

HUMAN DEVELOPMENT AND THE MODEL OF HIERARCHICAL COMPLEXITY: LEARNING FROM RESEARCH IN THE PSYCHOLOGY OF MORAL AND RELIGIOUS DEVELOPMENT

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Critical consideration is given the empirical evidence for psychological models of religious development, its supposed relationship to other domains of psychological development, and especially, moral development. Significant problems with stage conceptions in these models augur a fundamental rethinking of religious development as a construct in developmental psychology. Model of Hierarchical Complexity has demonstrable promise for enabling greater precision in constructs and methods. This may resolve some central problems and advance research in the field.

KEYWORDS: Human development, Model of Hierarchical Complexity, moral development, psychology, religious development, stage.

INTRODUCTION

Overall, this article demonstrates an approach to clarifying and potentially resolving debates within a field of study with the help of the Model of Hierarchical Complexity. As it happens, the field of study discussed here is already concerned with studying developmental stages. This is not presently the case with many other fields of study. It is hoped that the breadth of subjects covered in this present issue, and the approach offered in this article, may suggest the applicability of the Model of Hierarchical Complexity to other analyses and its contributions to vexing theoretical and practical questions and debates.

As a report of the status of issues in the study of religious development, I provide summary discussions of some central issues in the theoretical and empirical literature. The discussion articulates problems with existing assumptions about models of religious development. I lay out a case for the important contribution the Model of Hierarchical Complexity may have as a conceptual tool and methodological practice for addressing some of the problems and advancing the field.

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Because the Model of Hierarchical Complexity is well described by its pioneering author and colleagues in this issue, I do not lay out its fundamental components.

The Model of Hierarchical Complexity's foundational notions—that higher stages are defined in terms of lower ones and that the higher ones organize the lower ones in a non-arbitrary way—are sound reasons for continued use of stage theory to study the psychology of religious development. If the Model relates stage of performance to properties of tasks, and specifically to a property called the order of hierarchical complexity, and this relationship can be established in orders of complexity involving religious cognition and moral reasoning, then it can do two things of great consequence for the psychology of human development: first, it can help answer the question whether it is possible to describe religious cognition in hierarchical, stage and sequence, terms; second, it can help tease out the relationship between religious and moral reasoning. If it can do these things, it can (a) remedy problems identified in the existing models discussed in this article and (b) provide more precise and meaningful elements for comparison of models across paradigms of development. The following are the central arguments presented here.

1. Analytical and empirical methods in the study of religious development have not managed to distinguish very well among the kinds of content their theories and instruments identify and measure. Some supposedly religious content proves to actually be not specific or unique to religious cognition and its development at all. Greater precision is needed to define the constructs purportedly studied.
2. Longstanding implicit assumptions underlay theories of moral development; there is risk of conflating the religious and the moral domains.
3. By using the unidimensional nature of the Model of Hierarchical Complexity, new research can tease apart the moral from the religious.
4. By virtue of the work that has been done to date, then, it should become possible to get much greater clarity about how to distinguish the religious from the secular and the moral from the religious.
5. Once those objectives have been met, it will be possible to investigate larger implications for religious education and development and addressing religious, moral, and secular conflicts.

This article is organized as follows. The first section relates the trajectory of religious development studies in three categories. Each subsection highlights issues that are relevant to my arguments. The next section summarizes critical issues with the Piagetian roots that are heavily relied on by religious and other development studies to date. These same roots underlie problems elucidated in the first section. The discussion in the third section draws the foregoing sections together by indicating how new religious development research is benefiting from the Model of Hierarchical Complexity's conceptual and methodological clarity. Closing discussions summarize conclusions, point to prospects for future research, and suggest implications for the future if such progress is made.

RELIGIOUS, HUMAN, AND MORAL DEVELOPMENT

The purpose of this section is to briefly report on how religious development has been studied to date. Rather than present a detailed review of the literature and all of the debates within the field, the objective is to provide a high-level look at some primary issues. Religious development has been studied in at least three ways: (a) as a distinct phenomenon unto itself; (b) in conjunction with other aspects of being a developing human; and (c) in close relation to moral development. The significance of these categories is incorporated in discussions later in the article.

Religious Development

Since its early beginnings, psychological science has demonstrated an interest in religious experience and explored its relation to human behavior in other domains. Debates extended beyond this to consider the merits or impact of such experience on individual, group, and social welfare (see Wulff, 1998, for an excellent review). The psychology of religion as a field continues to grow exponentially, as evidenced by the numbers of scientific societies and publications in the field. Religious development has been one area of study in the field from those early days.

