



# Cultural Survival in B. F. Skinner: Possibilities for Conceptual Refinement

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## Abstract

The concept of cultural survival is fundamental when describing the selection processes involved in cultural evolution. However, its application by Skinner was inconsistent. As a result, distinct and sometimes contradictory interpretations regarding what it means for a culture to survive occasionally emerge in the behavior-analytic literature. In this article, we aim to identify the stimuli that prompted Skinner to emit the verbal response “cultural survival.” Our analysis suggests two problems: (a) the concept of cultural survival is used by Skinner to identify both the effects of cultural practices on the physical survival of members of the culture and their effects on the survival of specific sets of social reinforcement contingencies via operant reinforcement, and (b) the concept is applied to two different phenomena—namely, first, the relation between the complete range of social reinforcement contingencies maintained by the human species and the physical survival of humankind, and, second, the relation between specific sets of these contingencies and the physical survival of particular groups. Finally, we argue for the importance of the precise identification of the groups and social contingencies that compose any “culture” submitted to a behavioral analysis.

**Keywords** cultural survival · cultural evolution · cultural practices

B. F. Skinner (1904–1990), the leading author of behavior analysis and founder of radical behaviorism, included cultural phenomena as part of the subject matter of behavior analysis early in the development of his theoretical proposals (e.g., 1948, 1959/1972a, 1953/2014). Especially since *Science and Human Behavior*, Skinner (1953/2014) devoted himself extensively to the investigation of social phenomena and described processes that would compose a third level of behavioral selection,

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beyond the phylogenetic and ontogenetic levels. This third level was called cultural evolution by Skinner. It aims to describe the selection of cultural practices that would favor cultural survival.

Among the concepts coined by Skinner to deal with cultural evolution, the concept of cultural survival seems to be fundamental to understand this process. However, even though discussions that resort to this concept are numerous and relevant in the study of social phenomena (e.g., Caldas, 2013; Couto & Sandaker, 2016; Dittrich, 2008; Glenn, 1988; Melo & De Rose, 2012; Sampaio, 2008), its use by Skinner himself is inconsistent, referring to different phenomena in different occasions. Consequently, distinct and sometimes contradictory interpretations of cultural survival and cultural evolution are possible.

Considering the relevance of studies on cultural phenomena in contemporary behavior analysis, we present in this article a systematic analysis of the use of “cultural survival” as a frequent and central concept in Skinner’s cultural analyses. Our goal is to identify the variables that may have controlled his use of the concept so that researchers in the field of cultural analysis can have a clear grasp of the phenomena to which they are referring when using the concept. The analysis we propose is part of a contemporary set of efforts to solve long-term conceptual problems in this field of study in order to increase the precision and clarity of the scientific vocabulary employed to deal with cultural phenomena from a behavior-analytic viewpoint (e.g., Carrara & Zilio, 2015; Couto & Sandaker, 2016; Glenn et al., 2016; Houmanfar et al., 2010; Hunter, 2012).

In the present study, we investigate three potentially problematic applications of the concept of cultural survival in Skinner’s work, related respectively to (a) the concepts of culture and cultural practice, (b) the definition of the unit of selection in cultural evolution, and (c) the differentiation between the effects of consequences at the second and third levels of selection on the practices of a group. Finally, we suggest two possibilities for the application of the concept of survival of a culture based on these analyses.

## Analytic Procedures

In 1945, Skinner proposed an original method for the interpretation of psychological terms: To know their “meanings,” we should identify the contingencies that control their use. Skinner (1945/1988, p. 548) pointed out two aspects that must be investigated when studying psychological terms as verbal behavior:

1. What are the specific stimulating conditions (the “referents”) under which psychological terms are used?
2. Why is each response controlled by its corresponding set of conditions?

