more research is needed in order to explore the stability, the facets, and the implications of these conclusions.

On a more general level, it is reasonable to assume, based on the available research that the levels of cognitive complexity within a population are a crucial factor for explaining the evolution of social forms and institutions in the respective societies.

### **Discussion and Concluding Remarks: What Do AD Models Have to Offer and What Are Their Conceptual Contributions to the Social Sciences?**

The overview given above has shown multiple ways in which developmental approaches can contribute to our understanding of social and political reality and change. This is true for social and political analysis focusing on developments, conflicts, discourses, and practices, both past and present. The distinct conceptual and added value of AD perspectives as compared with other approaches to analyzing social problems is their particular attention for complexity-based developmental indicators which are commonly not part of social science research outside the psychology and educational disciplines. Given that the development of cognitive complexity (in a broad sense of the term) is a potential and a challenge that every individual encounters during their life course, and that is more or less encouraged and supported

by specific social and political circumstances, both individual complexity development and the nature of social and political environments are worthwhile subjects for developmentally informed analysis. Moreover, differences between social actors' levels of complexity of discourse, meaning-making, and action are often at the root of sociopolitical conflicts. As the research presented here has shown, there is no single standard of logic and rationality, contrary to what the dominant liberal and sociological theories assume. As a consequence, conflicts are often generated by misunderstandings of each other's logics of reasoning and lacking capacities of perspective-taking. Adding the structural complexity dimension to social and political analysis therefore opens up an important additional dimension of insight. It not only helps to better explain and understand the functioning and dynamics of political, legal, and economic cultures and institutions; rather, complexity based research strategies can also open up avenues for constructive conflict resolution, as well as for enhancing further development, in general.

Our overview has shown that not all AD models are equally suited for analyzing social and political reality. Rather, researchers have to carefully match their approaches to the specific problems in question. Generally speaking, specific AD models particularly lend themselves for analyzing specific social problems or dimensions thereof. For instance, models of cognitive complexity (such as Piagetian approaches or the MHC) are well suited for analyzing the complexity of social actors' logics of political reasoning and argumentation. They can also give a more differentiated account of the nature of their general understanding of complex sociopolitical problems and strategies to resolve them. In contrast, models of ego and self-development are particularly suited for analyzing social actors' self understanding and identity, as well as their collaborative, leadership, and decision-making capacities. Whenever decision-making challenges involve moral choices, the complexity of moral judgment is also relevant and should therefore be built into the research design.

In view of the methodological problems and limitations researchers face when applying AD models to social problems, we have pointed out the still rather strong tendency to focus on in-

dividual meaning-making rather than on public discourse and/or societal, political, and organizational systems as such. Moreover, the latter are sometimes observed through selected samples of individual meaning-making. This appears justified if the focus is more on the respective subjects' social role (for instance, as a leader or member of a social group) than their personal world view. At the same time, several of the approaches presented here have shown how developmentally informed complexity models can be used to study sociopolitical discourse, that is, expressions of meaning-making on a collective-cultural level, regardless of the private, personal qualities of the respective authors or enunciators. Approached this way, discourse analysis appears to be a well-prepared candidate for including vertical and other structural complexity-based criteria as an additional dimension to studying sociopolitical meaning-making in the cultural realm (Fein, 2016).

As to the challenge of making inferences from small samples of individual test takers or objects of analysis, these have to be faced in very similar ways by large parts of qualitative research and are therefore no specific limitation of developmentally informed approaches. However, important advancements in the realm of software technology, as they can be observed, for instance, in qualitative data analysis, can be expected to help deal with larger sample sizes in ever more differentiated ways in the near future.

