Skills for Today:
What We Know about Teaching and Assessing Leadership

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Written by

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About Pearson

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Foreword

Leadership at the most basic level refers to managing or guiding other people; however, in practice, leadership is much more nuanced and multifaceted. Leaders often have responsibilities at the individual, group, and organizational level. Leaders develop one-on-one relationships with individual followers, facilitate group communication and collaboration, and set the vision for broader organizations. Also, leadership is not a skill reserved for CEOs. Learners can begin developing and practicing their leadership skills at any age, taking advantage of leadership opportunities in a variety of settings. I don't think I realized it at the time, but I was developing my leadership skills every time I participated in a group project in school, was the captain of a sports team, or simply tried to rally a group of people to vote for something. The informal environments were just as impactful for building leadership skills as the more formal management positions in my job.

Developing leadership skills will support the academic and occupational success of learners as both colleges and employers often consider the leadership potential of applicants. In particular, learners need to understand leadership as a relational and transformational activity. Recent research highlights how the most effective leaders are not those who focus on controlling followers from a distance. Rather, leaders should be inspirational mentors, who maintain meaningful relationships with their followers. Our leadership framework, as detailed in this paper, include specific subskills that address the relational and social aspects of leadership.

When considering how to help learners develop leadership skills, it is important to note that competencies in several other skills provide a foundation for effective leadership. Leaders need strong communication, collaboration, interpersonal, critical thinking,

creativity, and self-management skills. Educators, particularly those working with younger learners, should support the development of these associated skills. Research also suggests that the combination of learning about leadership and practically applying leadership skills supports the development of leadership skills for young adults. In addition, it is important for students to have mentors who help them reflect on their leadership experiences and build a leader identity and self-efficacy as a leader. Researchers are also exploring the use of simulations to providing leadership training. While most assessments of leadership currently involve self-report or other-report questionnaires, rubrics have also been developed that use actions made in real leadership scenarios as the basis for assessment. There is growing interest in leveraging real-time performance data from simulations as evidence of leadership skills.

This paper continues a series of summaries around Pearson's Personal and Social Capabilities (PSCs), which are the competencies beyond academic knowledge that are crucial for workplace success. Pearson, in collaboration with P21, has released four papers detailing the skills of collaboration, critical thinking, communication, and creativity, as well as a paper focusing on the skill of self-management. This paper provides a similar perspective on leadership, outlining a framework of leadership skills and providing a summary of strategies for teaching and assessing these skills. We at Pearson are excited to provide an overview of the best practices for helping students develop leadership skills as well as other key PSCs that will support student success.

Leah Jewell, Managing Director, Career Development

Image by Christof Van Der Walt

Introduction

Leadership is increasingly recognized as a key twenty-first-century skill that benefits learners in school, as they transition to the workplace, and throughout their careers (Pellegrino & Hilton, 2012; Trilling & Fadel, 2009). Indeed, teams and organizations with better leaders demonstrate higher levels of performance, stronger motivation, and more job satisfaction (Judge & Piccolo, 2004; Wang, Oh, Courtright, & Colbert, 2011). Helping students to develop leadership skills is an effective avenue both for supporting their individual success in the workplace and for building more productive and profitable organizations.

Higher-education institutions view leadership as an important skill for both incoming and outgoing college students. Developing leadership skills was the third most frequently listed learning goal among mission statements from the Princeton Review's "Best 331 Colleges" (with providing "a liberal arts education" and "contributing to the community" mentioned more often; Meacham & Gaff, 2006). Another survey examined the student learning-outcomes expectations of twenty-five discipline-based accrediting agencies (Sharp, Komives, & Fincher, 2011). These were the outcomes expected of students graduating from institutions with a specific accreditation. "Management and collaborative leadership" was the most frequently mentioned competency (included for twenty-two out of twenty-five agencies). Leadership experience also supports student success in college. Students who had leadership experiences in high school were more likely to attend and graduate from college (Lozano, 2008).