The identification of the stimuli under which words are emitted can be performed in relation to not only psychological terms but also any term. Skinner (1957, p. 117) illustrated this search for “referents” with a simple example: When the word “red” is emitted, the behavior of the speaker is not under the control of the “concept of red” or of the “redness” of a stimulus, but of a specific feature of the stimulus. In Skinner’s words, “We never reinforce a response when a ‘concept’ is present; what is present is a

stimulus” (Skinner, 1957, p. 117). In an empirical science such as behavior analysis, the feature correlated with reinforcement must be specified in physical terms, as stated by Skinner (1957). Therefore, an analysis of the concept of cultural survival requires that we determine what physical events control the emission of the verbal response “cultural survival.”

Skinner (1957, p. 421) asserted that the speaker is in a special position to clarify the relations between his verbal responses and the variables that control it, because the listener usually does not come into contact with these variables. Considering that the speaker can provide the listener with more precise descriptions about the stimulating conditions that control the speaker’s behavior, an indirect analysis relating these stimulating conditions to the speaker’s behavior is feasible, even if obviously limited by other conditions affecting the precision of the speaker’s report.

In what follows, we use Skinner’s texts as the source for our interpretation of the variables that may have controlled his emission of “cultural survival” as a relevant concept in cultural selection. We consulted all of Skinner’s books published since *Science and Human Behavior* (his first systematic treatment of social and cultural issues), selecting for our analysis all passages in which Skinner addressed cultural evolution and/or the concept of cultural survival. Four relevant concepts were selected for the analysis of cultural survival within the context of Skinner’s third level of selection: (1) social behavior, (2) cultural practice, (3) cultural survival, and (4) cultural evolution.

The chapters that mentioned one or more of these four concepts were read in full. Paragraphs that mentioned one or more of these four concepts and/or related concepts used as synonyms were then selected. We considered as “synonyms” any words or terms that, in spite of topographical variations, could be functionally related to any of the four concepts just mentioned (e.g., “contingencies of survival” was categorized as “(3) cultural survival”; “social stimulus” was categorized as “(1) social behavior”).

In the paragraphs thus selected, we identified the specific stimuli (event reports) that may have controlled the use of the concepts. For example, Skinner (1953/2014, p. 304) used the concept of social stimulus in a passage in which he reported an event of imitative behavior. Hence, imitative behaviors were classified as a type of social behavior and were coded as 1. If a paragraph exhibited more than one type of concept or event report, it accordingly received more than one code.

In addition, we evaluated the consistency of Skinner’s use of the concepts by assessing whether the concept was always applied to the same pattern of reported events. In the previous example, to classify imitation simultaneously as a social and as a nonsocial phenomenon would be considered inconsistent. If concept usage was not 100% consistent, the inconsistency and potential conceptual problems derived from it are pointed out and discussed.

## Definition of Culture and Cultural Practices

The analysis of the concept of cultural survival requires the previous definition of a culture from a behavior-analytic perspective. According to Skinner, culture and its evolution arise when an organism becomes important for others as part of the organism’s environment, requiring an analysis of the social environment to which the individual is exposed (1953/2014, p. 419). This environment is characterized by

Skinner as a culture (e.g., 1953/2014, p. 310). Alternatively, Skinner also used the terms “group” (e.g., 1953/2014, p. 304), “social environment” (e.g., 1972c, p. 64), and “social system” (e.g., 1953/2014, p. 310) to identify this environment.

Skinner noted that culture is usually defined with references to a set of customs, a network of communication, or a system of values and ideas (Skinner, 1974, pp. 202–203). However, from the perspective of behavior analysis, Skinner described it as “a set of contingencies of social reinforcement” (Skinner, 1969b, p. 41, 1971, p. 178). These contingencies are maintained by the group of which the individual is a part (Skinner, 1974, pp. 202–203, Skinner, 1969a, p. 13).

