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## CASES IN LEADERSHIP EDUCATION

### *Implications of Human Cognition*

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Case-based instruction represents one of the most widely used techniques in leader education. In the present effort we argue that case-based instruction is attractive, in part, because case-based knowledge provides the basis for leader cognition. Subsequently, the available evidence on case-based knowledge is reviewed. Based on this review, some key considerations should be taken into account when cases are used in leadership education: Instructors should familiarize students with prototypic cases before exceptional cases are presented, and they should be sure to engage existing or naïve frameworks for organizing cases. Instructors should be consistent in the mental models they provide for organizing the cases they teach, and be aware that advanced leaders better handle complex cases than less experienced ones. Further research is required for the optimum development and application of cases in leadership education.



Many techniques have been employed in the education of leaders. For example, some instructional programs employ a behaviorally based approach (e.g., Dvir, Eden, Avolio, & Shamir, 1999). Here the key dimensions implied by a leadership theory are described, along with relevant behaviors, and people are provided with practice in executing these behaviors. Other instructional methods seek to prepare leaders for their next position (e.g., Jacobs & Lewis, 1992). In this approach key transition points are identified and leaders are presented with exercises to help them address the problems likely to be encountered in the next phase of their career. Still other approaches attempt to develop leadership potential by teaching self-management strategies (Sims & Lorenzi, 1992).

These and a number of other techniques all have some potential value as interventions that might be used in leadership education (Yukl, 2010). However, embodied in many, if not all, of these instructional programs is the use of a particular instructional technique. More specifically, most leadership educational interventions present cases—either written or video illustrations of past incidents of leader performance. Our intent in the present chapter is twofold: first, to examine what is known about the acquisition and application of case-based knowledge; second, to examine the implications of our current understanding of case-based knowledge for leadership education.

## *Leadership Cognition*

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### CONTEXT

At the outset, it should be recognized that not all leadership education programs require acquisition of case-based knowledge. For example, some programs might seek to teach leaders to recognize key attributes of decision strategies (Vroom & Jago, 1988). Other educational programs might seek to teach leaders to recognize follower

emotions (Côté, Lopes, Salovey, & Miners, 2010). These and many other educational programs do not demand case-based instruction although cases might be used to illustrate key points in these educational programs.

Providing case-based knowledge, however, will prove more critical when the goal of the instructional program is development of the cognitive skills underlying leader performance (Lord & Hall, 2005; Mumford, Friedrich, Caughron, & Byrne, 2007). Attempts to develop leaders' cognitive skills are held to be critical when leaders must address crisis situations. The available evidence indicates that people are more likely to seek leaders and leaders will have a greater impact on performance under crisis conditions (Bligh, Kohles, & Meindl, 2004; Halverson, Holladay, Kazma, & Quinones, 2004; Hunt, Boal, & Dodge, 1999). Crisis situations are significant with regard to the need for cognition for four reasons.

First, crises present novel events, or problems, where cognitive analysis of the problem and its implications is critical (Connelly, Gilbert, Zaccaro, Threlfall, Marks, & Mumford, 2000). Second, crisis situations tend to be ill-defined or poorly structured. Ill-defined problems typically require cognitive appraisal of the situation and its implications (Doerner & Schaub, 1994). Third, crises emerge rapidly with high-stakes outcomes being attached to actions for both the leader and their followers—outcomes that demand analysis (Bluedorn, Johnson, Cartwright, & Barringer, 1994). Fourth, effective leadership in crisis situations requires sensemaking and sensegiving on the part of leaders (Drazin, Glynn, & Kazanjian, 1999; Weick, 1995). Sensemaking and sensegiving, however, are based on leaders' understanding of the situation, its demands, and the needs of followers.

