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Book Review

The Impact of Ritual on Child Cognition, by Veronika Rybanska. Bloomsbury Publishing, 2020. ix + 203 pages, $ 103.50. ISBN: 9781350108929

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Schools might not be the first institution most people think of when they hear the word *ritual*, but in fact, regular school activities include a number of ritualized behaviors, such as morning circles, or standing up when the bell rings to mark the start and the end of each lesson. The effects of rituals on cooperation and group cohesion are well established, but little is known about whether rituals have any effect on the development of cognitive skills as well. To fill this gap, this book introduces a research program at the intersection of cognitive anthropology and developmental psychology, based on a ritual-based intervention study targeting children's executive functions and ability to delay gratification. The author advocates for the necessity of both a developmental and a cross-cultural evolutionary perspective for the study of human cognition and culture. She integrates her cross-cultural, applied developmental research with theories of ritual and argues that ritual participation relies on and can enhance children's executive functions, i.e., cognitive processes needed for planning and managing goal-directed behavior. This, in turn, is argued to have a positive effect on children's ability to delay gratification (i.e., to resist an immediate reward in order to receive a larger reward in the future), which is an important predictor of later academic success and health outcomes.

The book is a revised version of Veronika Rybanska's doctoral thesis, submitted at the Institute of Cognitive and Evolutionary Anthropology, University of Oxford (Rybanska, 2016). Published in the series entitled *Scientific Studies of Religion: Inquiry and Explanation*, the focus of this book goes far beyond religion. It views rituals as permeating various aspects of human societies, and it discusses how everyday rituals can foster children's cognitive control. Crucially, Rybanska challenges the view of rituals as "memes" and argues that instead of blind copying, ritual participation requires "rigorous computations" and a high level of "behavioural self-control" (p. 13).

The title might suggest a wide review of the effects of children's participation in rituals on their cognitive skills. However, while the theoretical backdrop is rich, ranging from theories of ritual through cultural learning to cognitive neuroscience, the empirical basis of the book is a single cross-cultural study that tested the effect of a ritual-based intervention on children's executive functions,

and through them, on their ability to delay gratification. The first of the six chapters introduces the two central concepts: delay of gratification and rituals. Chapter 2 presents a critical review of different theories of rituals and social learning, and it argues that children can flexibly choose the appropriate learning strategy in a given context, adopting the *instrumental stance* for learning instrumental skills and the *ritual stance* for learning conventional behaviors. These two strategies lead to two different modes of learning: while learning instrumental skills allows for some variation and innovation, learning conventional behaviors calls for faithful copying of the observed actions. Chapter 3 introduces the reader to two cultural communities, Slovakia and Vanuatu, and zooms in on the role of rituals in the history and everyday life of each of them. Chapter 4 presents the cognitive and developmental psychological background of the work, reviewing the literature on executive functions from their development to their neurological correlates, interwoven with relations between executive functions and ritual participation. The final section of the chapter presents the first results of the empirical study, showing the positive effect of the intervention on children's executive functions. Chapter 5 discusses the ability to delay gratification, a psychological skill closely related to executive functions. Following a review of the literature, more results of the empirical study are presented, showing that the intervention had a positive effect on children's ability to delay gratification, mediated by executive functions. Finally, Chapter 6 provides a summary of the findings, an outlook on future research, as well as a theoretical stand on the role of rituals and religion in our evolutionary history. Here, Rybanska suggests that since the demonstrated benefits for cognitive control are not unique to religious rituals, these cannot be taken as arguments for the adaptive value of religion. Consequently, "religion may be a by-product of human evolution" (p. 154).

The intervention study this book is based on was conducted in local schools in Vanuatu and Slovakia, and it consisted of a pre-test, an intervention, and a post-test. Children's executive functions and ability to delay gratification were tested with the same methods at pre-test and post-test. The empirical methods were easy to implement, low-tech, and likely to be relatable to readers also outside academia. First, the test of executive functions relied on a children's movement song known to many from childhood activities such as morning gymnastics in a summer camp: "Head, shoulders, knees, and toes." In the version used in the study, children were expected to follow arbitrary rules; for example, they had to touch their head when they heard "toes" and touch their shoulders when they heard "knees." Second, children's ability to delay gratification was tested by an adapted version of the "Marshmallow-test," whereby children faced the choice of eating one candy immediately or eating two if they could resist the

temptation to touch the first one while the experimenter went away for a while. Third, the intervention was based on circle time games such as the "red light, purple light" game, where children had to stop or go according to which sign the experimenter showed: In the first rounds, the red sign meant stop and the purple sign meant go, and in the subsequent rounds they meant the opposite (Appendix 3 in Rybanska, 2016). For the intervention phase, children in both Slovakia and Vanuatu were randomly assigned to one of three conditions: (1) the *instrumental condition*, where the circle time games were introduced as having an instrumental goal, such as to learn how to dance, (2) the *ritual condition*, where the circle time games were introduced without any goal, but constrained by conventional rules, or (3) the control condition, where no circle time games took place. The main hypothesis was that children in the ritual condition would adopt the ritual stance, which would lead to a significant improvement of their executive functions and ability to delay gratification. Findings showed that in both cultural communities, children's executive functions and ability to delay gratification increased between pre-test and post-test in both intervention conditions, with the ritual condition having a greater effect than the instrumental condition. Rybanska concludes that by prompting more rigid copying of the actions involved in the activity and thus placing a heavier burden on executive functions, adopting the ritual stance trains children's executive functions and through them enhances their ability to delay gratification.

The book is an engaging read that will be accessible to academics and laypersons alike. Key concepts, theories, and research methods from both developmental psychology and anthropology are introduced clearly, but without sounding too didactic. The presentation of the multi-faceted theoretical context of Rybanska's research is compelling. On the empirical side, however, experimentally oriented readers might have appreciated a more thorough discussion of the mechanisms involved in the intervention effect, especially since both intervention conditions were effective. For example, one might wonder whether the verbatim instructions given before the intervention activities could explain the results, without the need to posit any specific learning modes adopted by children. More specifically, children in the ritual condition, who were told that "those are the rules and they must be followed" (p. 107), might have followed the rules more faithfully than children in the instrumental condition simply because they were told to do so. Given the far-reaching theoretical claims, a more specific justification of the empirical methods would have been beneficial.

Rybanska's work is a valuable contribution both to interdisciplinary theories of ritual and to cross-cultural research on cognitive development. It was based on an innovative empirical study that investigated the connection

between children's executive functions and their ability to delay gratification, as well as how these skills are affected by children participating in ritual activities. Regardless of the nuances of the involved mechanisms, the findings clearly indicate that circle time games are an efficient and easy-to-implement way to enhance children's cognitive control in an everyday school context. This study is the start of a promising new research avenue, and it will hopefully be followed by many more.

References

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