Skinner mentioned the concept of culture while dealing with events ranging from more restricted sets of cultural practices (e.g., Skinner, 1989b, p. 119, 1953/2014, p. 420) to the complete range of cultural practices performed by the human species (e.g., Skinner, 1973/1978e, p. 9, 1989b, p. 118). In the first case, he identified specific groups or institutions (e.g., government and religion) as cultures, which may or may not survive. In the second case, Skinner identified culture as the complete range of behavioral variables arranged by humans. Regarding this last case, Skinner stated that “culture is a complete social environment, in which some contingencies are maintained by individuals and others by institutions” (1973/1978a, p. 9). This variability in the delimitation of what a culture is has consequences for the concept of cultural practice. If cultural practices are sets of social reinforcement contingencies within a culture, it follows that the variables that constitute cultural practices can only be identified depending on what is considered to be culture.

An example that suggests Skinner’s variability when trying to define culture and cultural practices is found in his approach to the techniques that were once used in the United States to control sexual behavior (Skinner, 1953/2014, pp. 420–421). He described a series of techniques to control sexual behavior through governmental, educational, and religious institutions: “Access to the world at large was forbidden or permitted only in the company of a *chaperon* who might use physical restraint if necessary. Stimuli leading to sexual behavior were, so far as possible, eliminated from the immediate environment” (Skinner, 1953/2014, p. 456). However, these techniques were replaced by other forms of control due to certain undesirable consequences of the repression of sexual behavior. Skinner argued that the “modern control” of sexual behavior was widely differentiated from former techniques:

Instead of removing from the environment all the stimuli which could possibly lead to sexual behavior, a knowledge of the anatomy and function of sex is supplied. Friendly relations with the opposite sex are more freely permitted, and severe punishment of sexual behavior is avoided in favor of instruction in the consequences of such behavior. (Skinner, 1953/2014, p. 457)

Skinner (1953/2014) referred to this change in the techniques of control of sexual behavior as a change in a cultural practice (pp. 420–421). He stated, for example, that such a change would probably not be adopted immediately by all groups that exert control over sexual behavior. Government and religion are institutions that would possibly keep the former techniques, whereas other groups of which the individual is a member could control the individual’s behavior based on modern techniques. The individual would thus be “affected by conflicting techniques which show a transition from one cultural practice to the other” (Skinner, 1953/2014, p. 421). However, while

describing the same events (changes in techniques of sexual control), Skinner used the concept of culture, stating that “a given social environment may change extensively in the lifetime of a single individual, who is then subjected to conflicting cultures” (Skinner, 1953/2014, p. 420).

The example illustrates the interchangeable application of the concepts of culture and cultural practice to sets of contingencies of reinforcement arranged by groups in Skinner’s work. These two terms appear in his writings as general principles that seem to be loosely applied to sets of social reinforcement contingencies with varying scope. This has relevant implications for the concept of cultural survival, as we will soon argue.

## Definition of a Unit of Selection in Cultural Evolution

The term “survival” is used in Skinner’s writings to address two events: (a) the physical survival of members of the culture and (b) cultural survival itself as a set of social reinforcement contingencies. However, on occasion Skinner extended his analyses and suggested, with the aid of analogies with natural selection, how these events interact in the process of cultural evolution. Just as an anatomical feature of a species is transmitted to the next generation, cultural practices are transmitted through social behavior between individuals: “The practices of a culture, like the characteristics of a species, are carried by its members, who transmit them to other members” (Skinner, 1971, p. 128).

In some of his writings, Skinner emphasized the role of individuals in cultural survival, noting that contingencies arranged by cultures are maintained and transmitted by individuals. Skinner stated that the individual is the “carrier” of cultural practices (1971, pp. 128–129, 203, 1953/2014, p. 448). Thus, the existence of culture also depends on the physical survival of its members:

The individual is the carrier of both his species and his culture. Cultural practices, like genetic traits, are transmitted from individual to individual. A new practice, like a new genetic trait, appears first in an individual and tends to be transmitted if it contributes to his survival as an individual. (Skinner, 1971, p. 203)

