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Ecological behavior across the lifespan: Why environmentalism increases as people grow older

Siegmar Otto*, Florian G. Kaiser

Otto-von-Guericke University, Magdeburg, Germany

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ABSTRACT

The positive relation between age and ecological behavior is virtually unchallenged and widely corroborated. Nevertheless, there is no theoretical account in the literature to explain why people engage in environmental protection at higher levels as their lives progress. However, knowing the origins of behavior change—amendment in particular—is crucial for learning how to effectively promote the ecological performance of individuals. In this research, we compared two alternative theoretical explanations: maturation versus learning. Using two large samples ($N = 779$, $N = 2317$) assessed almost a decade apart, we found that learning rather than maturation explained the relation between age and self-reported ecological behavior. The more exposed people are to information that deals with environmental-conservation-relevant topics, the more pronounced their ecological engagement. To date, our finding is one of the few that supports learning and, thus, the efficacy of (environmental or social) knowledge in promoting the ecological performance of individuals.

1. Introduction

The increase in a person's ecological behavior across his or her lifetime or the positive relation between age and ecological behavior of a small to moderate magnitude—that is, from about $r = .10$ to $r = .30$—is a common and rather undisputed finding in environmental psychology (e.g., Lansana, 1992; Olli, Grendstad, & Wollebaek, 2001; Scott, 1999; Van Liere & Dunlap, 1981; for a meta-analysis, see Wiernik, Ones, & Dilchert, 2013). Typically, as people grow older, they become more and more ecologically engaged, which becomes apparent in actions such as buying green products, recycling, and conserving electricity (Grønhøj & Thøgersen, 2009). Similarly, recyclers were reported to be significantly older than nonrecyclers (see Vining & Ebreo, 1990), and older residents of Shanghai were corroborated as generally engaging in more and in a greater number of different types of ecological behavior than younger residents (see Shen & Saijo, 2008). Other socio-demographic variables such as gender, education, and affluence, by contrast, have been found to be more or less ambiguously associated with the ecological performance of individuals (see e.g., Derksen & Gartrell, 1993; Dietz, Stern, & Guagnano, 1998; Klein, D'Mello, & Wiernik, 2012). Despite its unequivocal status, the relation between age and ecological behavior has not attracted much theoretical attention in environmental psychology to date. This is despite the fact that knowledge about the origin of a change in behavior, particularly its amendment, is crucial when we wish to learn how to effectively promote the ecological performance of individuals. Thus, the question is ultimately: What makes people adopt more ecological ways of life as they grow older? Two generic explanations are probable: maturation and learning (Wiernik et al., 2013).

Maturation, on the one hand, implies some sort of continuous process of unfolding up to a certain maximum of the personal proficiency or propensity in question—at individually diverse levels nevertheless. After reaching its maximum, this personal proficiency or propensity may begin to deteriorate again with additional age. Maturation refers to changes that typically affect most individuals as they age. These changes are generally thought to be linked to some sort of biological growth and development and subsequent potential degradation. Maturation thus implies some process of change that is relatively common to all individuals and independent of unique information exposure or experience. Learning, on the other hand, implies building up the very proficiency or propensity as a function of a person's exposure to information. Thus, unique learning experiences lead to both mean differences in a personal proficiency or propensity and differences in developmental trajectories.

* Corresponding author. Otto-von-Guericke University, Institute of Psychology, PO Box 4120, 39016 Magdeburg, Germany.
E-mail address: siegmar.otto@ovgu.de (S. Otto).

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Expectedly, maturation results in either a monotonic (e.g., step-like or linear) or parabolic (i.e., a curve with a maximum) age gradient that is fairly insensitive to the particulars of any information that is provided. Learning, by contrast, can hypothetically result in all kinds of curvilinear age–behavior relations and is greatly dependent on the particulars of the provided information and the magnitude of the exposure. These prototypically distinct formal characteristics of the two types of age-related change can, in turn, be used to explore the potential origins behind increases in ecological performance across people's lives. With our research, we empirically examined the age gradient and, thus, the two generic explanations for the well-established age effect with behavioral data that captured people's propensity for ecological engagement in two samples assessed nearly a decade apart. In the following, we will elaborate on the formal characteristics of age-related changes that speak of either maturation or learning.

1.1. Maturation effects

Maturation—age-related change that is comparatively independent of exposure to information until a maximum proficiency level is reached (e.g., Wechsler, 1950)—is commonly believed to be linked to biological development. A typical example of a maturing proficiency is fluid intelligence (see e.g., Nisbett et al., 2012). Here we find that average ability levels are linked to biological age and brain development—not necessarily restricted to a specific area within the brain—so that fluid intelligence first monotonically increases until a person's maximum proficiency level is finally reached, after which it begins to deteriorate again (e.g., Ghisletta, Rabbitt, Lunn, & Lindenberger, 2012).