In addition to higher-education institutions, employers also expect college students to graduate with skills in leadership. In the National Association of Colleges and Employers' Job Outlook 2018 survey, 73 percent of employers seek out leadership experience when looking at applicants' resumes. Having held a leadership position also had a strong influence on employers' hiring decisions, even stronger than GPA (grade point average). Students appear to recognize the importance of leadership skills as well. Science undergraduate students at a university in Australia identified employability as a primary motivating factor for seeking out leadership training and education (Ho, Wong, Tham, & Brookes, 2016). There is also evidence that students who take on leadership roles in high school have higher wages as adults, even after controlling for cognitive ability (Kuhn & Weinberger, 2005). Leadership appears to be an important skill for employment in the future. Taking into account shifts in the workplace due to technology and other disruptive factors, the World Economic Forum's Future of Jobs Report (2018) found that leadership and social influence was one of ten skills with the most projected growth in importance by 2022.

Despite the apparent importance of leadership skills for college graduates, employers don't view new graduates as particularly proficient in leadership. In the National Association of Colleges and Employers' Job Outlook 2018 survey, while 69 percent of graduating seniors rated themselves as proficient in leadership, only 33 percent of employers viewed new graduates as proficient in this area. Popular opinion sometimes suggests that leaders are "born not made" or that someone is a "born leader," but personality research suggests an alternative perspective. While personality traits, most notably extraversion, are associated with some leadership skills, most of the variability in leadership ability is not explained by personality traits (Bono & Judge, 2004). These findings suggest that there is considerable room for developing leadership through instruction, training, and experiences.

Definitions and Models

FULL RANGE LEADERSHIP

Avolio and Bass's Full Range Leadership Theory (2002) is one of the most well researched and validated models in the organizational leadership field. This theory developed out of a paradigm shift in the 1970s and 1980s where a leader's ability to inspire and motivate became more relevant than their ability to manage and control. This model contains three leadership types (transformational leadership, transactional leadership, and laissez-faire leadership) and the associated components of each type. Broadly speaking, transformational leaders don't rely on rewards and recognition to motivate and guide followers; instead, they inspire followers through their behavior and beliefs. Research has identified four components of transformational leadership (Bass, 1990):

1. Charisma/idealized influence: displaying ethical and inspiring behavior by taking stands and acting with conviction, appealing to followers' emotions.

2. Individualized consideration: addressing the individual developmental needs of followers by supporting and mentoring them.

3. Inspirational motivation: motivating followers by projecting a positive vision, with ambitious goals, that seems achievable, clearly articulating their vision.

4. Intellectual stimulation: supporting innovation and creativity among followers by challenging assumptions and taking risks.

In contrast, transactional leadership occurs when leaders and followers set goals and objectives and followers are appropriately rewarded or punished based on their performance in relation to these goals (Bass, 1990). Contingencies are often used as a method for managing follower behavior. Transactional leadership consists of three components:

1. Contingent reward leadership: clarifying task objectives and goals and specifying rewards for successful completion.

2. Management by exception: taking corrective action when standards for performance of followers are not met. Based on the timing of this corrective action, management by exception can be either:

   - active: proactively monitoring followers' behavior and performance and intervening before problems occur;

   - passive: intervening with followers only after substandard behavior or performance has occurred.

Laissez-faire leadership is essentially the absence of leadership (Bass, 1990). This type of leader avoids making decisions, does not take responsibility for followers, and does not act on their authority.

Research suggests that both transformational leadership and the contingent-reward component of transactional leadership are associated with a wide range of positive outcomes including follower job satisfaction, follower satisfaction with the leader, follower motivation, leader job performance, group or organization performance, and ratings of leader effectiveness (Judge & Piccolo, 2004). Laissez-

faire leadership has a consistent negative relationship with these outcomes. In contrast, management by exception, both active and passive, is not related to these outcomes, suggesting that it is less relevant for leader performance.