A culture that survives outlasts the organisms that constitute it: “What survives are the species and the culture. They lie ‘beyond the individual’ in the sense that they are responsible for him and outlive him” (Skinner, 1969b, p. 48). However, cultural survival depends on the physical survival of its members because “a species has no existence apart from its members or a culture apart from the people who practice it. It is only through effects on individuals that practices are selected or designed” (Skinner, 1969b, p. 48). Thus, although selection in phylogenesis and cultural evolution only occurs because it enables the physical survival of members of the species or the culture, what survives and is transmitted to the next generation is obviously not the individual (or individuals), but the characteristics of the species or of the sets of social reinforcement contingencies:

A culture, like a species, is selected by its adaptation to an environment: to the extent that it helps its members to get what they need and avoid what is dangerous, it helps them to survive and transmit the culture. (Skinner, 1971, p. 128)

For Skinner, the process of cultural selection is more similar to phylogenesis than to ontogenesis. In the selection of species and cultures, certain characteristics are transmitted and selected when they contribute to the physical survival of their carriers. Ontogenesis differs from these processes in the sense that the consequences that select operant behavior do not necessarily promote the physical survival of organisms. Moreover, the products of cultural practices that affect the chances of cultural survival have no reinforcing or punishing effect on operant behavior—a point to which we will soon return.

Considering the variation in the range of social reinforcement contingencies that Skinner denominates as “culture”, it is possible to conclude that both cultures and cultural practices can survive (or perish). These reinforcement contingencies may be restricted to specific cultural practices or cover the full range of cultural practices maintained by the human species. Therefore, selection at the cultural level acts upon sets of social reinforcement contingencies that may be more or less inclusive, variously denominated by Skinner as cultures or cultural practices. It would follow from this that a culture is selected when its practices promote the practices’ survival. For example, a religion whose practices favored its own survival would increase the chances of survival of the culture of which these practices are a part. Now, this would be equivalent to assuming that the characteristics of a species that contribute to the survival of those characteristics are those that survive.

However, environmental conditions continuously change, making variation essential for the individual’s adaptation to the environment and thus for evolution. Sets of social reinforcement contingencies, as well as characteristics of the species, constitute these variations. Both are selected in their respective selection levels due to their contribution to the physical survival of their carriers. If the survival of a culture depended on the indefinite maintenance of the same set of reinforcement contingencies, variation and selection would be unlikely to occur. The survival of sets of social reinforcement contingencies cannot therefore be considered, per se, a process that favors the adaptation to the environment in cultural evolution. Consequently, in the process of cultural evolution, the effects of the social reinforcement contingencies operate in relation to the survival of the *individuals* who are part of the culture—whether the culture is characterized by a broad or a more specific set of members and cultural practices. We could thus conclude that although what survives in cultural evolution are the sets of social reinforcement contingencies, the survival of social reinforcement contingencies also requires the survival of the participating members of the culture that support them.

## **The Distinction Between the Effects of Operant Consequences and Cultural Survival**

Before identifying the events to which the concept of cultural survival is applied in Skinner’s writings, it is important to draw a distinction between third-level selective consequences and generalizations of second-level consequences.

One of the ways in which Skinner analyzed cultural practices involves a generalization of operant principles that, by definition, always act on individual behavior. Culture and its practices are affected not only by consequences regarding survival

but also by consequences at the operant level. The following report of an event identifies this difference:

The distinction is harder to see when survival more closely resembles reinforcement. Governments, for example, operate by maintaining contingencies of (usually) negative reinforcement. Citizens obey the law to escape from or avoid fines and imprisonment. Laws are maintained primarily because the consequences reinforce the behavior of those who compose the government and maintain them. If those who have the power to maintain the laws abuse their power, however, they may generate escape (defection) or attack (revolution). If some sort of equilibrium is reached, both parties enjoy some measure of security or order. Security and order are often called the “justifications” of government. They contribute to the survival of the group and hence of the practice, but they are not reinforcing consequences, either for governors or governed. (Skinner, 1988/1989a, p. 53)

In this passage, Skinner first presented some operant consequences responsible for specific cultural practices: Negative reinforcement contingencies increase the probability that citizens will obey the law. He then described a second kind of consequence responsible for the selection of these practices. At the level of cultural selection, practices named “security” and “order” would be selected because of their favorable effect on the survival of the members of the group.

