RESEARCH ARTICLE

The relevance of four types of knowledge for leader preparation in radically different settings: Reflections on data from a case study in Qatar and teaching at a United States military academy

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Abstract. Based on our experiences at a military service academy and the study of leadership informing administrators in overseas branch campuses, we propose a link between conceptual leadership development in these learning environments and the relevance of the four types of knowledge - declarative, procedural, contextual, and somatic for educational administrators and leadership educators. Demonstrating an appropriate and experiential frame of reference through application of the knowledge types can help inform students and educational leaders about contextual applications of leadership and affect leadership development in diverse educational settings. Our paper also discusses application challenges and impact on future learning environments. Through examination of the chosen environments we maintain that effective leader development requires a balance between institution-centered experiential exercises and learner-centered pedagogy based on the contextual learning environments explored.

Keywords: types of knowledge; leadership education; leadership development; branch campus

Introduction

Context matters a great deal in exercising leadership. Researchers, in fact, continue to explore the role that context plays in the leadership process across a variety of applied settings (Day, 2001; Antonakis, Avolio, & Sivasubramaniam, 2003; Avolio & Gardner, 2005). For example, leadership strategies and behaviors that are reflective in military combat are ineffective in many non-military contexts. They are also unlikely to work even in many non-combat contexts within the military. Possibly due to the infinite variability of the contexts in which leadership is practiced, scholars continue to refine existing leadership theories and advance new frameworks that improve our understanding of leadership and its manifold complexities. Thoughtful leaders can, and should, make use of a wide range of different theories to guide their actions and decision-making to influence change in different contexts. One of the defining characteristics of an academic discipline is the existence of a clearly defined—and, ultimately, relatively simple—knowledge base that most members of the discipline accept (Toulmin, 1972). During the first decade of the 21st century, members of the Leadership Studies field from many disciplines attempted to articulate such a knowledge base by defining what they referred to as "general theory of leadership" (Goethals & Sorenson, 2006). They were unable to agree on a grand, over-arching theory. There were many reasons for their challenges but a central issue of contention was whether to conceptualize leadership theory as unitary and integrated or multifaceted and diverse. The contextual complexity of leadership may have contributed to the difficulty of settling on one of these two options. We do not offer a general theory of leadership but we do propose a

means of articulating some of the contextual complexity that may benefit scholars and students of leadership.

In this special report, we want to suggest an alternative way to approach the knowledge-base problem. We will describe the four types of knowledge and discuss how these four types of knowledge can be, and, in fact, have been, used heuristically in two different contextual cases: either (a) to interpret research study data and make recommendations to leaders based on the data or (b) to make decisions about how to teach leaders. Our choice of case contexts is intentionally diverse to demonstrate the ability of the four types of knowledge, when used eclectically, to transcend a variety of contexts. The first case involves a study of native students within a western branch campus environment in the Middle East; the other considers concepts and approaches to teaching leadership within the structure of a military service academy.

A sufficient frame of reference is necessary to better understand the application of this knowledge within the locations identified. Examination of the four types of knowledge in this leadership framework provides a foundation for comparison in the two cases noted above. Taylor, Cordeiro, and Chrispeels (2009) studied how the process of changing the frame of reference for adult learners in leadership preparation programs is interpreted by those holding instructional positions. They note in particular the difficulty of finding courses or class offerings that sufficiently engage learners with experiential opportunities that offer a challenge to preconceived frames of reference. The ability to challenge, critique, and ultimately influence change of those frames could allow new behaviors to emerge and influence action. We find this to be applicable when examining leadership concepts in the branch campus environment as well as within the military service academy structure. In addition, increasing self-awareness of the chosen environment can influence outcomes and redefine perspective. When participating in these programs, learners "need practice in recognizing frames of reference and using their imaginations to redefine the problems from different perspectives" (Merizow, 1997, p. 10). The authors note that this practice implies ongoing experiences that challenge assumptions that lead to construction of new methods for deciphering and solving complex problems faced by students and educational leaders (Taylor, Cordeiro, & Chrispeels, 2009). Facilitating these experiences is one way to discover new patterns of development by students and leaders within their identified educational environments.