SERVANT LEADERSHIP

Servant leadership is another leadership model, initially proposed by Greenleaf (1997), which has become popular in recent years. The central tenet of this model is that a servant leader is a servant first and that their primary concern is for the needs and well-being of their followers. According to Patterson (2003), servant leaders primarily focus on their followers, giving less attention to organizational concerns. Servant leadership qualities also represent virtues, based in moral quality or goodness.

This difference in concern for the individual versus the organization is the defining difference between transformational leadership and servant leadership, with transformational leaders being more focused on what is best for the organization (Stone, Russell, & Patterson, 2004). Building on Patterson's (2003) theory, Dennis and Bocarnea (2005) identified five distinct factors of servant leadership:

1. Empowerment: entrusting followers with the power to make decisions and to take more responsibility. True empowerment "changes the rights, responsibilities, and duties of leaders as well as followers" (Ciulla, 1998, p. 84).

2. Agapao love: genuinely loving and caring for the needs, wants, and well-being of followers.

3. Humility: not thinking too highly of oneself and one's accomplishments and being willing to consult and listen to others.

4. Trust: trusting in the competence and morality of followers, reflected by openness to input from followers.

5. Vision: creating a shared "picture of the future that produces passion" (Blanchard, 2000, p. 5).

Using another measure of servant leadership (the organizational leadership assessment, [Laub, 1999]), Irving and Longbotham (2007) identified the items that were most predictive of team effectiveness. From these items, they derived six essential servant leadership themes:

1. Communicating with clarity: communicating a clear plan and goal for the organization.

2. Fostering collaboration: encouraging followers to work together rather than against one another.

3. Valuing and appreciating: expressing appreciation for followers and their contributions.

4. Providing accountability: ensuring that followers are held accountable for reaching goals.

5. Supporting and resourcing: providing support and resources that followers need to meet their goals.

6. Engaging in honest self-evaluation: evaluating oneself before trying to evaluate others.

STUDENT LEADERSHIP PRACTICES

While the full range and servant leadership theories were developed out of observations of adults in occupational settings, other leadership models have focused on specifying the leadership behaviors of students. Kouzes and Posner (1998) created this type of model with the Student Leadership Practices Inventory (Student LPI). They developed the initial Leadership Practices Inventory (LPI; Kouzes & Posner, 1987) based on content analysis of 1,200 case studies of managers' personal-best experiences as leaders. Researchers then used the same methodology with student leaders to determine whether the leadership behaviors of managers were consistent with those identified by college students (Kouzes & Posner, 1998). Themes were identified from the interviews with student leaders and items from the LPI were mapped onto the themes to inform how the items should be modified so that the terminology and concepts in the items were relevant for student leaders. The most updated version of the Student LPI includes five broad leadership practices:

1. Model the way: establishing shared values with followers and acting in a way that is aligned to those values.

2. Inspire a shared vision: clearly communicating a vision for the future and helping followers align their own interests with this vision.

3. Challenge the process: driving innovation and improvement by being willing to experiment and take risks, and enabling these behaviors in followers.

4. Enable others to act: fostering collaboration by developing relationships with and between followers, and helping followers develop their own competence and expertise.

5. Encourage the heart: providing encouragement to followers and praising and celebrating their successes.

Research across several student-leader populations (sorority and fraternity chapter presidents, resident advisors, and orientation advisors) suggests that students who engage more frequently in these five leadership practices were also rated as more effective in their roles (Posner & Brodsky, 1992, 1993, 1994; Posner & Rosenberger, 1997).

SOCIALLY RESPONSIBLE LEADERSHIP

The socially responsible leadership model and the associated social change model of leadership development (Higher Education Research Institute, 1996) represents another leadership model that was explicitly designed around the student leadership experience. This model focuses on leadership as a process leading to positive social change and emphasizes nonhierarchical leadership strategies and collaboration. Three perspectives of socially responsible leadership exist (the individual, the group, and the community/society), with seven critical values:

1. The Individual

   (i) Consciousness of self: being aware of the self, including the beliefs, values, attitudes, and emotions that motivate you.

