Prevention & Treatment

Commentary on Kallestad and Olweus (2003)

How Does Context Influence Individual Behavior? Multilevel Assessment of the Implementation of Social Innovations

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ABSTRACT

Social innovations are designed and implemented to make positive changes in social systems and individual and collective behavior. The implementation of this type of innovation inevitably involves interactive dynamics among variables residing at different levels of analysis, such as individuals, groups, and organizations. Framing the implementation of social innovation as a multilevel phenomenon, this article focuses on top-down influence processes (e.g., group to individual, teacher to students) that have often been presumed to operate in various social innovations and that were tested in J. H. Kallestad and D. Olweus's (2003) study. Specifically, this article proposes a way to conceptualize the roles of context in the process of achieving the goal of the innovation, and offers dimensions to be considered in the investigation of differentiated routes linking context to targeted behavioral outcomes. Through a more systematic incorporation and examination of the multilevel dynamics of social innovations, theory and practice as related to their implementation may benefit substantially.

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For the last decade or so, scholars of various social science disciplines including psychology, sociology, education, and management have attended to multilevel processes involving human behavior in various social settings (e.g., Griffin & Mathieu, 1997; Raudenbush, Rowan, & Kang, 1991). In line with this trend, Kallestad and Olweus's (2003) study investigated multilevel predictors (i.e., school and teacher characteristics) that determine the intensity of the implementation of a preventive intervention designed to reduce bullying problems among school children.

This commentary aims to encourage more research effort, both theoretical and empirical, based on a multilevel conceptualization of implementation processes related to individual and collective behavior, which is the target of most social innovations. To this end, instead of specifying different levels of analysis and discussing general multilevel research issues such as design, measurement, and analysis (for these issues, see Klein, Dansereau, & Hall, 1994; Morgeson & Hofmann, 1999; Rousseau, 1985), I emphasize the fact that implementing social innovations is a multilevel phenomenon and conceptualize the role of context in the successful implementation of them. Specifically, I contrast two different mechanisms through which context influences individual and collective behavior and propose conditions that constitute each mechanism.

The Need for Theory-Based Process Evaluation of Social Innovation Implementation

Contemporary society as a whole continually pursues various types of innovations to accomplish diverse missions, such as high organizational performance (e.g., defect rates, student achievement) or increment in the mental and physical well-being of employees or students. Many scholars have distinguished between and attached different properties to technological and social innovations (e.g., Damanpour & Evan, 1984). Of particular interest to social scientists are social innovations such as educational reform programs, human service interventions, and new organizational practices designed to reshape the social system and change various aspects of individual and collective behavior including thinking, feeling, and action.

Given that enormous resources are expended in implementing social innovations, scholars should evaluate the effectiveness of these innovations to justify the costs involved. Even more important, however, is the need to investigate specific mechanisms underlying the impact of a particular social innovation on targeted outcomes, which allows consistent replication (scaling-up) of the innovation in other settings. Harachi and her colleagues (Harachi, Abbott, Catalano, Haggerty, & Fleming, 1999) criticized the prevalent atheoretical approach to program evaluations, which makes the intervening process comparable to a "black box." They maintained that

> differential results from similar prevention programs raise concerns that differential

implementation may account for the variability. . . . A program evaluation enhances its utility by examining the theoretical basis of the program and the intervening and contextual factors that mediate the relationship between the program and the ultimate outcome . . . a critical issue in applying theories to evaluations is the degree to which the theory clearly specifies intervening processes or mechanisms that link the program activities and outcomes. (p. 713)

This argument points out that evaluation of social innovation implementation should be driven by sound theory and include more refined measures of processes that would answer the questions of why, how, and under what circumstances a social innovation produces the results it is intended to produce.

Multilevel Nature of Implementing Social Innovations

Because social innovations are targeted at individual or collective behavior, virtually every social innovation directly or indirectly involves multilevel processes. Social innovations trigger multilevel dynamics when they are delivered through institutions, organizations, or any type of social system or individual (e.g., trainers, change agents, teachers, managers). For example, a series of studies conducted by Raudenbush and his colleagues (Raudenbush et al., 1991; Raudenbush & Willms, 1995) attended to multilevel effects, in which students' level of achievement is influenced by their own personal characteristics (e.g., social background, gender) as well as by teacher characteristics (e.g., race, education, experience, subject matter) and school characteristics (e.g., size, sector, location, student socioeconomic status composition, climate). This example illustrates a three-level phenomenon, in which a group of students is collectively influenced by a teacher who is embedded within a particular school system.

In an organizational setting, changes in leadership and group characteristics create a new social context that can change employees' behavior (Griffin & Mathieu, 1997). Likewise, most social innovations are implemented through interpersonal communications or by setting new practices at a higher level of analysis (group, school, or organization). This practice naturally makes social innovation implementation a multilevel phenomenon, and thus necessitates multilevel conceptualization of intervention theories along with multilevel strategies to evaluate implementation processes and outcomes.