As knowledge is acquired, either by ongoing experiences or direct participation, the information must be organized and interpreted appropriately related to the environment. Cognitive theorists have researched at length about the progression and refinement of knowledge and experience over time as individuals develop expertise within a given structure (Schuell, 1990). During this progression, four types of knowledge are developed: declarative, procedural, contextual, and somatic. Declarative knowledge contains domain-related facts and concepts, often centered on the ability to verbalize a given fact. Procedural knowledge takes the declarative one additional step, using those initial concepts to solve a problem or learn an implicit task that was otherwise unknown. Contextual, or conditional knowledge, relies on the use of strategy to define an outcome using all available and relevant knowledge at hand (Garner, 1990; Brezillon & Pomerol, 1999; Taylor, Cordeiro, & Chrispeels, 2009). If a task or process becomes precise as a result of the action at hand, it is possible that a large portion of the contextual knowledge can be "proceduralized" to the current focus of content (Brezillon & Pomerol, 1999, p.2). Somatic knowledge combines sensory information to determine perspective based on a first-person point of view instead of the third-person. Looking at a situation from the inside out can give additional insight into feelings and environment in order to process intention (Hanna, 1998; Green, 2002). The somatic process intimates that leaders must learn to trust their ability to intentionalize a situation based on how they interpret the interaction of themselves with the surrounding environment (Sellers & Young, 1998). The capacity to interact this way may provide one additional method of defining a contextual

framework for creating self-awareness for students and school leaders within their respective operating structures.

Report

Both the United States Air Force Academy and branch campus case studies offer unique perspectives on how the four knowledge areas can impact leadership concepts within comparably complex environments.

Declarative Knowledge

A branch campus setting offers a unique perspective into the application of knowledge areas in leadership. Within the area of declarative knowledge, research conducted at several branch campuses at Education City in Doha, Qatar, investigated how students described their education experience within a western university setting and the challenges they faced. Students understood 'that,' as described by Anderson (1976) and Sternberg, et al (2016), a western university education offered a number of benefits beyond what they may have otherwise experienced in an in-country school. They saw the benefits afforded to students beyond graduation in the workforce and valued the potential job opportunities as a result of attaining a western university degree. Choosing to attend these schools meant that students were expected to perform at a certain level, with high expectations, and with comparative English-language skills. Most students did not easily understand, however, that success also meant grappling with social, personal, and familial changes within the context of their culture and religion.

The stated mission at the Air Force Academy is to develop leaders of character. The curriculum in place at this academy is intentionally coordinated and integrated to achieve the goal of commissioning officers prepared for intellectual, ethical, social, and physical demands across the broad spectrum of challenges in professional military service. This development of such officers demands that greater emphasis be placed on intellectual development versus training—that is, on the importance of knowing how to think versus what to think. This type of learning takes place through declarative knowledge in the form of lectures, discussions, readings, film, video, and narratives. The Academy's curriculum is grounded in a developmental framework that draws heavily on the theories of human development, leadership, and organizational behavior. During the entirety of the cadets' 47-month experience, the curriculum at the service academy is intentionally structured to provide cadets with a more sophisticated understanding of leadership that will translate into being better leaders. The declarative knowledge that is provided is not a means to an end, but a component of a larger and intentional development process designed to create synergy between education and experience. This approach is consistent with Lord and Hall's (2005) progression of leadership skill from novice to expert. The goal is to provide novice leaders (cadets) with factual (evidence-based) knowledge and the opportunity to apply this information to help them improve and develop their leadership skills.

Procedural Knowledge

For students attending the western universities, success means adapting. Many native Qatari students who attend schools outside of the Western model do not have extensive experience in formal learning settings, where students may be asked to interact in mixed gender groups. If students want to find success within these new learning groups, then they must change their study habits and approaches to learning. One student noted: "You need to listen to other people's ideas, not just because your idea is not necessarily the best or any of the best. So what we had trouble with in our freshman year [was] understanding each other's [ideas] and it wasn't just me…it was everyone all together." For some, this might be as simple as adjusting homework patterns; for others, it might mean wholesale changes to how they process

information through note-taking and assignment work. Students who successfully navigated these changes described how the experience provided an opportunity to exhibit transformative leadership: by understanding how to change their workflow patterns, they could then successfully interact with fellow students and help fellow students find similar success in understanding the chosen knowledge area.