In the field of developmental psychology, Jean Piaget made observations and posed questions about the relationship between religious thinking and scientific thinking. He wondered whether observable relationships could be made between advances in the capacity to conceptualize scientific procedures and concepts, and ways of conceiving religious concepts and practices.

Piaget's stage conceptions have continued to guide the field of developmental psychology and the psychology of religious development, and for forty years psychologists have appropriated Piagetian paradigms in studying related questions. Reviews of the field during that period identify Goldmann's work (e.g., 1964) as an important contribution in examining whether conceptual abilities and stage structures characteristic of reasoning in domains other than religious ones (mathematics, for example, and classical Piagetian experiments having to do with weight, volume, etc), would apply in the description and interpretation of religious images. Goldmann did not observe differences between the logic employed by elementary and secondary school pupils in the Piagetian experiments and the description and interpretation of religious images. On the whole, this work was supported by the findings of other researchers. These replicated, with some variation, the basic, transversal methods and conceptual models in Goldmann's research, with larger, even cross-cultural, samples, and in a variety of educational settings. They found good, predictive as well as stable interpretative results (Degelmann, Mullen, and Mullen, 1984; Peatling and Laabs, 1975; Tamminen and Nurmi, 1995). (See also Day, forthcoming, and Spilka, Hood, Hunsberger, and Gorsuch, 2003 for more detailed reviews). As Spilka, Hood, Hunsberger, and Gorsuch (2003) (see also Day, forthcoming) observe, other researchers have concluded that Goldmann's efforts did not pay adequate attention in the samples used to the variables of context, including frequency and depth of exposure to religious material, religious concepts, and religious education, and subjects' elaboration and sophistication of interpretation of religious images, stories, and questions. Hoge and Petrillo (1978)

showed that such elaboration was at least in part a function of the familiarity subjects had with religious concepts and themes, as a function of their education in protestant and catholic schools, in contrast with students from non-church-related schools.

As I have recently observed (Day, forthcoming), Batson, Schoenrade, and Ventis (1993) showed something similar, but argued that the concept of “performance gap” could help explain such differences. At least ten groups of researchers have demonstrated what they have called a “liberal bias” in the stage interpretations offered by Goldmann, with pupils from families with more “liberal” political affiliations and attitudes doing better (i.e., scoring higher) on Goldmann’s interpretative scales. Pierce and Cox (1995), in a meta-analytic study of research investigating the predictive power of Piagetian stage on interpretation of religious content, found no relation between the two, arguing that there were distinctive features of experience related to religious content that made for a considerable variety of logical postures regarding its interpretation.

Religious Development and Human Development

Reviews of the theoretical and empirical literature and applications of theory in applied domains (theological education, religious education in schools, pastoral counseling, nursing and medicine, and others) (Day, forthcoming; Day and Youngman, 2003; Spilka, Hood, Hunsberger, and Gorsuch, 2003; Streib, 1997; Tamminen and Nurmi, 1995; Vandenplas-Holper, 2001; Saroglou, 2001; Wulff, 1997) observe that the dominant models in the psychology of religious development are those of James Fowler, and of Fritz Oser and Paul Gmunder, and Helmut Reich. Their work has focused on efforts to describe a developmental trajectory specific to religious development; in Fowler’s case, a model of what he calls “faith development,” and in Oser’s case “religious judgment development.” Reich has used Oser’s model in an effort to understand relationships across domains of religious thought, critical thinking, and intellectual development. All have based their schemes of religious development on Kohlberg’s model of moral judgment development, and employed variants of Piaget’s, and later, Kohlberg’s uses of hypothetical dilemmas in clinical interview formats, in order to invite subjects to produce “resolutions” that are then interpreted in terms of a framework of supposedly universal, and hierarchical, stages (Day, forthcoming; Fowler, 1981, 1996; Oser and Gmunder, 1991; Oser and Reich, 1996; Oser, Scarlett, and Buchner, 2006).