Thus, cultural practices emerge and initially have consequences at the operant level. Only after that do they become subject to cultural selection: “A practice arises as a mutation; it affects the probabilities of the group to solve their problems; and if the group survives, the practice will live with them” (Skinner, 1974, p. 203). In some instances, Skinner referred to the “immediate benefits” (or “immediate consequences”; e.g., Skinner, 1953/2014, pp. 404, 444–445) of cultural practices to discuss operant consequences, and to “long-term consequences” (or “remote consequences”; e.g., Skinner, 1961/1972b, p. 46, 1973/1978a, p. 23) to deal with the effects of cultural practices on the chances of cultural survival.<sup>1</sup>

Skinner noted that cultural practices evolve and that immediate reinforcement contingencies generate behaviors with remote consequences. This presumably occurs in part because such remote consequences have strengthened the culture, enabling the resolution of its problems and, consequently, its survival (Skinner, 1973/1978a, p. 24, Skinner, 1978d, p. 53). However, he constantly emphasized (Skinner, 1971, pp. 170, 132–133, 136, 1959/1972a, p. 36, 1961/1972b, p. 49, 1974, pp. 201–202, 1973/1978a, p. 24, 1987c, pp. 6, 11) that only operant consequences have direct effects on cultural practices:

That the remote consequences, no matter how important for the culture, are nevertheless not having any current effect is all too evident when efforts are made to take into account a future which is not the by-product of currently reinforced behavior. (Skinner, 1973/1978a, p. 24)

<sup>1</sup> One of the reviewers of this article kindly brought to our attention that this distinction closely resembles that made by Zeiler (1992) between immediate (operant) and evolutionary functions in cultural selection.



## Two Possibilities for the Application of the Concept of Cultural Survival

The concept of cultural survival occasionally appears in Skinner's texts when he dealt with specific sets of cultural practices (Skinner, 1969b, pp. 40–41, 1971, pp. 134–135, 1974, pp. 201–202, 1989b, p. 119, 1953/2014, p. 430). However, it is often used to refer to the whole range of social variables maintained by the human species (Skinner, 1971, pp. 147–149, 1959/1972a, p. 36, 1972d, p. 421, 1973/1978a, pp. 16–17, 1973/1978b, p. 95, 1973/1978c, p. 197, 1973/1978e, p. 9, 1973/1978f, p. 58, 1984/1987a, p. 48, 1989b, p. 120, 1953/2014, p. 448). In what follows, we present two possible applications of cultural survival guided by each of Skinner's definitions of "culture."

### Cultural Survival as the Selection of Specific Sets of Social Reinforcement Contingencies

Because the survival of a culture may refer to the survival of certain sets of cultural practices within a group, the particular effects related to survival must be identified for each culture. In addition, it is also relevant to analyze the survival value of cultural practices that are advantageous in situations of conflict with other cultures: "The resulting behavior may affect the success of the group in competition with other groups or with the nonsocial environment" (Skinner, 1953/2014, p. 430).

In the article "The Evolution of the Culture" (Skinner, 1971, pp. 133–136), for example, Skinner discussed the survival of institutions that control behavior, such as government and religion. Considering that each of these cultures (in this case, the institutions) would be composed of its own members and cultural practices, it would be necessary to indicate specific effects on the survival of each institution. Practices that are advantageous for the survival of a particular group or institution in one cultural context may not have the same survival value in another context. Conversely, practices that favor the survival of certain groups or institutions in a particular cultural context may hinder the survival of other groups or institutions that share that same context.