   (ii) Congruence: acting in a way that is aligned with your values.

   (iii) Commitment: being motivated and invested in an idea, group, individual, or goal.

2. The Group

    (iv) Collaboration: effectively working together with others and sharing responsibility, authority, and accountability.

    (v) Common purpose: having a shared and jointly developed vision.

    (vi) Controversy with civility: being open to differing viewpoints and engaging them in a civil way.

3. The Community/Society

    (vii) Citizenship: engaging responsibly with your community and taking responsibility for supporting the welfare of others and society.

PEARSON LEADERSHIP FRAMEWORK

In the following section, we propose a leadership skills framework developed from our review of the four models of leadership discussed above. We have identified eight core skills, which are presented in Table 1 along with associated task and evidence examples.

SKILL	DEFINITION	EXAMPLE EVIDENCE	TASK EXAMPLES
1. Challenges assumptions	Foster creativity by helping followers consider new ideas and alternatives	• Tactfully voices problems with senior leadership strategy • Provides a new perspective during group discussions	• Propose ways to improve your company through a new business model that has never been tried by your company • Help the team avoid groupthink when planning a group project
2. Establishes vision	Defines and expresses possibilities for the future	• Presents a plan on how a team can be more innovative	• Propose ways the company can be more innovative • Provide an agenda for a group meeting
3. Fosters collaboration	Facilitates collaboration among followers by promoting communication and cooperation and assigning appropriate roles	• Develops activities to help team members to work together more efficiently • Ensures that everyone has a chance to share their opinion during team discussions	• Provide a way to increase communication among your team • Assign roles for club/ organization members
4. Respects followers	Acknowledges contributions of followers; treats followers fairly	• Offers authentic appreciation for accomplishments (e.g., personal emails)	• List ways to show appreciation of the team
5. Empowers followers	Entrusts power to others to complete high quality work; provides others with authority to make their own decisions	• Gives tasks to direct reports that are challenging • Delegates responsibility to group members	• List tasks that are typically given to your direct reports or members of your group/organization

SKILL	DEFINITION	EXAMPLE EVIDENCE	TASK EXAMPLES
6. Maintains accountability	Provides adequate rewards (or lack thereof) for accomplishments (both followers and for self)	• Gives appropriate bonuses for hard work (e.g., cash bonuses, raises)	• Provide the ways your direct reports or group members are rewarded for hard work
7. Stays open-Minded	Stays open to ideas and viewpoints. Avoids judgement	• Accepts criticism with respect	• Explain how you receive criticism at work • Participate in a discussion where others voice different opinions from you
8. Supports followers	Provides mentorship and support to help followers accomplish goals	• Schedules regular meetings to support direct reports • Provides resources that will help team members accomplish their tasks	• Explain how you provide support for your team

Table 1   Pearson Leadership Skills with Associated Evidence and Task Examples

Challenges Assumptions

Based on our review, one key aspect of leadership is the ability to challenge assumptions and to take risks. This facet is based on the transformational leadership skill of intellectual stimulation (Bass, 1990) as well as the "Challenge the Process" practice of the Student LPI (Kouzes & Posner, 1998). By challenging assumptions, a leader is able to step beyond the status quo and more effectively drive innovation and change. In addition, by questioning and taking risks, a leader can help foster creativity among followers, helping their group or organization avoid "groupthink."

Establishes Vision

The skill of establishing vision includes two components: the ability to define a vision and the ability to express that vision to followers. Defining a vision involves actually deciding on appropriate goals for the future and draws on the associated skill of planning. Effective goals are both challenging and attainable. Expressing vision to followers requires strong communication skills to convey what the leader wants the group to be and to do so in a way that followers can both share in and be motivated by that vision. We use the term "vision" specifically because of these inspirational connotations.