In crisis situations the need for sensemaking implies that leaders must forecast the effects of alternative courses of action. In keeping with this observation, Shipman, Byrne, and Mumford (2010) asked undergraduates to create a vision for leading a

new experimental school. The quality, utility, and emotional impact of these vision statements were assessed along with the forecasting activities engaged in during vision formation. Specifically, the extensiveness of forecasting, forecasting resource requirements, forecasting negative outcomes, and forecasting time frame were assessed. It was found that the extensiveness of forecasting activities was correlated in the .40s with vision quality, utility, and emotional impact.

What should be recognized here, however, is that forecasting is a contextually based form of cognition (Noice, 1991; Xiao, Milgram, & Doyle, 1997). More specifically, in forecasting people use incidents of prior experience to identify critical attributes of the situation at hand (Patalano & Siefert, 1997) and anticipate the likely effects of alternative courses of action (Langholtz, Gettys, & Foote, 1995). Thus the basis for forecasting is held to lie in leaders' case-based, or experiential knowledge (Hedlund, Forsythe, Horvath, Williams, Snook, & Sternberg, 2003; Mumford et al., 2007). With forecasting it becomes possible for leaders to engage in the sensemaking and sensegiving held to be critical to performance under crisis conditions.

In fact both qualitative and quantitative studies tend to support this proposition. For example, Isenberg (1986), in a qualitative study, asked experienced managers and business students, their less experienced counterparts, to think aloud as they developed a plan to address a leadership problem. The obtained findings indicated that more experienced leaders, senior managers, differed from business students based on their application of prior cases and analysis of conditions bearing on selection of appropriate cases for use in solving this leadership problem. Other qualitative studies by Berger and Jordan (1992) and O'Connor (1998) also suggest that use of case-based knowledge is critical to leaders' problem-solving efforts.

In a quantitative study, Strange and Mumford (2005) asked undergraduates to

formulate a vision for directing a new experimental school. These vision statements, presented as speeches, were appraised by students, parents, and teachers for utility and emotional impact. Prior to preparing these visions, however, study participants were presented with good or poor case models and they were asked to analyze these cases with respect to causes, goals, both, and neither. It was found that the strongest vision statements were obtained when good cases were analyzed with respect to causes and poor cases were analyzed with respect to goals. In another quantitative study, Hedlund et al. (2003) assessed individual differences in available case-based or tacit knowledge and found that greater case-based knowledge correlated in the .40s with indices of performance in a sample of army leaders.

#### CASE-BASED KNOWLEDGE

Taken as a whole, the studies reviewed above imply a clear conclusion: Case-based knowledge is apparently critical to leader performance. This straightforward observation, however, brings to the fore two other questions. First, what is the content of case-based knowledge? Second, how is this knowledge stored and retrieved from memory for use in problem-solving?

Case-based, or experiential knowledge appears to be relatively easily acquired by people (Kolodner, 1997), with people acquiring this knowledge either through direct personal experience or narratives that present actors engaged in problem-solving. Thus case-based knowledge may be required through written vignettes, videos, stories, or personal experience. It does not appear difficult, relative to other types of knowledge, for people to acquire and apply case-based knowledge (Hunter, Bedell-Avers, Ligon, Hunsicker, & Mumford, 2010).

However, case-based knowledge, while readily acquired, appears unusually complex. Thus Hammond (1990), in a study examining the use of case-based knowledge in planning and forecasting, found

that these knowledge structures included an unusually wide array of information. More specifically, information was included in these knowledge structures bearing on causes, resources, contingencies, restrictions, actors, actions, affect, systems, and outcomes. What should be recognized here is that the complex content of case-based knowledge implies strong processing demands whenever this knowledge is applied in problem-solving. Thus people typically work with a limited number of cases, drawing pieces of information from these cases in a sequential fashion to minimize processing demands (Scott, Lonergan, & Mumford, 2005).