Fowler, and critical appraisers of Fowler’s work (see Day, 2001, forthcoming; Day and Youngman, 2003; Fowler, 1981, 1996; Tamminen and Nurmi, 1995) have observed that his is a multi-factorial model, given that its construct of “faith” is sufficiently broad to include dimensions associated with Piaget’s notions of intellectual development, Kohlberg’s model of moral development, Erikson’s stage model of identity construction, Loevinger’s and Levinson’s concepts of ego development, Selman’s model of role-taking, and Kegan’s concepts of self. For Fowler, this development is a dynamic pattern involving the person trusting and feeling loyal to centers of value, the orientation of which can be understood in

relationship to the same kind of trust and loyalty in core understandings of power and a shared, primary narrative (Fowler, 1981, 1996). Fowler's model reflects notions derived from liberal Protestant theology (Niebuhr and Tillich), the field of religious studies, especially Wilfred Cantwell Smith, and Lawrence Kohlberg.

Oser's and colleagues' work formulates a more narrow, and precise, sense of religious development as "religious judgment development," in which people's formulations of the relationship between the person and the Ultimate Being are charted on a stage-scheme that ranges from states of relative simplicity, egocentrism, and cognitive dualism, toward more differentiated, elaborated, and complex appreciations of self, relationship, context, perspective-taking, and person-God interaction. Oser and his colleagues use Piagetian terms in arguing that there is a universal deep structure of religious cognition. "Religious judgment" reflects the cognitive patterns that characterize an individual's ways of thinking about her or his relationship to the Ultimate, and the rules that govern that relationship. Like Fowler, Oser et al. argue that this deep structure is a universal feature of religious cognition across the lifespan, regardless of culture or religious affiliation. Indeed, both avowed atheists and agnostics are held by Oser, Gmunder, Reich, Kamminger, Rollett, to be concerned with fundamentally religious questions of relationship to ultimate being and purposes in their lives and in the life of the world, and to think about such questions in ways that fit the stage scheme they lay out (Kamminger and Rollett, 1996; Oser, 1991; Oser and Reich, 1996). The problem suggested earlier is that there are fuzzy boundaries between religious and other domains of reasoning, and these need either sharper discrimination or a basis for removing any discrimination among them.

Literature in both developmental psychology and the psychology of religion have been marked by debates as to whether Fowler's and Oser's stages constitute "hard stages" in the Piagetian sense, or more flexible, malleable, and interpenetrating "soft stages," as Power (1991) aptly argued, at least with regard to Fowler's model. Oser and colleagues (Kamminger and Rollett, 1996; Oser and Gmunder, 1991; Oser and Reich, 1996) have argued for the soundness of their stages as meeting the criteria of "hard stages" (see also Vandenplas-Holper, 2003). Fowler himself has agreed that his stages may be conceived as more flexible descriptions of ways of constructing and elaborating global meanings in terms of life orientation and commitment, and has observed that Oser's stages are more restrictive in terms of content, and movement within the hierarchy of stages contained in their models, and Oser, Reich, and others have agreed (see also Day, 2001, forthcoming; Day and Naedts, 1999; Day and Youngman, 2003). Still, critical to both models are the notions of stage and sequence as they are known in the work of Piaget and Kohlberg. Whether the models refer to religious or atheistic beliefs, they are rooted in notions of stage and sequence.

Religious Development and Moral Development

Both the six-stage model of faith development and the five-stage model of religious judgment development assume a close relationship between moral and religious development. I agree with Fowler, Oser, et al., that because religious

reasoning includes components of moral reasoning, stage transition in moral reasoning will likely precede stage change in religious development. This is because all people must wrangle with and parse through moral dilemmas that confront them throughout life regardless of religious beliefs.

As I shall show, empirical evidence from extensive research with thousands of subjects calls into question the relationship between religious development and moral development. Nonetheless, “faith development” and “religious judgment development” theories have made major contributions to the fields of human development and the psychology of religion, and have stimulated debate concerning relationships among structure, content, context, and group belonging and religious affiliation. They relate to notions of human growth, what it means to be “mature,” the nature and dynamics of religious belief. They have had a huge influence not only on psychological science but also in the fields of theology, religious education, training for ordained ministry, inter-religious dialogue, and debates regarding ecclesiology. They have broadened the scope of neo-Piagetian stage theory to include human religiousness and led us into new critical territory.