### Cultural Survival as the Selection of the Complete Range of Cultural Practices of the Human Species

The concept of cultural survival is predominantly related by Skinner to the survival of the entire human culture—that is, the complete range of social variables maintained by humans, or of humans' cultural practices. The passages that present the concept in this way are mainly of two types. The first comprises descriptions of proposals for interventions at a cultural scale: "Design for what? There is only one answer: the survival of the culture and of mankind" (Skinner, 1973/1978c, p. 197). The second presents predictions about the future of cultures, as in this excerpt in which Skinner pointed to some of the conflicts between selection at the second and third levels:

The fact that a war in which both sides used nuclear weapons would almost certainly destroy the world we know was too remote a consequence to override the immediate gain. People produce and consume vast quantities of goods just because goods are "good"—that is, reinforcing. (Skinner, 1989b, p. 118)



However, these different applications of cultural survival may conflict (Skinner, 1987b, p. 24). Cultural practices that favor the survival of a culture as a specific set of practices can be harmful to culture as the complete range of practices performed by the human species. In the following passage, Skinner began his analysis by considering some institutions as cultures that survive even when their members are replaced. He then pointed out that the survival of these institutions may be currently operating against the survival of the culture, if we regard it as the complete range of reinforcement contingencies arranged by the human species:

Those institutions outlive people, and those who respond to their sanctions can therefore be said to be working for a future beyond their own. . . . Governments, religions, and capitalistic systems, whether public or private, control most of the reinforcers of daily life; they must use them, as they have always done, for their own aggrandizement, and they have nothing to gain by relinquishing power. Those institutions are the embodiments of cultural practices that have come into existence through selection, but the contingencies of selection are in conflict with the future of human species. (Skinner, 1987c, p. 7)

To mention one of the examples noted by Skinner, the development of a capitalist system (a culture as a specific set of reinforcement contingencies) might have been positive for the survival of those who lived under such a system in a particular period in history. However, this same economic system could be putting at risk the survival of the culture when it is understood as the complete range of contingencies maintained by the human species.

A current example that illustrates the importance of differentiating these two types of effects on cultural survival is the decision of the U.S. government to cease the exportation of N95 masks during the COVID-19 pandemic. The U.S. government asked 3M, a major manufacturer of N95 masks, to stop exporting them to Canada and Latin America (*Coronavirus*, 2020). The interruption of this cultural practice would presumably favor the survival of U.S. citizens, while decreasing the chances of survival of citizens from all other countries in the American continent. This example highlights the fact that identifying which individuals and cultural practices are the targets of analysis is essential to assess the value of a cultural practice for cultural survival.

## Conclusion

The concepts of culture and cultural practices were applied by Skinner to refer to sets of social reinforcement contingencies with varying scope. As we pointed out, the concepts were not employed by Skinner to circumscribe independent events, but seem rather to be general terms employed to describe any set of social reinforcement contingencies. Such sets are, at the same time, the objects of operant and cultural selection.

On the one hand, operant consequences are distinguished by acting immediately on behavior, with reinforcing or punishing effects. In addition, they do not lead necessarily to the physical survival of the organism. On the other hand, consequences related to cultural survival do not act directly on the individual's behavior, but affect the probabilities of physical survival of the members of a culture. Therefore, they enable the continuity of the

members' behaviors. As a result, Skinner argued that cultural changes are possible only through the manipulation of reinforcement contingencies, even though in cultural design the survival of cultures is set by Skinner as a fundamental goal.

Our analysis of the occurrences of the concept of cultural survival in Skinner's texts suggests two problems.

First, the use of cultural survival in Skinner's publications is inconsistent. In most of his texts, Skinner argued that cultural survival refers to the survival of sets of social reinforcement contingencies that favor the physical survival of the members of a culture. Nevertheless, we also identified descriptions of cultural survival as the survival of sets of cultural practices (e.g., the survival of a religion or government) via operant reinforcement, without regard to the physical survival of the individuals.