The United States Air Force Academy is often referred to as a "leadership laboratory" (Moschgat, 2000). In this leadership laboratory experience, cadets are taught leadership through numerous activities in and out of the classroom (e.g., leadership application exercises, role-play, case studies, scenarios, etc.). In this portion of the Academy, the goal of the assessment strategy is to not only extend learning beyond declarative knowledge and application, but also to foster actual procedural knowledge and behavioral change. This is achieved through a series of leadership application exercises that allow students to see themselves from various perspectives and how that information fits into their overall leadership development. This is a process that takes place over their 47-month experience with a thorough self-assessment examining individual factors (e.g., personality) and then reflects on the assessment in order to understand such concepts as self-enhancement, the desire to seek information and interpret information in a way that is favorable to the self, and positive illusions, the tendency to see oneself in an overly positive manner (Kruger & Dunning, 1999; Roberts, 2008). Next, cadets solicit 360-degree feedback on their leadership ability from their superiors, peers, and subordinates (Foster & Law, 2006). They take this information and compare it to their own self-assessment to discover the similarities and differences that exist. Through this process they become aware of their own limitations in self-assessment and how these limitations impact those around them. Finally, they use their self-assessments, 360-degree assessments, and the declarative knowledge to synthesize their own individual leadership development plan for their remaining time at the Academy and beyond.

Contextual Knowledge

Native students in the branch campus setting offered many examples about contextual situations that they faced while attending the western universities. Students spoke regarding navigating familial concerns about being in a mixed learning environment, and whether female students would be safe. Many students had to cope with personal cultural adjustments, including how society and religion influence their overall experience attending a western university. One student described this notion in the following way: "I think this idea of people not interacting with others, especially for the girls and guys, some of them haven't because of family; the girl for example, her parents wouldn't like it if she was talking to guys, and I think that's not something the university can change." Navigating a change in culture between familial expectations along with those of the western university can introduce new variables for students to address related to conventional belief patterns within their society. Maintaining cultural identity was noted as an important factor for students as they progressed through their chosen program of study. Co-education adjustments, changes in belief patterns, and personal interactions were other areas of concern for most native students. However, the individual culture offered by each school was seen as a positive aspect in choosing to attend. Being able to be a part of that culture, whether through activities or even at a distance with students from the main campus, offered native students a way to connect with others in their field of study without having to leave home. This enhanced their contextual framework within the university setting while offering peace of mind to families concerned about the potential impact of this type of learning on their beliefs.

Like most college students, cadets typically enter the service academies with the ability to take the perspective of another, but are only able to view that perspective in terms of how it contributes to their own needs or interests. To remedy these developmental roadblocks, contextual knowledge is provided and taught through opportunities for doing field-based

projects, studying abroad, and exchanges with other service academies to further the bonds of friendship and understanding between the separate branches of the U.S. military services. Through this contextual knowledge, cadets are exposed to not only different forms of leadership and their applications, but also important factors such as society and culture. The intent is that graduates of service academies draw from this exposure of contextual knowledge and have a better appreciation of the global context in which they will be asked to serve.

Somatic Knowledge

Within the somatic knowledge area, native Qatari students also shared perspectives about the perceived student experience offered by the western universities, and how it influenced their decision to ultimately attend one of the schools. Through each learning experience, students offered examples of how they coped with new physical and emotional demands within their learning environment. Many students seek a safe and comfortable environment that is respectful of their culture and religion, yet maintain a desire for a rigorous program of study. They also work through familial concerns and the desire for parents to give them the freedom to choose their own program of study yet attend a school with an appropriate respect for the local culture. This was described in the following way by one student: "When I talked to my dad [about being in a co-educational environment] it is fine with him, [and] even my mom [had] more of [an] understanding that you are there to study. It is not a shame; something good, or...nothing bad about it. [But] all families here [are not] agreed on a mixed environment to study in." The freedom to choose a particular program of study within a mixed gender environment offered by the western universities has also influenced some students to reassess their own belief patterns. Traditional gender roles are still respected, but students continue to explore new ways of interacting with each other within cultural boundaries. Female students have found success in finding leadership roles within student government, and most students noted the shared classroom experience as a positive benefit of this continued partnership.