A CRITICAL APPRAISAL

All of the problems associated with Piaget’s theory and subsequent research in other domains of Piagetian-influenced developmental psychology are characteristic of theory and research regarding faith and religious judgment development. Commons and Pekker (2005) have described these problems in Piaget’s model. They neatly pointed out how the Model of Hierarchical Complexity addresses them. Their critique is one that relies on theoretical and methodological analyses within a cognitive-developmental framework. We have also tried to show how alternative paradigms in the field of human development may be useful as complementary approaches to related questions in the fields of moral and religious development. As stated at the outset of this article, we confine ourselves, here, to critiques within the developmental paradigm even while insisting that the Model of Hierarchical Complexity introduces such improvement within it, that it stands, more than any other approach, to offer useful insights as to how the structuralist paradigm fares in relationship to other paradigms. With Commons and Pekker, I summarize some problems within the Piagetian paradigm, their relationship to the psychology of religious development as conceived in the work of Fowler, Oser, et al., and some reasons why the Model of Hierarchical Complexity offers a useful complement to other ways of working within a cognitive-developmental approach, and in relationship to other approaches.

Commons and Pekker (2005) begin their critique with a discussion of how “stage” was categorized and defined by Piaget. Within each stage, Piaget showed “half” or transitional stages, using *a* and *b* indicators. Several researchers have proposed that these half stages are, in fact, stages. The first to do so was Pascual-Leone and Smith (1969) in their ground breaking work. Others have included Case (1985), who was a student of Pascual-Leone, Fischer (1980), and Commons and Richards (1984), who have independently argued in a similar manner. “Piaget never agreed with these views, but in fact, the issue is unable to be decided within

those earlier theories . . .” because Piaget’s definition of a stage “was based on analyzing behaviors and attempting to impose different structures on them. There is no underlying logical or mathematical definition to help in this process . . .” (Commons and Pekker, 2005, p. 5). The mathematically based formal theory of the Model of Hierarchical Complexity eliminates this issue. (See also Day, 2002; Day and Tappan, 1996; Day and Youngman, 2003.)

Another problem emerged during others’ attempts to verify Piaget’s theory empirically and systematically.

The same individual’s performances on different tasks were often not found to be at the same stage; that is, performances were only weakly correlated across tasks. Although Piaget had originally postulated that performance would be well-correlated across tasks, he at some point had to acknowledge that it was not. He named this phenomenon horizontal *décalage*, however, his theory has a minimal explanation for it . . . In a task-based model, horizontal *décalage* is to be expected since there is no necessary relationship between one task and another. Each task sequence may be completely separate from the next unless they share common actions. (Commons and Pekker, 2005, p. 5)

A third problem concerned the difficulty in replicating the results predicted by Piaget. The performances on tasks by younger children would be inexplicably competent, whereas those by older individuals could be inexplicably incompetent: the theory was unable to account for either the difficulty in replication or the unpredictable results (Commons and Pekker, 2005). I have identified this problem in the models of religious development described in this article in my own research (e.g., Day and Bissot, forthcoming; Day, Commons, Ost, and Bett, forthcoming).

A fourth problem is that in Piaget’s logical model of thought, all people from approximately age 16 through adulthood were assumed able to solve all formal-stage tasks as defined by that logic (Commons and Pekker, 2005). That was not upheld by research.

Particularly in the area of formal operations, the INRC (identity, negation, reciprocity, and correlativity) group logic that Piaget proposed made predictions that were not confirmed (Ennis, 1978; Wason and Johnson-Laird, 1972). In the case of the Wason and Johnson-Laird research, it was shown that a task that Piaget had stated was formal operational and should be able to solve using the logic of the INRC group, was not in fact solvable using that logic. . . . Yet very few people of any age could solve—for example, the Wason card turning task (Wason and Johnson-Laird, 1972). Again, a task-based model rather than an Inhelder and Piaget logical model of thought might be able to present a clear explanation of the relationship between the different types of tasks that would account for such findings. (Commons and Pekker, 2005, p. 7)

Related to the foregoing, a fifth problem with Piaget’s theory was its assumption that formal operations was the most complex stage with which people could operate. An assumption limited by his observations and the forementioned logical

model, the theory provided no method to generate or explain generation of such stages. Arlin (1975), Commons and Richards (1978), Commons, Richards, and Kuhn (1982), Fischer (1980), Pascual-Leone (1984), Riegel (1973), and others have all shown one or more stages beyond formal operations (Commons and Pekker, 2005, p. 7). By its stipulation that higher stages are defined in terms of lower ones and that the higher ones organize the lower ones in a non-arbitrary way, the Model of Hierarchical Complexity formalizes how stages are generated, including four postformal stages.