Fosters Collaboration

Servant leadership (Irving & Longbotham, 2007), the Student LPI (Kouzes & Posner, 1998), and the social change model of leadership development (Higher Education Research Institute, 1996) each include a component involving collaboration. Based on this consensus, we include fostering collaboration as one of our key leadership skills. Groups that work more efficiently together will be more successful, and leaders bear most of the responsibility for setting the tone of the group interactions. By encouraging open communication, structuring meetings so that everyone gets a chance to speak, and being a good collaborator themselves, effective leaders can set the stage for successful collaboration with and between group members.

Respects Followers

In line with fostering collaboration, effective leaders also demonstrate respect for their followers. Both servant leadership (Dennis & Bocarnea, 2005; Irving & Longbotham, 2007) and the Student LPI (Kouzes & Posner, 1998) emphasize the

importance of valuing and appreciating the contributions of followers, which is a component of respect. Respect also involves treating followers fairly.

Empowers Followers

Central to the concept of transformational leadership is the idea that effective leaders empower their followers to complete high-quality work and to meet high standards (Bass, 1990). This facet of leadership is also represented in the student leadership practice of enabling others to act (Kouzes & Posner, 1998) and the servant leadership factor of empowerment (Dennis & Bocarnea, 2005). Effective leaders do not constantly micromanage their followers. Rather, they ensure followers have the necessary knowledge and skills and then trust their followers to take responsibility and effectively complete their work.

Maintains Accountability

In addition to empowering followers, leaders are also responsible for holding themselves and their followers accountable and making sure the needed work gets done. Research suggests that specifying rewards (or lack thereof) based on follower performance can be an effective means of supporting accountability (Judge & Piccolo, 2004). Also, a common theme emerged among the four reviewed leadership models: Leaders should maintain a high standard for their own behavior, suggesting the need for personal accountability as well.

Stays Open-Minded

To effectively empower followers, it is important that leaders listen to followers with an open mind. This open-mindedness is represented in the servant leadership factor of humility (Dennis & Bocarnea, 2005) and the social change model value of controversy with civility (Higher Education Research Institute, 1996). While leaders often take a guiding role in groups or organizations, it is important that they recognize the limits to their expertise and consult with others to address those gaps. They should not be threatened by the opinions of others.

Supports Followers

Lastly, according to all four models reviewed, leaders have a responsibility to nurture and support their followers, which can take many forms (Bass, 1990; Dennis & Bocarnea, 2005; Higher Education Research Institute, 1996; Kouzes & Posner, 1998). When followers take on responsibility for work tasks, the leader should ensure that followers have access to the support and resources needed for success. Additionally, effective leaders can serve as mentors. They should help followers identify their own personal and professional goals, then provide the support needed to achieve those goals.

LEADERSHIP AND CREATIVE PROBLEM-SOLVING

In this section, we discuss the importance of leader behavior in facilitating effective and creative problem-solving within organizations. Leader facilitation of problem-solving arises from the application of several leadership skills (i.e. challenging assumptions, staying open-minded, facilitating collaboration), other skills (i.e. the systems analysis aspect of critical thinking), and advanced domain knowledge. We did not include creative problem-solving as a specific leadership skill within our framework because it requires the integration of numerous skills. Rather, we believe it represents a complex, higher-order series of actions that is important for effective organizational leadership.

Leaders, particularly those with high-level positions within organizations, are often called upon to solve problems. The types of problems presented to leaders are often ill structured and novel (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000). If an executive needs to address falling sales in a particular sector, there are several different ways to define the problem and a variety of different solution paths, with no clear right

or wrong answers. The poor sales performance could be driven by a price being set too high, and solutions might involves ways to bring down the cost of manufacturing a product. In contrast, the poor performance could be due to ineffective marketing, with a new marketing campaign being the best solution. Leadership problems are often novel, meaning that the leader hasn't faced the exact problem before, so previously effective strategies may not apply. In order to solve these problems, leaders need to apply effective problem-solving strategies in a flexible and creative way.