Cases are held to be stored, and recalled, from memory through use of a library system (Bluck, 2003; Habermas & Bluck, 2000). In this library system, cases are held to be indexed against significant, psychologically salient, aspects of the situation such as goals, outcomes, key performance demands, and affective states. Within this indexed set of cases a subset, a small subset, of prototypical cases applying in the situation at hand are identified (Hershey, Walsh, Read, & Chulef, 1990). Associated with these prototypic cases are commonly encountered exceptions to case prototypes that are marked as exceptions and tied to diagnostics indicating the likely relevance of these common exceptions. Cases are recalled based on matching of the cases to the situation at hand with prototypic cases being recalled and applied unless active monitoring of diagnostics implies an exception should be applied.

With activation of a case, or a small set of related cases, people can begin to access the information stored in cases. However, to use this information in forecasting, sensemaking, and problem-solving, people must actively work with elements of a case, causes, resources, restrictions, actions, actor affect, in envisioning potential outcomes and actions that might be taken to effect these outcomes (Scott et al., 2005). Thus, the information a person chooses to work with and the sequence, and/or

weights, assigned to different pieces of information will have a powerful influence on how people apply case-based knowledge in problem solving, in general, and leadership problem solving, as a case in point (Hunt, 2004; Mumford, Friedrich, Caughron, & Antes, 2009; Vessey, Barrett, & Mumford, 2011).

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### *Cases in Leadership Education*

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Our foregoing observations about case-based knowledge structures are noteworthy because they have a number of implications bearing on how cases are used in leadership education. More specifically, the nature of case-based knowledge has implications for (1) case content, (2) case analysis, (3) case organization, and (4) case application. In addition, the nature of case-based knowledge and the instructional methods applied have implications for how evaluation of these educational programs should occur. In the following section we will examine each of these issues in turn.

#### *CASE CONTENT*

Perhaps the most straightforward implication of the nature and structure of case-based knowledge arises from how this knowledge is organized. Earlier, we noted that case-based knowledge was organized on a prototype plus exception basis (Bluck, 2003). This observation, in turn, implies that leadership education, especially when students are unfamiliar with the topic at hand, is most likely to prove effective when prototypic cases are initially presented. In other words, exceptional or unusual cases should be presented only after students have mastered case prototypes. Moreover, given that basic case prototypes provide the foundation for case-based knowledge structures, it seems reasonable to assume that more time should be spent in presentation and elaboration of case prototypes as opposed to exceptional cases.

With regard to presentation of case prototypes, however, three further points should be borne in mind. First, people tend to select and apply cases based on key diagnostics applying to the situation at hand. Moreover, poor performers often tag cases to superficial features of the problem at hand such as goals or actor power (Kaizer & Shore, 1995). This observation, in turn, implies that presentation of case prototypes will prove most effective when “deep structure” diagnostics bearing on case application are presented such as critical causes, resource requirements, or actor affect (Marcy & Mumford, 2010). Thus, not only should case-based instruction elaborate prototypic cases, the conditions under which these cases can, or should, be applied must be described.

Second, leadership, as a phenomenon, is not a new concept for most people. As a result, people can be expected to possess case-based knowledge of prior leaders they have been exposed to or incidents of leadership in which they have engaged. The problem that arises in this regard is that new case prototypes being presented may be organized and understood in terms of extant personal prototypes. Indeed, Ligon, Hunter, and Mumford (2008) have provided evidence indicating that extant personal cases may be used to organize a variety of leadership experiences. Thus, those teaching leadership must differentiate the material being taught from personal life experience or, alternatively, seek to embed this material within extant prototypes. Although this latter instructional approach may, from time to time, prove viable, its likely success will be limited by the range of prototypic conceptions people might apply based on personal history.

Third, in presenting case prototypes, one may describe the case in great detail or one may describe the case globally. Typically, more experienced leaders prefer to work with more global descriptions of case material, especially when they are given the opportunity to seek additional information as necessary (Thomas & McDaniel, 1990).

For novices, however, excessively detailed case information may prove overwhelming (Ericsson & Charness, 1994). As a result, it appears case material should be presented at a moderate level of depth where instructors seek to stress critical aspects of the case as they apply to how events unfold.