Therefore, the main methodological limitations we see with regard to the use of developmentally informed approaches to social and political analysis are, first, the requirement of intensive training that most developmental models impose on the researcher in order to be able to provide reliable coding. Also, coding large bodies of text "by hand" tends to be a rather time-consuming endeavor. Second, developing adequate methodologies for conducting developmentally sensitive analysis of larger social and political systems (being complex systems in themselves) is still a desideratum. Third, researchers are likely limited by their own developmental levels and the paradigmatic assumptions that they bring to their research. Finally, there is, as yet, a shortage of longitudinal studies that might show more clearly some of the causal factors relating to the interaction between AD and the evolution of social structures on a broader macrolevel. Despite these limita-

tions and shortcomings, adult developmental approaches can make considerable contributions to the fields of macrosociology and political science. They can enhance a more comprehensive understanding of politics and society by shedding light on the so far largely neglected complexity dimension of meaning-making and political culture. Thus, they not only provide additional insights into the workings of politics and society, but also a more solid and more differentiated basis for more effective and more sustainable politics.

## References

- Baker-Brown, G., Ballard, E. J., Bluck, S., de Vries, B., Suedfeld, P., & Tetlock, P. E. (1992). The conceptual/integrative complexity scoring manual. In C. P. Smith (Ed.), with the collaboration of J. W. Atkinson, D. C. McClelland, & J. Veroff), *Motivation and personality: Handbook of thematic content analysis* (pp. 401–418). New York, NY: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511527937.029>
- Basseches, M. A. (1984). *Dialectical thinking and adult development*. Norwood, N. J.: Ablex Press.
- Basseches, M. (2005). The development of dialectical thinking as an approach to integration. *Integral Review*, 1, 47–63.
- Basseches, M., & Mascolo, M. F. (2010). *Psychotherapy as a developmental process*. New York, NY: Routledge.
- Bopp, M. J., & Basseches, M. (1984). *A coding manual for the dialectical schemata framework*. In M. J. Bopp, *A study of dialectical metatheory in psychotherapy (Volumes I and II, Unpublished doctoral dissertation)*. Temple University, Philadelphia, PA.
- Brause, A. (2000). *An investigation of presidential elections using Jaques' construct of mental complexity* (Unpublished doctoral dissertation). University of Texas, Austin, TX.
- Brause, A., Cason, K., & Spelman, W. (2005). Does the smart guy win? An individual capability model for predicting presidential elections. *International Journal of Applied Psychoanalytic Studies*, 2, 365–380. <http://dx.doi.org/10.1002/aps.24>
- Brown, B. C. (2011). *Conscious leadership for sustainability: How leaders with a late-stage action logic design and engage in sustainability initiatives* (Unpublished doctoral dissertation). Fielding Graduate University, Santa Barbara, CA.
- Brown, B. C. (2012). Leading complex change with post-conventional consciousness. *Journal of Organizational Change Management*, 25, 560–575. <http://dx.doi.org/10.1108/09534811211239227>