Researchers (Finke, Ward, & Smith, 1992; Mumford, Mobley, Uhlman, Reiter-Palmon, & Doares, 1991) agree that creative problem-solving follows a series of sets, specifically "problem identification and construction, identification of relevant information, generation of new ideas, and the evaluation of these ideas" (Reiter-Palmon & Illies, 2004, p. 57). Research suggests that leaders can support the creativity and quality of followers' problem-solving efforts by prompting them to think about problems from multiple perspectives and emphasizing the importance of this problem construction process (e.g., Redmond, Mumford, & Teach, 1993). Leaders can also use their own technical expertise to direct followers to relevant and useful information during problem-solving (Mumford, Baughman, Supinski, & Maher, 1996; Reiter-Palmon & Illies, 2004). Once the problem has been defined and information gathered, the next problem-solving step involves generating potential solutions, which leaders can facilitate by providing strategies for idea generation and setting clear goals (i.e. focusing on original and novel ideas). Lastly, leaders use their understanding about the context of the problem at hand to evaluate and decide between different solutions. Leaders also set the tone for how ideas are evaluated (Amabile & Gryskiewicz, 1989), which can support enhanced creativity when the evaluation is constructive rather than critical.

Image by Abhishek Maji

Teaching Leadership

PREREQUISITES TO LEADERSHIP DEVELOPMENT

It would be remiss to discuss teaching leadership skills without addressing the variety of other skills, competencies, and attitudes that underlie effective leadership. Creativity and divergent thinking lay the foundation for challenging assumptions and helping followers to be creative and innovative (Mumford, Connelly, & Gaddis, 2003; Sessa, 1998). Leadership can be thought of as an extension of collaboration where the leader transitions from simply being part of a group to facilitating collaboration within a group (Rost, 1995). Because of the inherent social context of leadership, every leadership skill draws on communication ability (van Linden & Fertman, 1998), with one scholar calling communication the "all-purpose instrument of leadership" (Gardner, 1990, p. 166). In addition to communication skills, leaders draw on interpersonal skills to understand people, build relationships with followers, support followers, and manage conflict (Chapman & O'Neil, 1999; Ricketts & Rudd, 2002). Leaders also need strong self-management skills in order to establish a plan or vision for the future (Murphy & Johnson, 2011). In order to support creative problem-solving, leaders should be good critical thinkers. Part of the task of teaching leadership, particularly for younger children, is helping them develop these prerequisite competencies. While addressing all of these associated skills is beyond the scope of this article, we have compiled white papers that provide an overview for teaching and assessing several of these skills including collaboration (Lai, DiCerbo, & Foltz, 2017), creativity (Lai, Yarbro, DiCerbo, & de Geest, 2018), communication (Metusalem, Belenky, & DiCerbo, 2017), critical thinking (Ventura, Lai, & DiCerbo, 2017), and self-management (Yarbro & Ventura, 2018).

Several leadership development theories highlight the importance of a "leader identity." An identity refers to an individual's understanding of their characteristics and how those characteristics relate to broader social roles, such as that of a leader (Kihlstrom, Beer, & Klein, 2003). Komives and colleagues (2006) highlight this developmental progression in their leadership identity development model. Young people must first identify what leadership is before practicing leadership and building self-confidence as a leader. This model also notes the transition from a rigid and formal leader identity to one that is more interdependent and process-oriented. Initially, young people believe that leaders are only those who hold formal leadership positions and that there is a sharp distinction between leaders and followers. They gradually develop an understanding of the relational aspects of leadership and realize that they can demonstrate leadership without holding a formal leadership position. In another theory of leadership development, Lord and Hall (2005) propose that as leaders develop, their leader identities transition from an individual level to more relational or collective levels. While novice leaders emphasize being seen as unique from followers and other leaders, more advanced leaders understand who they are in terms of their relationships with others or their membership within a group or organization.