Such a range of empirical difficulties with a single model suggest the need to uncover the questionable foundation that would give rise to such a range.

The problem underlying these and other limitations of Piaget's theory is that the theory was a description of the inferred underlying logic that was to be seen in empirical results, with some post-hoc explanations. It did not, however, have a model that would explain why those discrepant behaviors described earlier were observed. That is, based on the performance of an individual, an underlying mental structure was inferred (Commons and Richards, 1984a, 1984b). There could be endless arguments about what the mechanisms were, since they were inferred. Although different tasks were used, there was no theorizing about the tasks themselves, and no empirical results relating characteristics of the tasks to the performances obtained. It was very hard to apply to tasks other than the ones that he and Inhelder used since there was no model for relating the tasks. In addition, the tasks themselves became reified, so if the ages at which people could do the tasks did not match with what they had found, it was another form of attack on the theory. (Commons and Pekker, 2005, p. 7; see also Day and Tappan, 1996; Day, 2001, 2002; Day and Youngman, 2003)

A sixth problem has to do with the proliferation of stage models in a variety of domains (ego development, role-taking development, identity development, intellectual development) with no clear explication of how the models were related across domains, or with assumptions articulated that have not been substantiated by empirical evidence (e.g., between religious and moral development by Fowler and Oser) (Day 2001, 2002, 2007; also see Commons and Pekker, 2005).

The case of the supposed relationship between stages of faith and stages of moral reasoning, in Fowler's model, and between religious judgment and moral judgment, in Oser et al.'s, is illustrative of this problem. As I have demonstrated, this supposed relationship cannot be empirically verified. Research conducted by Oser and his colleagues (for critical reviews see Day, 2001, 2002, 2006a, 2006b, 2007; Day and Naedts, 1995, 1999; Day and Youngman, 2003; Tamminen and Nurmi, 1995; Wulff, 1997) at first relied on clinical interviews, with transversal samples, conducted by them alone. Recently, these have been complemented by longitudinal studies (e.g., DiLoreto and Oser, 1996), minor refinements in method and larger numbers of subjects (Kamminger and Rollett, 1996), and related empirical instruments (e.g., The Religious Reflection Questionnaire; Day and Naedts, 1995). The latter provide valid, reliable measures of religious judgment, permitting more rigorous testing of relationships between religious judgment and

moral judgment (Day, 2000, 2001, 2006a, 2006b, forthcoming; Day and Naedts, 1995, 1999; Day and Youngman, 2003; Gibbs et al., forthcoming).

This research has not supported Fowler and Oser with respect to the precedence of moral judgment over religious judgment. This is so, despite larger numbers of subjects, longitudinal testing with Oser's method, and large-scale, cross-cultural reach (more than 2,000 adolescents and adults in Belgium, Costa Rica, England, Germany). These rigorous tests used valid, reliable measures of both religious judgment and moral judgment. The research indicates that indeed, in some cases, moral judgment precedes religious judgment. Further, some subjects have higher moral judgment scores than they do religious judgment or faith development scores. However, opposite patterns are demonstrated by other subjects, that is, more elevated levels of religious judgment or faith development than moral judgment levels.

Although these differences call for investigation, on the whole, the overwhelming evidence suggests the equivalence of moral judgment and religious judgment/faith development. The mean scores across thousands of subjects show a picture of evenness between them. Such results call into question the very notion of religious judgment (at least in Oser's sense of it), as distinct from moral judgment. Perhaps what has been taken as religious judgment is actually moral judgment, only appearing to be religious because their structural features belong in the moral reasoning domain.

What may account for a theory of such major, decades-long influence, and the vast bodies of research it has inspired, to be weighted with substantive problems such as those enumerated here? The answer seems to lie in the use, or non-use, of scientific methods and the discrimination of stimuli and tasks. The theories and methods considered here did not adhere to basic scientific premises.

In order to understand what accounts for a behavior or performance . . . one must have and control an independent variable, hold all other variables constant, and observe the effect on a dependent variable, or a performance. This was even described in detail by Inhelder and Piaget (1958). Even though Descartes introduced the notion (in 1637) that all action is a response to an event (as discussed in Commons and Goodheart, 1999), and Fechner (1860) followed up on that notion, by showing how to relate psychological performance to stimuli. . . . Piaget's stage theory (and other stage theories) did not pay any attention to the stimuli in problem solving situations, and most particularly, did not pay attention to the tasks. Their account, therefore, is at best incomplete. (Commons and Pekker, 2005, p. 8)

I conclude that, allied with Rasch Analysis (see Commons, Goodheart, et al., 2007), the Model of Hierarchical Complexity, as theoretical model, and as method, provides the most adequate responses to vexing questions regarding the veracity of claims in Piagetian and neo-Piagetian models of human development, and provides the best bases for comparing those models with other ones.