- Brown, M. E., Trevino, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes*, 97, 117–134. <http://dx.doi.org/10.1016/j.obhdp.2005.03.002>
- Chilton, S. (1988). *Defining political development*. Boulder, CO: L. Rienner.
- Day, J. (2016a). Religion and adult development: Are there postformal stages in religious cognition? Theoretical considerations, empirical evidence, and promotion of development in adulthood. *Behavioral Development Bulletin*. Advance online publication. <http://dx.doi.org/10.1037/bdb0000036>
- Day, J. (2016b). Religion and human development in adulthood: Well-being, pro-social behavior, religious and spiritual development. *Behavioral Development Bulletin*. Advance online publication. <http://dx.doi.org/10.1037/bdb0000031>
- DeLauer, V. G. (2009). *The mental demands of marine ecosystem-based management: A constructive developmental lens* (Unpublished doctoral dissertation). ProQuest. (UMI/Proquest: 3363715)
- DeLauer, V. G., Rosenberg, A. A., Popp, N. C., Hiley, D. R., & Feurt, C. (2014). The complexity of the practice of ecosystem-based management. *Integral Review*, 10, 4–28.
- Dux, G. (2010). The genesis of philosophy in the history of mind: A cross-cultural comparison between classical Greece and China. In H. U. Vogel and G. Dux (Eds.) *Concepts of nature* (pp. 102–135). <http://dx.doi.org/10.1163/ej.9789004185265.i-566.36>
- Dux, G. (2014). *Historico-genetic theory of culture: On the processual logic of cultural change*. Bielefeld, Germany: Transcript.
- Fein, E. (2010). *Adult development theory and the politics of history. An integral approach to studying the transformation of political cultures with examples from post-Soviet Russia, Germany and elsewhere*. Paper presented at the Proceedings of the Integral Theory Conference.
- Fein, E. (2012). Kognition und Kultur. Sozialpsychologische Perspektiven in der Diskursforschung am Beispiel von Patronage, Klientelismus und Korruption in Russland. In Hartmut Rosa & Jörg Oberthür (Eds.), *Kultureller und sprachlicher Wandel von Wertbegriffen in Europa. Interdisziplinäre Perspektiven* (pp. 61–100). Frankfurt, Germany: Peter Lang.
- Fein, E. (2014). Geschichtspolitik und Identität: Eine sozialpsychologische (Re-) Interpretation russischer Erinnerungskulturen am Beispiel zweier post-sowjetischer Erinnerungsorte. In J. Ganzenmüller & R. Utz (Eds.), *Sowjetische Verbrechen und russische Erinnerung. Orte—Akteure—Deutungen* (pp. 245–306). Berlin, Germany: Oldenburg-Verlag.
- Fein, E. (2016). Diskursanalyse und Kognition. Vorschläge zu einer produktiven Weiterentwicklung der Diskursforschung. In J. Raab & R. Keller (Eds.), *Wissensforschung—Forschungswissen. Beiträge und Debatten zum 1. Sektionskongress der Wissenssoziologie* (pp. 59–72). Weinheim/Basel, Germany: Beltz Juventa.
- Fein, E., Deeg, J., & Reams, J. (in press). From ego to eco—Theoretical challenges and practical implications of a ‘next generation’ approach to responsible leadership as a collaborative endeavor. In G. Aras & C. Ingle, *Corporate behavior and sustainability: Doing well by being good*. Farnham, UK: Ashgate.
- Fein, E., & Weibler, J. (2014). Cognitive basis for corruption and attitudes towards corruption in organizations viewed from a structuralist adult developmental meta-perspective. *Behavioral Development Bulletin*, 19, 78–94. <http://dx.doi.org/10.1037/h0100593>
- Fisher, D., & Torbert, W. R. (1995). *Personal and organizational transformations: The true challenge of continual quality improvement*. New York, NY: McGraw-Hill.
- Frischherz, B. (2013a, August 23). Dialektische Textanalyse und Textentwicklung—Teil I. *Zeitschrift Schreiben*. Retrieved from [http://zeitschrift-schreiben.eu/globalassets/zeitschrift-schreiben.eu/2013/frischherz\\_dialektische\\_textanalyse1.pdf](http://zeitschrift-schreiben.eu/globalassets/zeitschrift-schreiben.eu/2013/frischherz_dialektische_textanalyse1.pdf)
- Frischherz, B. (2013b, August 24). Dialektische Textanalyse und Textentwicklung—Teil II. *Zeitschrift Schreiben*. Retrieved from [http://zeitschrift-schreiben.eu/globalassets/zeitschrift-schreiben.eu/2013/frischherz\\_dialektische\\_textanalyse2.pdf](http://zeitschrift-schreiben.eu/globalassets/zeitschrift-schreiben.eu/2013/frischherz_dialektische_textanalyse2.pdf)
- Hamer, R., & van Rossum, E. J. (2016). Six languages in education—Looking for postformal thinking. *Behavioral Development Bulletin*. Advance online publication. <http://dx.doi.org/10.1037/bdb0000030>
- Harvey, O. J., Hunt, D. E., & Schroder, H. M. (1961). *Conceptual systems and personality organization*. New York, NY: Wiley.
- Jaques, E. (1989). *Requisite organization: The CEO's guide to creative structure and leadership*. London, UK: Cason Hall.
- Jaques, E., & Clement, S. D. (1994). *Executive leadership: A practical guide to managing complexity*. Hoboken, NJ: Wiley-Blackwell.
- Johnston, K. N. (2008). *Complexity of thinking and levels of self-complexity required to sustainably manage the environment* (Unpublished doctoral dissertation). Australian National University, Canberra, Australia.
- Kegan, R. (1982). *The evolving self*. Cambridge, MA: Harvard University Press.
- Kegan, R. (1995). *In over our heads: The mental demands of modern life*. Cambridge, MA: Harvard University Press.