Researchers propose that leader identities influence the development of leadership skills via a spiraling effect (Day, Harrison, & Halpin, 2009; DeRue & Ashford, 2010). Having a strong identity as a leader contributes to adopting leader-like behaviors and seeking out leadership opportunities. This additional practice fuels the development of leadership skills and further strengthens one's leadership identity. Indeed, among college students in a leadership and team-building course, stronger leadership identity predicted leadership effectiveness over time (Day & Sin, 2011).

Leadership in Practice

Extracurricular activities, particularly athletics, are often recommended as avenues for the development of student leadership skills. Suzanne Grayson, retired coach and athletic director, shared her experiences and perspectives on sports and leadership. Mrs. Grayson believes that she had the strongest impact on the development of leadership and other skills for her athletes through the environment and expectations she set on her teams. Mrs. Grayson set high expectations for her athletes, both on and off the court or field, fostering a sense of accountability. Athletes knew what was expected of them and the consequences for not meeting expectations. In addition, Mrs. Grayson set a policy of maintaining a positive attitude, particularly when other teammates made mistakes. This gave her athletes experience supporting others even during stressful times. She also expected athletes to make the best of what they were given on the court. If a volleyball player did not receive the best set, she was still expected to make the most of the play. This encouraged flexibility and a willingness to try alternatives to find what works in non-ideal situations.

Beyond the expectations set by the coach, Mrs. Grayson also found that student athletes learn about leadership because they are accountable to one another. Team sports offer students one of their first experiences where an individual's success is dependent on the performance of others. This experience is similar to the dynamic of the workplace, and can help prepare students to effectively work in and eventually lead groups in the future.

Mrs. Suzanne Grayson, Retired teacher, coach, and athletic director, Cleveland County School System

Accounting for leader identity development has several implications for teaching leadership skills to students. It will probably be insufficient to simply teach students about leadership skills. Attention should be paid to how students understand leadership and how that relates to their self-identity. According to Komives and colleagues (2006, pp. 414–415) "expanding self-awareness at each stage [of development] is critical. Connecting self-awareness with intentional strategies to build self-efficacy for leadership is a central aspect of developing a confident leadership identity." Advisors and mentors play a particularly important role in this process by providing "a safe place for [students] to reflect and make meaning of their experiences" (Komives et al., 2006, p. 415). Authentic leadership experiences are equally important to leader identity development (Klimoski & Amos, 2012). These experiences form the basis for a leader identity and allow students to refine this identity as they learn by doing.

Lastly, leader efficacy (or leader self-efficacy) is considered a precursor to the development of effective leadership skills. Leader efficacy is defined as "leaders' beliefs in their perceived capabilities to organize the positive psychological capabilities, motivation, means, collective resources, and courses of action required to attain effective, sustainable performance across their various leadership roles, demands, and contexts" (Hannah, Avolio, Luthans, & Harms, 2008, p. 2). Similar to leader identity, those with strong leader efficacy are more likely to seek out leadership opportunities and report stronger motivation to lead (Hannah et al., 2008). This contributes to a positive spiral of leadership development. Hannah and colleagues describe how Bandura's (1997) seminal work on self-efficacy can be applied to developing leader efficacy. First, positive experiences practicing leadership, or mastery experiences, support the development of leader efficacy (McCormick, Tanguma, Lopez-Forment, 2002). Observing competent leaders (i.e. vicarious learning) can also build leader efficacy, as does persuasion and positive feedback from superiors (Mellor, Barclay, Bulger, & Kath, 2006). Lastly, experiencing positive emotional arousal from leadership experiences can enhance leader efficacy.

PRIMARY AND SECONDARY SCHOOL

Few studies have empirically examined the impact of leadership programs for primary- and secondary-school students. We review the available studies in this section, focusing on those that incorporated some type of control or comparison group, because this design allows us to be more certain that changes following the program were truly caused by the program. Outcomes of the studies in this section include leadership skills as well as associated skills, competencies, and qualities.