RELIGIOUS DEVELOPMENT AND THE MODEL OF HIERARCHICAL COMPLEXITY

In order to study whether something akin to religious judgment (the more precise of the two definitions of religious cognition in developmental theory and research) could be studied using the Model of Hierarchical Complexity, I have launched a collaborative research project involving resources in cognitive science, mathematics, and developmental psychology at Harvard, and the Laboratory for Human Development and Psychology of Religion Research Center at Louvain, aimed at construct validation and testing, instrument development, and inter-domain analysis, with cross-cultural, and religiously diverse (including atheist and agnostic) samples in North America and Europe.

To date, this research has resulted in a questionnaire that introduces religious language to a moral dilemma involving a specific case and reasons for and against the death penalty with varying degrees of complexity, demonstrating that it is indeed possible to construct a measure with religious content related to moral reasoning. This results in a valid, reliable measure of hierarchical complexity that can meaningfully be compared to other measures of hierarchical complexity in the domain of moral reasoning (Commons, Ost et al., 2007). In keeping with the hypothesis that scores would *not* be the same on our measure and other measures using the Model of Hierarchical Complexity to measure *moral* reasoning, we found that the introduction of *religious* language in relationship to a moral dilemma comparable to dilemmas found in other measures produced different stage scores. This demonstrated that religious variables proved distinct, and significant, in varying how people thought about moral problems.

In a second wave of this research aimed at developing a measure that would offer a more precise way of assessing the distinctiveness of religious cognition, we have devised a questionnaire devoted to a more detailed and elaborate use of religious language. In it, we have operationalized a religious cognition construct but made its distinctiveness from moral reasoning more pronounced. We have shown that this construct can be validated in terms of the hierarchy of complexity of tasks (Day, Commons, Ost, and Betts, 2007). In our view, this work demonstrates that although still in nascent form, the psychology of religious development can profit from working with, and within, the Model of Hierarchical Complexity. The fruits of doing so include moving toward a more precise construct of religious cognition, and better understanding the relationship between religious cognition, moral reasoning, and other domains of human development.

PROSPECTS FOR FURTHER RESEARCH

Researchers in cognitive science, developmental psychology, psychology of religion, pastoral psychology, theology, and mathematics have demonstrated an interest in questions pertaining to the fine-tuning, or modification of Piagetian, and Kohlbergian conceptions of stage, structure, and sequence in moral development (which, as we have seen, is intimately related to religious development in the

reigning models of it) and/or religious development. In some cases, alternative models have been proposed (see Day, 1993; Day and Naedts, 1997; Day and Tappan, 1996; Day and Youngman, 2003; Ganzevoort, 1998, 2006; Gergen, 1994; Kirkpatrick, 1997; Kirkpatrick and Shaver, 1990; Streib, 1991, 1997; Streib, Keller, and Csoff, 2007; Tappan, 1989, 1992; Wertsch, 1991). Elsewhere, the suggestion is made that "development" is not a useful term for describing structural transformation in reasoning about religious issues in adolescence and adulthood (see Duriez and Soenens, 2006; Hutsebaut, 1995, 1996, 1997a, 1997b). Other researchers, most notably Commons and colleagues (e.g., Commons, 2003; Commons and Richards, 1984, Commons, Richards and Kuhn, 1982; Commons, Trudeau, Stein, Richards, and Krause, 1998) have argued that the problem of Piagetian stage formulation is not a stage itself, but the need for more rigorous definitions and criteria for establishing stage hierarchy and understanding stage transition. As this article suggests, we continue to labor within the neo-Piagetian field and to work at the interface of structuralist stage theories and sociocultural models. Commons' Model of Hierarchical Complexity offers, in my view, the most promising post-Piagetian prospects for thinking about development in terms of stage. Initial research shows that instruments related to the measurement of hierarchical complexity can help tease out (a) the relationship between moral judgment and religious reasoning, (b) the question of whether the two are meaningfully distinct constructs, or, instead, variants on a common structure of reasoning, itself, and (c) its relative complexity as applied across domains (see Commons, Ost, et al. 2007; Day 2007).