- Kegan, R., & Lahey, L. L. (2009). *Immunity to change: How to overcome it and unlock potential in yourself and your organization*. Brighton, MA: Harvard Business Press.
- Kegan, R., Lahey, L., Fleming, A., & Miller, M. (2014, April). Making business personal: Companies that turn employees' struggles into growth opportunities are discovering a new kind of competitive advantage. *Harvard Business Review*, 2–10.
- Kjellström, S., & Stålné, K. (2016). Adult development as a lens: Applications of adult development theories in research. *Behavioral Development Bulletin*. Advance online publication. <http://dx.doi.org/10.1037/dbd0000053>
- Kuhn, D. (1991). *The skills of argument*. New York, NY: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511571350>
- Laloux, F. (2014). *Reinventing organizations: A guide to creating organizations inspired by the next stage in human consciousness*. Brussels, Belgium: Nelson Parker.
- Laske, O. E. (2006). *Measuring hidden dimensions: The art and science of fully engaging adults*. Medford, MA: Interdevelopmental Institute Press.
- Laske, O. E. (2009). *Measuring hidden dimensions of human systems. Foundations of requisite organization*. Medford, MA: Interdevelopmental Institute Press.
- Lasker, H. M. (1978). *Ego development and motivation: A cross-cultural cognitive-developmental analysis of n achievement* (Unpublished doctoral dissertation). Department of Sociology, University of Chicago, Chicago, IL.
- Maalouf, E. S. (2014). *Emerge!: The rise of functional democracy and the future of the Middle East*. New York, NY: Select Books.
- McGuigan, R. J. (2006). *How do evolving deep structures of consciousness impact the disputant's creation of meaning in a conflict?* (Unpublished doctoral dissertation). Union Institute and University, Cincinnati, Ohio.
- Nogueiras, G., & Iborra, A. (2016). Understanding and promoting self-direction in freshman and master's students: A qualitative approach. *Behavioral Development Bulletin*. Advance online publication. <http://dx.doi.org/10.1037/dbd0000024>
- Rosenberg, S. W. (1988). *Reason, ideology and politics*. Cambridge, UK: Polity Press.
- Rosenberg, S. W. (1995). Against neo-classical political economy: A political psychological critique. *Political Psychology*, 16, 99–136.
- Rosenberg, S. W. (2002). *The not so common sense: How people judge social and political life*. New Haven, CT: Yale University Press. <http://dx.doi.org/10.12987/yale/9780300084276.001.0001>
- Rosenberg, S. W. (2003). Theorizing political psychology: Doing integrative social science under the condition of postmodernity. *Journal for the Theory of Social Behaviour*, 33, 427–459. <http://dx.doi.org/10.1046/j.1468-5914.2003.00225.x>
- Rosenberg, S. W. (2007a). Rethinking democratic deliberation: The limits and potential of citizen participation. *Polity*, 39, 335–360. <http://dx.doi.org/10.1057/palgrave.polity.2300073>
- Rosenberg, S. W. (Ed.). (2007b). *Deliberation, participation and democracy*. London, UK: Palgrave Macmillan. <http://dx.doi.org/10.1057/9780230591080>
- Rosenberg, S. W. (2012). Muslim, American and female: Constructing social identity. Retrieved from <https://uci.academia.edu/ShawnRosenberg>
- Rosenberg, S. W. (2013). Can the people govern? Citizen competence and the psychology of Deliberation. In S. Estlund & P. McLaverty (Eds.), *Deliberative democracy: Issues and cases*. Edinburgh, Scotland: Edinburgh University Press.
- Rosenberg, S., Ward, D., & Chilton, S. (1988). *Political reasoning and cognition: A Piagetian view*. Durham, NC: Duke University Press.
- Ross, S. N. (2007). Effects of a structured public issues discourse method on the complexity of citizens' reasoning and local political development. *Dissertation Abstracts International*, B, 68(02). (UMI No.3251492)
- Ross, S. N., & Commons, M. L. (2008). Applying hierarchical complexity to political development. *World Futures*, 64, 480–497. <http://dx.doi.org/10.1080/02604020802303721>
- Schroder, H. M., Driver, M. J., & Streufert, S. (1967). *Human information processing. Individuals and groups functioning in complex social situations*. New York, NY: Holt, Rinehart, & Winston.
- Starr, A., & Torbert, W. R. (2005, June). Timely and transforming leadership inquiry and action: Toward triple-loop awareness. *Integral Review*, 1, 85–97.
- Steiner, P. P. (1996). *Conforming and non-conforming concurrence: Aspects of "groupthink" and orders of consciousness in democratic decision making*. Cambridge, MA: Thesis, Graduate School of Education, Harvard University, 1996. (Proquest/UMI: 9638775)
- Suedfeld, P. (2010). *The scoring of integrative complexity as a tool in forecasting adversary intentions. Three case studies* (Toronto Contract Report No. 2010–039). Defence R&D, Canada.
- Suedfeld, P., & Rank, A. D. (1976). Revolutionary leaders: Long-term success as a function of changes in conceptual complexity. *Journal of Personality and Social Psychology*, 34, 169–178. <http://dx.doi.org/10.1037/0022-3514.34.2.169>
- Suedfeld, P., & Tetlock, P. E. (1977). Integrative complexity of communications in international crises. *The Journal of Conflict Resolution*, 21, 169–184.