At the Air Force Academy, the faculty and staff believe declarative, procedural, and contextual knowledge alone is not sufficient to be an adaptive learner and leader. In addition, cadets must possess knowledge about themselves as learners and about the skills they need to lead effectively. This knowledge implies an education that trusts individuals to learn from their ability to attend and to listen to information they are receiving from interaction of self and environment, in other words, somatic knowledge. Education and training afforded to the cadet uses somatic methodologies such as cognitive embodiment obtained through physical training and reflection to help cadets enhance their resiliency and leadership effectiveness. Additionally, leadership exercises focused on mindfulness, dialogue, and somatic learning assist cadets in learning to be present in unfolding situations, noticing and uprooting negative emotions, and truly appreciating the varied people they will be asked to lead.

Discussion

The impact of the four knowledge areas on leadership concepts has unique applications to both of the learning environments described previously. Within the branch campus setting in Qatar, native students are taking on leadership roles in their family and community by choosing to attend a school system that in many cases is very different from their own cultural and religious upbringing. They are challenging their own way of thinking and established norms in order to investigate knowledge areas they believe will be beneficial within their own culture. While the U.S. Air Force Academy may be at an advantage in that the institution is set up not only to educate, but also develop leaders, this means it can deliver material in a different context.

As students and educational leaders within the branch campus locations engage in practice, they may also have an opportunity to apply the tenets of the four knowledge types by

interacting with other salient educational elements in their environment. Native Qatari students discussed interacting with peers from the main campus back in the United States, and the impact of technology and live interaction with classes and other learning groups at a distance could influence how well this knowledge process is engaged. Going beyond the traditional classroom and experiencing live and interactive learning groups synchronously or online is one way to expand knowledge areas and promote global learning concepts. Scholars have talked at length about leadership as meaning-making (Drath & Palus, 1994; Kegan, 1982; Bruner, 1986), and effective use of classroom technology can be another driver to facilitate a new, shared meaning-making experience for students while taking the four knowledge types into account. A recent study at San Diego State University (Frazee, Frazee & Hughes, 2014) examined new classroom designs centered on the student experience through integrated technology resources. Other research at Georgia Tech (2015) looked at the notion of anytime, anywhere learning driven by the construction of new academic commons. The ability to discover and investigate themes within the four knowledge areas should become increasingly salient as students continue to embrace new learning technologies and processes outside of traditional learning environments.

Conclusion

Students are shaped by their backgrounds, beliefs, education, and experiences. To develop effective leaders in today's complex world requires both an institution-centered learning environment, as well as a pedagogical shift from teacher-centered to learner-centered. Such an approach implies ongoing experiences that challenge assumptions and build new ways of understanding the complex problems leaders frequently face. Instead of adopting a myopic, one-dimensional, direct transfer of knowledge approach to leadership studies, both the United States Air Force Academy and a branch campus of a United States university in Qatar offer unique perspectives on how the four knowledge areas can impact leadership concepts within comparably complex environments. Both locations have adopted a curriculum more in line with constructivist research, which "emphasize that learning is an active, constructive, cumulative, and goal-oriented process that involves problem solving" (Shuell, 1990, p. 532). This type of approach includes the involvement of all four types of knowledge— declarative, procedural, contextual, somatic—and is in-line with what Ernie Stech wrote, when he suggested "it would seem that the ideal way to create good leaders would be to devise a program in which education, training, and development processes take place" (2008, p. 45). The students and educational leaders within these complex situations share a dedication to practice and strive for excellence as they learn to apply this new type of approach. What brings them together is their focus on application, appreciation of culture, and commitment to increasing knowledge in order to build self-awareness within their specialized environments.

Authors' note: *The views expressed in this article are those of the authors and do not necessarily reflect those of the United States Air Force Academy or the United States Department of Defense.*

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