Prototypically, a propensity to engage in environmental conservation reflecting maturation would reveal itself in either a monotonic or parabolic age-related trajectory (see the uppermost solid and dashed regression lines in Fig. 1a). As maturation is comparatively independent of the information that persons are exposed to in a particular historical period, this age gradient would be insensitive to historical eras. In other words, irrespective of whether our study were performed in 1980 or 1990, mean performance levels would not only monotonically increase with more mature age groups but would also be comparable across the same age groups (again, see the uppermost solid and dashed regression lines, one for the study in 1980 and one for the study in 1990, in Fig. 1a). For the same age groups, the effect of maturation would be clearly shown as a noneffect if we had assessed the same kind of or the same persons twice (i.e., in 1980 and 1990). In 1990, all persons would have matured for 10 more years, but this would have been inconsequential. Not only would mean performance levels have monotonically increased with age, but they would also have remained unaffected by dissimilar experiences. Thus, the age gradient would remain invariant irrespective of the time of assessment. In the following, we will turn to the formal characteristics of learning effects.

1.2. Learning effects

Learning—age-related and information-dependent growth in a person's performance due to formal instruction or personal experiences—is commonly believed to be linked to the accumulation of knowledge. Environmental knowledge is typically regarded as a means of overcoming ignorance and misinformation and, as such, it is viewed as a necessary prerequisite for the ecological behavior of individuals (e.g., Gardner & Stern, 2002). And although knowledge is not recognized as a strong promoter of ecological behavior (e.g., Stern, 2000), the validity of this so-called "knowledge-deficit theory" (Schultz, 2002), which states that inaction is caused by ignorance, has largely been corroborated. Frick, Kaiser, and Wilson (2004), for example, found that environmental knowledge accounted for about 6% of the variance in the overall ecological engagement of individuals in a large randomly selected sample of the German-speaking Swiss population ($N = 2736$). The behavioral relevance of environmental knowledge, however, increased dramatically—by a factor of three—if knowledge was comparatively more available. In another study involving a sample of 827 academics consisting of environmental scientists and students from

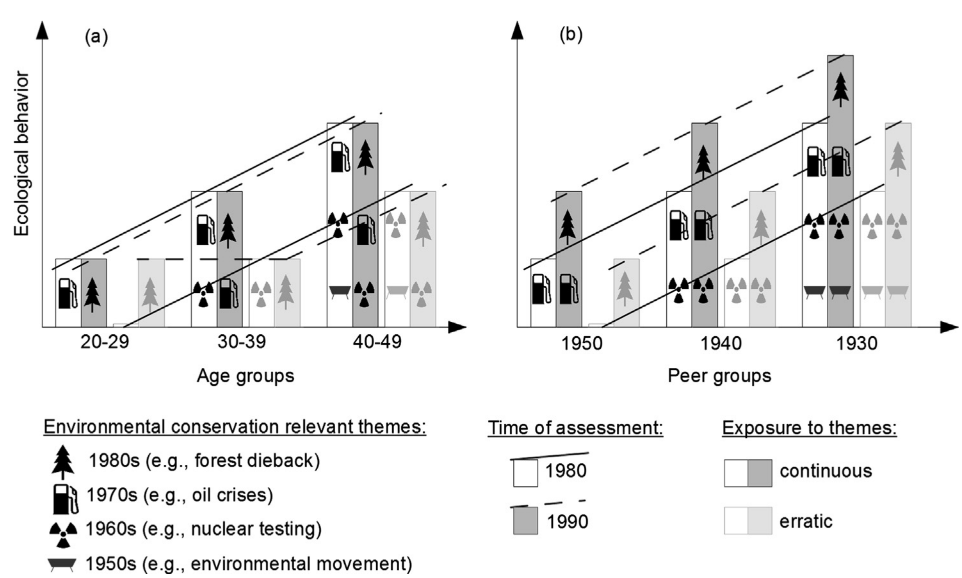

Fig. 1. Significance of age-group, historical-period (i.e., time of assessment), and peer-group effects for people's ecological engagement. Note that maturation becomes apparent in indiscriminant age gradients across assessment times (see the uppermost solid and dashed regression lines in a). With maturation, mean performance levels would expectedly also be systematically higher compared to 10 years earlier across all peer groups (see the constant difference between the solid and dashed regression lines in b). Learning, by contrast, depends on information. Thus, we might find systematic differences in the exposure to environmental-conservation-relevant information across time (see the uppermost solid and dashed regression lines in b). Such exposure differences might also lead to assessment-time-dependent age gradients (compare the lower solid and dashed regression lines in a). Such diverse age gradients would in turn show in significantly distinct correlations between people's age and their ecological engagement.