- Suedfeld, P., & Tetlock, P. E. (2014). Integrative complexity at forty: Steps toward resolving the scoring dilemma. *Political Psychology, 35*, 597–601. <http://dx.doi.org/10.1111/pops.12206>
- Tetlock, P. (1996). *Counterfactual thought experiments in world politics: Logical, methodological, and psychological perspectives*. Princeton, NJ: Princeton University Press.
- Torbert, B. (2004). *Action inquiry. The secret of timely and transforming leadership*. San Francisco, CA: Berrett-Koehler.
- Trevino, L. K. (1992). Moral reasoning and business ethics: Implications for research, education, and management. *Journal of Business Ethics, 11*, 445–459. <http://dx.doi.org/10.1007/BF00870556>
- Trevino, L. K., Hartman, L. P., & Brown, M. (2000). Moral person and moral manager: How executives develop a reputation for ethical leadership. *California Management Review, 42*, 128–142. <http://dx.doi.org/10.2307/41166057>
- Ulmer, K., & Frischherz, B. (2012). Dialectical thinking and comparative text analysis: Application to the topic of the green economy. Retrieved from [http://interdevelopmentals.org/dialectical-thinking-and-comparative-text-analysis/\(18.3.2016\)](http://interdevelopmentals.org/dialectical-thinking-and-comparative-text-analysis/(18.3.2016))
- Vurdelja, I. (2011). *How leaders think: Measuring cognitive complexity in leading organizational change* (Unpublished doctoral dissertation). Antioch University, Los Angeles, CA.
- Wagner, A., & Fein, E. (2016). Vladimir Putin as a political leader: Challenges to an adult developmentally-informed analysis of politics and political culture. *Behavioral Development Bulletin, 21*, 204–222. <http://dx.doi.org/10.1037/bdb0000028>

Received July 19, 2016

Revision received October 6, 2016

Accepted October 26, 2016 ■