Our foregoing observations indicate that case-based instruction should focus on prototypic cases where cases are distinguished from stereotypic conceptions of leadership and the cases are presented at moderate levels of complexity where diagnostics are noted. Although these observations are plausible, in general, little has been said about how exceptional, or deviational, cases (with respect to case prototypes) should be presented. To begin, it appears that people do not retain a large number of exceptions to case prototypes—typically not more than seven. Thus a large number of deviations, or exceptional cases, should not be presented in leadership education. The limited number of exceptional cases that can be stored, and recalled, by most individuals, in turn, implies that the case exceptions provided must be selected to reflect the most commonly encountered exceptions to case prototypes.

When instruction focuses on providing leaders with exceptions to case prototypes three additional steps should be taken. First, when deviant, or exceptional, cases are presented they should be presented *after* familiarization of leaders with case prototypes. Second, the key features of exceptional cases that differentiate deviational cases from relevant case prototypes should be explicitly noted. Third, the diagnostics or attributes of the situation that call for application of exceptional cases should be clearly articulated. The need for explicit delineation of diagnostic markers derives from people’s bias to apply prototypic cases unless a clear reason exists for application of exceptions (Holyoak & Thagard, 1997). Thus providing students with exceptions must be built on the scaffold provided by case prototypes and relevant diagnostics.

## CASE ANALYSIS

Providing case prototypes, and major exceptions to these prototypes, is only one activity involved in case-based leader instruction. As noted earlier, case-based knowledge structures subsume a large amount and a wide variety of information. One implication of this observation is that leaders will typically not apply a large number of cases in problem solving (Scott et al., 2005). Another implication is that leaders will work with different pieces of information embedded in these cases—often working with multiple pieces of information in a sequential fashion (Mumford, Schultz, & Osburn, 2002). Thus leaders may work with cases using causes to identify requisite actions or actors to draw implications about follower affect. The implication of this observation is straightforward: Case-based instruction must also provide leaders with strategies for working with case-based knowledge.

In one study along these lines, Marcy and Mumford (2010) asked undergraduates to work on an educational leadership task—directing a large university. Prior to starting work on this computer simulation, participants were given training in various strategies for working with case-based knowledge. It was found, in keeping with the observations of Mumford and Van Doorn (2001), that when leaders abstracted key causes from cases better performance was observed especially when leaders were confronted with high complexity problems. Thus having leaders identify powerful causes, causes affecting multiple outcomes, causes having direct effects, and causes under the individual's control, all might prove valuable in helping leaders work with causes (Marcy & Mumford, 2007).

What should be recognized in this regard is that the type of information drawn from case-based knowledge and the strategies appropriately employed in working with this knowledge will vary as a function of problem type. This point was illustrated in a series of studies by Vessey, Barrett, and

Mumford (in press) and Barrett, Vessey, and Mumford (2011). In the first of these studies individuals working in leadership roles were presented with an objective, depersonalized problem while in the second study a more personal, affectively oriented leadership problem was presented. In both studies participants were provided with training in strategies for working with different types of case-based information.

For example, the strategies trained included (1) causes (work with causes having direct effects), (2) resources (identify critical resource requirements), (3) affect (identify affective reactions of key actors), and (4) goals (work toward high payoff synergistic goals). The findings obtained in these studies indicated that when problems and activated cases were social in nature, training in affective, or goal-oriented strategies was particularly helpful with regard to leader performance. When the problem was more objective, or less personal, training in causal analysis and resource utilization strategies resulted in the best leader performance.

The findings obtained in these studies are noteworthy for three reasons. First, optimal case-based instruction requires training strategies for working with case-based knowledge as well as providing cases. Second, different problem types, and different cases, will call for the use of different strategies by leaders in problem solving. Third, leader performance was most likely to improve with training when multiple high value strategies for working with cases were provided. Thus, it is not sufficient in case-based instruction just to provide cases. Viable strategies for working with the information embedded in these cases must also be provided.