In some cases, however, the implementation of social innovations may not directly involve multilevel phenomena. For example, messages with the objective of changing individual or collective behavior are often delivered through "asocial" media such as television shows, web pages, or printed materials, which effectively render the implementation process a within-individual, single-level phenomenon. Even in this situation, however, any evaluation of implementation effectiveness should be designed as a multilevel endeavor because the goal of most social innovations is not simply to deliver the change-oriented message but also to induce some behavioral change, which rarely occurs in a social vacuum. In addition, the theoretical sophistication of a social innovation and improvements to its implementation can be accrued by investigating how people in different social surroundings (e.g., support or discouragement from family members, friends, or coworkers) respond differently to the same message (person–environment interaction).

Contextual Influence on Individual and Collective Behavior

As mentioned previously, the implementation of social innovations may, in most cases, be best described as a multilevel phenomenon. When we examine variables at multiple levels of analysis, we can conceive of two potential ways that these variables can influence each other: bottom-up and top-down processes. Individual action is the basis of collective structure. In bottom-up process, therefore, individuals (e.g., newcomers, leaders) substantially affect group and organizational dynamics (Morgeson & Hofmann, 1999). In addition, some individual or group efforts are explicitly targeted at changing a whole system, such as environmental policies or new regulations (Weick, 1979). Enactment by individuals or groups often transforms external actors and reshapes context, leading to changes in environmental configuration over time.

The second process (top-down) supposes that individual and collective behavior is shaped by higher level factors that make up the context for individual or collective action. This perspective represents a mechanism that has been more commonly studied and presumed to operate in the area of social innovation. It also has a long and influential history in the social science literature (e.g., Lewin, 1951; Likert, 1967). Relatively recent efforts in multilevel analysis and theory building (Bryk & Raudenbush, 1992; Morgeson & Hofmann, 1999) are also strongly oriented toward examining contextual influences on individual behavior. While a complete picture requires consideration of both bottom-up and top-down processes, the goals of the theories underlying many social innovations seem to more strongly integrate the latter perspective. Following this tendency, Kallestad and Olweus's (2003) study examined the contextual influences of school and teacher characteristics on the degree of implementation of a prevention program in a classroom setting.

Contextual Influence: Individual-Level or Cross-Level Phenomenon?

The theoretical treatment of context as a determinant of individual behavior varies significantly. Some scholars treat context as a psychological, individualistic construct because it emerges from an individual's perception and interpretation of the social and physical environment (Augier, Shariq, & Vendelo, 2001). In this view, context determines individual behavior only through the filter of personal experiences and interpretation, and therefore there exist as many different contexts as the number of individuals in a given setting. According to Rapport (1999):

> Context is determined by the questions which people ask of events . . . just as different people can ask different questions of events, so different people will determine different contexts . . . [they] simultaneously create and inhabit multiple contexts, contexts whose commonality is questionable (p. 190).

On the other hand, many researchers have argued that some aspects of context may possess collective properties that are not dependent on individual perception or interpretation. For example, some collective phenomena, such as shared norms, collective mind (Weick & Roberts, 1993), and group information

processing (Hinsz, Tindale, & Vollrath, 1997), have been depicted as a collective entity. Organizational scholars have supported the view that the composite of individuals generates emergent properties that transcend individual characteristics (Morgeson & Hofmann, 1999). Empirical studies adopting multilevel analytic strategies have also demonstrated that contextual variables created by aggregating individual responses have distinct influences on behavior over and beyond the within-individual (single-level) effect of the same variable (simultaneous operation of within-level and cross-level effects; see Choi, Price, & Vinokur, 2003). This indicates the presence of collective properties of context that cannot be accounted for by a single individual's perception or interpretation.

These two conceptualizations of context imply quite different mechanisms through which social innovations may induce changes in individual behavior. The first perspective, in which context is conceptualized as a psychological construct reflecting each individual's distinct experience, suggests that contextual influence is basically an individual-level process that occurs within the mind of the individual. The second perspective, in which context is regarded as having collective properties that cannot be captured by a single person's perception or cognition within the context, suggests that contextual influence involves "cross-level" processes that flow from the collective (e.g., class, seminar group, organization) to individuals within it (Klein et al., 1994; Rousseau, 1985).

Both conceptually and analytically, Kallestad and Olweus's (2003) study adopted the conceptualization of context as a collective property when they tested the effects of several school climate variables on the degree of implementation of a classroom intervention. To test the multilevel effects, they aggregated teachers' reports of school climate (e.g., openness in communication, teacher–leadership collaboration, and teacher–teacher collaboration) at the school level to predict the implementation of the Olweus Bullying Prevention Program in each classroom. This analytic strategy seems appropriate given that school climate is a school-level construct, measurement items were constructed to assess school-level dynamics, and inferences were to be made at the school level (Klein et al., 1994).