Given that cultures are variable and ever-changing, their survival could not mean the indefinite preservation of any set of unchanging practices. Thus, the most frequent interpretation of the concept of survival of a culture presented in Skinner's work seems to be also the most coherent. Although cultural practices are maintained within a culture and, in this sense, survive, they are selected due to their effects on the survival of the group of individuals who compose and transmit the culture. When Skinner identified the survival of a culture as the survival of particular cultural practices, he was presumably addressing other processes of cultural selection—for example, the maintenance of these sets via operant reinforcement, or via the processes currently described by the concept of metacontingency.

Our proposal for the refinement of Skinner's concept of cultural survival has clear connections with some problems discussed in current studies in culturo-behavioral science (Couto, 2016; Glenn et al., 2016; Krispin, 2016; Zilio, 2019). The inconsistency in the application of the concept of cultural survival by Skinner may be at the origin of seemingly divergent interpretations about the processes involved in cultural selection. Most notably, some proposals regard cultural selection as referring to the physical survival of the individuals who are part of the culture (e.g., Dittrich, 2008; Glenn, 1986; Melo et al., 2015; Sampaio, 2008), whereas others consider cultural selection as a process related to the survival of cultural practices themselves, and thus similar to operant-level selection (e.g., Couto, 2019; Glenn, 2004; Vichi et al., 2009). Furthermore, the application of the concept is inconsistent because there are different processes called "cultural evolution" or the "third level of selection."

The interpretation that a cultural practice is what survives seems, nonetheless, to inform the concept of metacontingency (Glenn et al., 2016): "A critical feature of interlocking operant contingencies is that they survive relatively intact even when some of the operant lineages of some of the participating individuals are altered and even when some of the participants themselves quit, die" (Malott & Glenn, 2006, p. 38). Additionally, experimental studies have suggested that metacontingencies are affected by processes analogous to those at the operant level (e.g., Alves et al., 2018; Guimarães et al., 2019; Soares et al., 2019). The present analysis may help improve conceptual accuracy in the field by clarifying the processes to which cultural survival and evolution apply, and even by suggesting ways to integrate apparently different approaches to cultural selection.

Second, Skinner's references to cultural survival are inaccurate, as what constitutes a "culture" seems to vary at different moments: At some points, Skinner treated "culture" as specific sets of social reinforcement contingencies and their effects on the survival of a restricted group of practitioners who maintain these contingencies. At other points,

Skinner treated “culture” as the complete range of social reinforcement contingencies and their effects on the survival of the human species as a whole. Skinner did not explicitly differentiate these two possibilities of the application of the cultural survival concept in his writings.

As we have seen, however, this distinction is relevant. The sets of social reinforcement contingencies that survive in each case are different (more or less inclusive), and their survival may in fact be in conflict. For example, the survival of a specific cultural practice may increase the probability that a certain culture will survive while decreasing the probability that “human culture” as a whole will survive, and vice versa. Furthermore, cultural survival is frequently cited by Skinner as an ethical goal that should guide the design of contingencies of reinforcement (e.g., Skinner, 1971, 1973/1978c, 1989b). Thus, any inaccuracy in the application of the cultural survival concept has implications for the evaluation of the survival value of a practice, and these implications extend to any analysis of Skinner’s ethical prescriptions.

If culture and cultural practices can be characterized as more or less inclusive sets of social reinforcement contingencies, it is possible to evaluate the meaning of “cultural survival” from multiple points of reference. Nevertheless, in order to clarify the object of any given analysis, a precise delimitation of the processes at hand is essential for conceptual precision. Therefore, the use of the concept of cultural survival requires the specification of the individuals and of the contingencies of the “culture” under analysis.

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## Compliance with Ethical Standards

**Conflict of interest** The authors declare that they have no conflict of interest.

**Code availability** Not applicable.

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