At one level these conclusions are straightforward. However, when one considers these findings with respect to leader education a few somewhat more subtle, albeit critical, conclusions emerge. To begin, in selecting cases or developing case material, cases should be selected that not only provide requisite knowledge but also illustrate appropriate strategies for working

with this knowledge. Thus, effective case-based instruction should stress both content—the case—and process—strategies for working with this content (Reeves & Weisberg, 1994). Moreover, viable cases should provide material illustrating when, how, and why application of a particular strategy, or set of strategies, is useful.

A related point bears on acquisition of appropriate strategies. Typically, in strategy acquisition people prefer to apply more concrete, outcome-oriented strategies in problem-solving (Mumford, Blair, Dailey, Leritz, & Osburn, 2006). Thus, if working with causes, they will default to working only with causes that have large, direct effects. However, skilled leaders often apply more subtle strategies—for example, working with causes not subject to restrictions or working with causes affecting multiple outcomes (Mumford & Van Doorn, 2001). Thus, effective instruction, especially for more experienced leaders, should provide more complex and abstract strategies for working with certain types of case-based information illustrating when and how those strategies might be used to improve leader performance.

Implied by our foregoing comments, of course, is another noteworthy point. Many strategies might be applied to a variety of types of information when case-based knowledge is being used as a basis for problem-solving. To complicate matters even further, complex interactions, or interdependencies, will emerge as strategies are executed in a complex sequence of operations. These observations are noteworthy because they suggest that meta-cognitive skills training should often accompany strategy training in leadership education (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000).

Finally, it should be recognized that while people acquire case-based knowledge quickly, strategies for working with this knowledge are often acquired more slowly (Mobley, Doares, & Mumford, 2002). Moreover, a variety of strategies are available for working with each type of information, and

application of these strategies must often occur in a dynamic, albeit interdependent, fashion. Unless the leadership education program is lengthy, it is unlikely that all these issues can be fully addressed in a course of instruction. Thus in leadership education, especially leadership education based on a case approach, it is critical to provide self-reflection and learning to learn skills (Manz & Sims, 1981; Mumford et al., 2007). It can be expected that self-reflection and learning to learn skills will prove most beneficial when they focus on analysis of success in strategy application vis-à-vis the case information being applied and the problem at hand (Dailey & Mumford, 2006).

#### CASE ORGANIZATION

Earlier we noted that case-based knowledge structures are organized in a library system. Appropriate organization of cases not only facilitates retrieval of case-based knowledge, it also permits this knowledge to be applied more effectively in addressing leadership issues. In keeping with this proposition, Connelly et al. (2000) presented leaders with a set of leadership tasks that they were asked to organize by grouping related tasks together. It was found that more effective leaders, as assessed by awards and critical incident performance, employed better organizing structures for leadership knowledge.

Accordingly, one key activity of case-based instructional programs is providing a set of principles, or a mental model, for organizing case-based knowledge. Thus when cases are presented, variables or attributes for organizing these cases should be presented as part of instruction. What should be recognized here, however, is that a variety of frameworks are available for organizing case-based knowledge (Hmelo-Silver & Pfeffer, 2004). For example, cases might be organized based on theory, they might be organized based on certain aspects of case content (e.g., causes, goals,

actors), or they might be organized based on attributes of the situation (e.g., task, time-pressure, risk).

The availability of a variety of frameworks for organizing case-based knowledge is noteworthy with regard to leadership education for three reasons. First, in effective case-based programs a consistent organizing framework should be presented throughout instruction. Thus instructors should not organize cases by causal content in one set of classes and situational markers in another set of classes. Second, case prototypes presented should clearly articulate critical organizing principles relevant to the framework being applied. For example, if initiating structure and consideration are being used as organizing frameworks, prototype cases presented should clearly illustrate either initiating structure or consideration. Third, the frameworks used to structure or organize cases in leadership education should typically be valid, generalizable, and capable of being adapted by leaders for use in real-world settings. This observation is noteworthy because it suggests that a substantial investment must be made in the development of appropriate structures for organizing the cases to be presented in leadership education courses.