Although Kallestad and Olweus's (2003) study demonstrated that school climate variables exerted cross-level influences on teachers' implementation of the prevention program, it was not clear which process (individual level or cross level) was responsible for the reported cross-level effects. In other words, did the teachers implement the program in their classroom to a greater extent because they personally perceived conducive school climates such as teacher–leader collaboration and orientation to change, or did the school context influence the teachers' behavior above and beyond their individual-level perceptions, producing actual cross-level effects (Klein et al., 1994)? This potential fusion of individual-level and cross-level effects is particularly likely in Kallestad and Olweus's study because their school climate measures were created from teachers' perceptions of their school context and each school-level measure was based on an average 2.4 teachers per school (89 teachers from 37 schools), which means that each teacher's individual perception was responsible for 42% of school-level variation. For this reason, Kallestad and Olweus's study does not specify the main route of contextual influence on implementation success that would explain the dynamics of the implementation process involved.

Unfortunately, Kallestad and Olweus's (2003) study is not an exception in its failure to precisely reveal the processes of contextual influence. In fact, most existing studies that have investigated how social/contextual/environmental factors are related to individual behavior or behavioral changes have not

properly specified context as either an idiosyncratic psychological process or a collective entity. Proper identification of the influence mechanisms of context variables on individual or collective behavior, however, could be critical not only for advancement of the theory of social innovations, but also for increased effectiveness of their implementation. By revealing the major routes of influence of key innovation features (e.g., conducive school climate) on a targeted change (e.g., increased implementation of a classroom intervention), researchers will be able to precisely understand the way social innovations operate and identify the point of greatest leverage, which is the point at which the social innovation can be most effectively implemented and produce its intended benefits. In the next section, I make several conceptual and methodological recommendations for future studies investigating the social processes involved in implementing social innovations, including various preventive interventions.

How Can We Distinguish Different Influence Processes Associated With Different Context Variables?

I now briefly deal with the conceptual and analytical challenges associated with the proper specification of the mechanism of contextual influence. A major conceptual challenge lies in the issue of how researchers can differentiate one context from another with respect to their potential influence mechanisms. As a first step, I propose that we can theoretically identify the potential influence mechanisms of each context variable by examining the nature of the particular context and its resulting collective dynamics (cf. Hackman, 1992). On one hand, some context variables are directed toward a particular individual and acquire unique meaning for him or her (e.g., role-specific communication, or a teacher's distinct relationship with the principal as in the case of Kallestad & Olweus's, 2003, study). This type of contextual variable may influence individual behavior largely through individual-level processes because its effect on individuals may be limited to the focal person exposed to the particular stimulus (Choi et al., 2003). On the other hand, some context variables are available and applicable to all individuals within the context and pervade the social setting (e.g., physical setting, or mutual expectations for open communication among teachers as in the case of Kallestad & Olweus's, 2003, study). For this latter type of context, individuals may be affected by their own perceptions of the context (individual level effect), but at the same time they will also be influenced by the manner in which others who share the context interpret it (cross-level effect; for a more detailed discussion, see Choi et al., in press).

However, not all ambient stimuli may exert cross-level effects on individual behavior. Researchers need to consider a second condition that is required for the generation of cross-level effects: Shared or prevailing context will influence individual behavior via cross-level processes only when they are capable of creating "collective dynamics" that have implications for the target behavior. For example, Tsui, Egan, and O'Reilly (1992) showed that employees' organizational attachment was influenced by the extent to which they were different from other members in salient (i.e., readily accessible and situationally pertinent) social characteristics such as gender and race, but this was not the case for differences in less salient characteristics (e.g., tenure, education). In the case of Kallestad and Olweus's (2003) study, both openness in communication and orientation to change might constitute shared school climate for teachers, but only the former climate variable seemed to create interactive dynamics among teachers that were conducive to the implementation of the preventive intervention, producing a significant school-level coefficient.

Analytically, separating individual-level processes from cross-level processes requires the use of multilevel analysis tools such as hierarchical linear modeling (Bryk & Raudenbush, 1992) that allow a simultaneous test of the two different processes. When a context variable is measured by obtaining individual reports, researchers may need to include the variable as a predictor of behavior in both the individual- and the group- (or organizational-) level equations of multilevel analysis so as to tease apart individual-level and cross-level processes (Choi et al., in press). In addition, it may be ideal to separate the sources of the variables at the individual-level and the group-level analysis by assigning aggregated perceptions of the context from other members, excluding the focal individual's perception, as the group-level context score for each focal person. This process of obtaining the group-level context variable from other individuals sharing the same context might offer a genuine test of cross-level effects.

Conclusion

This article had attended to potential contextual influence processes that may occur during the implementation of social innovations and explain changes in individual and collective behavior. Because the implementation of social innovations naturally involves multilevel processes and because the targeted behavioral changes are constrained or facilitated by contextual factors, theory and practice of social innovations may benefit substantially by a more systematic incorporation and examination of multilevel dynamics. Framing the implementation of social innovation as a multilevel phenomenon, this article has proposed different ways of conceptualizing the role of context in achieving the goals of social innovationsand has offered theoretical and analytical recommendations for future studies that investigate the link between various context variables and targeted behavioral change. An adequate understanding of the multilevel dynamics of social innovation implementation may be a good starting point for opening the black box of why, how, and under what conditions social innovations lead to the outcomes they are designed to produce.

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