CONCLUSION

The models of faith development and religious judgment development described in this article have made a considerable contribution to the field of developmental psychology and related domains of inquiry and practice. They are, though, problematic, in terms of (a) internal consistency, (b) relationship to other domains within developmental psychology, and (c) on theoretical and practical grounds, their ability to describe religious features of human development. Assumptions contained in both models about the relationship between religious development and moral development have been supported by research. At the same time, empirical research calls into question on these grounds, and others, the very utility of some features of concepts basic to the models. It is here, as I tried to show, that the Model of Hierarchical Complexity may prove especially useful, both in clarifying what it means to speak of development, and in terms of research methods that may help tease out the relationship of religious elements to other features of human development. Judging from this and other analyses in which the Model of Hierarchical Complexity has been brought to bear, I tender the view that the applicability of the Model of Hierarchical Complexity extends to theoretical and practical questions and debates in any field. This may be particularly so where precise discrimination of the nature of variables and their quantification may add to understandings of the phenomena studied.

IMPLICATIONS FOR THE FUTURE

Work with the Model of Hierarchical Complexity in the domains of moral and religious development, and human development, more broadly, has already made significant contributions to our understanding. These contributions include (a) how cognition develops and toward what ends it might move, (b) what constitutes measurable increments at any given point in the hierarchical order of cognitive complexity in which humans reason, (c) what is, or is not, specific to given domains of cognition, including reasoning about moral and religious issues, and the making of moral decisions, and (d) how and with what goals in mind we might wish, hope, or need to intervene if we regard maximal development as a desired endpoint for individuals, and life in society. This article contributes to our appreciation of how the Model is useful in teasing out (a) moral judgment–religious judgment relationships, (b) relationships among structure, stage, and context, and what contributes to, or inhibits, reasoning at maximal capacity about religious issues, and (c) moral problem-solving involving religious commitment.

Among the most significant findings are those that indicate that relative complexity in reasoning involving religious commitment, authority, and pertinence to moral decision making is not the province, or preserve, of any one religion, or religious tradition within established religions. Instead, it is the province of the kinds of discursive practices and notions of authority that are privileged in religious communities and their teaching about the relative weight of authority accorded to texts, clergy/leaders, traditions of interpretation, and individual conscience and experience. We can already demonstrate, for example, that on the basis of research with thousands of adolescents and young adults, committed Christians do no “better” on tasks requiring relatively greater complexity than do Muslims, or other religious groups. Further, we can demonstrate that within our Christian and Muslim samples, there are distinct differences in preferences for relatively more complex formulations of problem-solving propositions, according to the way authority is construed, with participants expressing a broad range of preferences from lower, to higher, levels of complexity within both groups.

We have, moreover, shown that relatively lower levels of complexity in moral and religious reasoning are associated with tendencies to adopt attitudes and sympathies concerning matters of great consequence; terrorism and terrorist acts, for example. If we deem it important to understand how people develop such sympathies, and we know that their relative preference for, or against, higher levels of complexity is related to the same, it behooves us to better understand and value how we might support those within religious communities, religious education, moral education, and general curricula in schools, community-based interventions and the like, to facilitate relatively higher levels of cognitive complexity.

Moreover, research currently under way shows that people express a preference for the reasoning of others in real-life discussions according to the relatively better, or worse, matching between their cognitive complexity and that of the other speaker in conversation. This includes conversation involving religious belief, and religious applications in moral problem-solving. In a world rife with in-group, out-group controversy, layered with religious language, and sometimes resulting in

individual, group, and mass violence, we should want to understand how cognitive complexity makes possible greater understanding. We should want to apply what we know to foster conversation and understanding, instead of bloodshed and win-lose “solutions” to ongoing problems of human suffering.

With the Model of Hierarchical Complexity and associated methods for analyzing and interpreting data, we have (a) remedies to longstanding problems in developmental psychology, (b) tools for conceptualizing how growth occurs and can be fostered, and (c) evidence for abandoning prejudice, in moral and religious domains, in favor of the privileging of those things that facilitate increasing appreciation for paradox and contrast, in lieu of dichotomous thinking and conflict. Whether we benefit from what we know, and what we know increasingly well, will have enormous consequences for the future of human development; indeed, for the evolution of humanity, and of the world.

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