What should be recognized in this regard is that people have implicit theories, or extant mental models, available for organizing their experiences of, and their experiences as, leaders (Lord & Hall, 2005; Lord & Maher, 1990). What should be recognized here is that these naïve or implicit theories, and the variables drawn from these theories to organize case-based knowledge, may not be consistent with the organizing structure provided in leadership education courses. This observation is noteworthy because it implies that in leadership education both sense-breaking and sense-making exercises (Gioia & Thomas, 1996) should be provided to allow students to both discount their extant organizing structures (e.g., mental models or implicit theories) and adopt the organizing structures being taught in the leadership education program at hand.

In this regard it is important to bear in mind a key characteristic of the mental models or implicit theories used as organizing structures. These organizing structures are formulated based on people's use of knowledge, including case-based knowledge, in real-world problem-solving. Thus Hmelo-Silver and Pfeffer (2004) found that hobbyists, biologists, and novices all employed different models, or variables, for understanding operations of an aquarium. Notably, hobbyists' and biologists' models differed with respect to variables relevant to application of their knowledge. This finding is noteworthy because it suggests that effective leadership education programs will base presentation of cases with regard to variables, or organizing principles, commonly held to guide practical application of knowledge in real-world settings.

What should be recognized in this regard, however, is that practical demands, and thus relevant organizing structures, change as leaders move through their careers (Jacobs & Jaques, 1991). Thus Mumford, Marks, Connelly, Zaccaro, and Reiter-Palmon (2000) found that mid-career leaders stress idea generation while more senior leaders stress contextual evaluation of ideas. Because similar findings have been obtained by Mumford, Campion, and Morgeson (2007), it seems reasonable to conclude that the organizing structures provided for cases through theory, case elements applied, or situational features will change as people gain experience and move through their careers as leaders. Thus organizing structures should not be viewed as fixed when cases are providing a basis for leader education.

#### *CASE APPLICATION*

Above we noted that the way case-based knowledge is organized depends on how it is applied. Moreover, acquisition of case prototypes and exceptions appears to improve when case-based knowledge is



actively applied in real-world problem-solving (Kolodner, 1997). Further, it appears that acquisition of strategies for applying case-based knowledge is facilitated through application of select case content, and strategies, for applying this content in solving the problems presented to people (Scott et al., 2005).

In one study along these lines, Marcy and Mumford (2010) provided leaders with training in applying causal content of case-based knowledge in solving problems arising in university leadership positions. Not only were strategies for working with case-based knowledge bearing on causes provided, but participants were provided with practice in applying these strategies in solving a set of practice problems. And, consistent with the earlier findings of Marcy and Mumford (2007), practice applying these causal analysis strategies contributed to leader performance. Similarly, in presenting prototypic cases, it appears practice applying those prototypes to performance in real-world settings is generally valuable (Kaufman & Baer, 2006).

What should be recognized in this regard, however, is that practice applying case-based knowledge or associated strategies and organizing principles need not necessarily involve actual real-world experiences. For example, Shipman et al.'s (2010) findings with regard to forecasting—for example, forecasting the effects of changing causes or forecasting the effects of changing actors—might provide one set of problems that would provide people with practice in applying case-based knowledge. Another approach that might be used in leadership education, especially when working with experienced leaders, is to have leaders describe and discuss case prototypes, major exceptions to this prototype, and strategies by which they worked with this case-based knowledge in problem-solving. In fact, Avolio, Reichard, Hannah, Walumbwa, and Chan (2009) and Yukl (2010) have provided evidence indicating that discussion of cases and case attributes provides another potentially viable approach for

supplying people with practice in applying case-based knowledge. Still another classroom approach that might be employed is to ask students to participate in classroom exercises where feedback with regard to peers, or instructors, is given concerning their use of cases, case organization, and strategies (Taggar, 2002).

Of course, other techniques might be proposed and prove effective in encouraging students to apply case-based knowledge in leadership education. What should be recognized here, however, is that it is critical that leader education include a set of low-fidelity simulation exercises (Motowidlo, Dunnette, & Carter, 1990) that allow for application of cases, strategies, and organizing structures. What is critical in these low-fidelity simulations is that they are structured in such a way that feedback can be provided concerning application of cases, case content, analytic strategies, and case organization (Goldstein & Ford, 2002). Thus in case exercises the issue at hand is not overall performance but rather effective application of case-based knowledge.

Our foregoing observations are noteworthy because they point to some conclusions that might arise from another technique that has been used to encourage application of case-based knowledge. More specifically, leaders might be asked to apply case-based knowledge in addressing real-world problems arising on their jobs. Although this kind of real-world intervention strategy might prove attractive, in part, because it demonstrates the utility of education, it is likely to prove problematic for two reasons. First, people do not analyze cases, case content, strategies, and case organization as they act in the real world (Gollwitzer, 1999)—thereby undermining learning. Second, when asked to apply cases in real-world settings people typically apply only poorly mastered prototypes focusing on prototypic cases that seem relevant to achieving stated goals (Nutt, 1984). Both of these trends will undermine case-based learning in real-world settings. However, it is possible that these trends might be offset

by coaching or after action reviews where the actions taken in the real world are treated as case-events to be analyzed with respect to prototypicality, content, strategy, and organization (Mumford et al., 2007). Typically, such after-action reviews will prove most effective when they are systematic and facilitated by experts in leadership education.

## *Conclusions*

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In the present effort, we have presented an argument that the type of knowledge used by leaders in solving the problems they are presented with is case-based, or experiential, knowledge (Mumford et al., 2007). Case-based, or experiential, knowledge allows leaders to make sense of complex, unfolding situations, understand the expectations of followers, and formulate viable visions (Strange & Mumford, 2005). Recognition of leaders' reliance on case-based knowledge has led cases to be widely employed leader education.

Cases are, by virtue of their realism, engaging to those being prepared for positions of leadership (Goldstein & Ford, 2002). By the same token, however, case-based knowledge, although readily acquired, is complex (Hammond, 1990). The complex nature of case-based knowledge, in turn, makes the use of cases in leader education an unusually difficult method of instruction. It is not enough simply to present, or encourage students to discuss, a case. Rather, prototypic cases and key exceptions must be presented. The diagnostics marking the relevance of these cases must be noted. The cases must be presented in such a way as to build organized knowledge structures. Those being educated for leadership positions must also be provided with strategies that will allow them to work with certain types of information embedded in cases. And, they must be provided with practice and feedback in applying these cases in solving leadership problems.

At a global level, these conclusions seem difficult to debate. However, our foregoing observations also point to a number of ambiguities that surround application of cases in leader education. For example, what are the merits of stressing causes as opposed to restrictions as opposed to actors and actor capabilities in leadership education? How much emphasis should be given to providing leaders with exceptions to case prototypes? How should prototypic cases be identified? And, what strategies will prove most useful for leaders operating at different levels for applying case-based knowledge?

What should be recognized here is that with regard to these, and a number of other questions, a strong body of evidence is not available to guide the development and application of cases in leadership education. At one level, this observation suggests we need a more systematic stream of research examining how cases should be presented in leadership education. At another level, these observations suggest we need to take a more systematic approach in developing the cases we apply in leader education. We hope that the present effort will serve as an impetus for future work, both laboratory and classroom work, intended to provide a more in-depth understanding of how cases should be applied in leadership education. We believe that such work will prove of critical importance, in part, because case-based knowledge provides the foundation for leaders thinking about the critical, complex problems they will be presented with as they seek to advance our institutions and our world.

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