One study examined the impact of Project EXCEL (Ensuring Excellence through Communalism, African Education, and Leadership) with Eighth Grade American students in an inner-city, predominantly African-American school (Lewis, Sullivan, & Bybee, 2006). Students were randomly assigned to Project EXCEL or a life-skills course (control condition). Project EXCEL included learning opportunities around leadership and social change for African-American adolescent students. Students were taught ways they

could make changes to their own lives as well as their communities. There was also a focus on positive affirmations as well as group cohesion-building. The curriculum included lectures, discussions, group projects, videos, music, and guest speakers. Students who participated in Project EXCEL demonstrated more growth in communal orientation (i.e. valuing cooperation), social connectedness at school, motivation to achieve, and social-change involvement over time, compared with students in the control group. Project EXCEL appears to enhance the social competencies that underlie several key leadership skills including fosters collaboration and supports followers.

Leadership programs can also take place outside of the school setting. Anderson (2007) evaluated the impact of leadership training offered within Connecticut community youth-development programs. The specific targets and methods of the programs differed, but they all had the following components:

- They all involved youth in program planning and decision-making.

- They all provided training in youth leadership.

- They all included ongoing interactions between youth and responsible adults.

- They all included participation and involvement with local community initiatives.

Youth ranged in age from twelve to eighteen, with an average age of sixteen. A comparison sample who did not participate in these programs was taken from local schools. The leadership programs had a positive impact on youth perceptions of support within their neighborhood. Additionally, for male students, the leadership programs increased their self-reported ability to relate to and communicate with others and to resist negative peer pressure. The researchers also examined whether the leadership programs were more effective for youth entering the program with lower levels of the outcome variables. These youth with lower skill levels experienced more growth in social self-efficacy, self-assertive skills, participation in neighborhood activities, and perceptions about the presence of caring adults in their lives following the programs compared to higher functioning youth in the leadership programs as well as youth in the comparison group. Overall, for some students, these programs appear to have a positive impact on communication and social skills and some aspects of self-confidence, particularly for male students and students entering the program with lower levels of these skills. These competencies supported by the youth leadership program could help lay the foundation for future leadership skills development. It is important to note that because the groups in this study were not randomly assigned, students in the comparison group may not be equivalent to students who participated in the programs. This makes us less confident that the changes following the programs are uniquely caused by something in the programs.

Researchers have also examined the impact of Foróige's Leadership for Life Program for Irish youth (UNESCO Child and Family Research Centre, 2013). This program defined leadership as "facilitating change and development of the individual and society through [the] use of core social and emotional competencies, including self-awareness, collaboration, empathy and relationship building" (UNESCO Child and Family Research Centre, 2013, p. 68). This evaluation focused specifically on a three-module, eighty-hour program for sixteen- to eighteen-year-olds. The program taught youth leadership content and incorporated individual reflection, self-directed learning, and experiential learning activities. Students learned about leadership skills, explored their own motivations and understanding of leadership, and then applied their leadership skills by completing a community action project. Outcomes for participants in the Leadership for Life Program were compared with a group who did not participate in the program. This comparison group was not determined

Leadership in Practice

Since 1990, the Certificate Program in Advanced Leadership Studies offered by the School of Public Affairs at American University has sought to prepare a select group of students to be leaders in public service.

Following a competitive application process, students complete the 15-credit course of study that culminates in a certificate in advanced leadership studies. The leadership program complements the training its students receive in public affairs, policy, and politics in the School of Public Affairs by also providing them with a solid foundation in leadership skills. Dr. Paul Manuel, director of the leadership program, shared his perspectives and experiences with the program.

Curriculum in the leadership program ordinarily spans all four years of college, but some students are able to complete the program in three years. The leadership curriculum moves students from theory to practice. Coursework on leadership features more heavily during the first two years of the program. Students listen to lectures and engage in class discussions about a broad range of leadership theories with an emphasis on relational and process-oriented perspectives. Students learn that it is possible to be a leader at any level within an organization. Understanding leadership in this way is new to some students, who before joining the program viewed leadership as focusing more on power and control. The leadership coursework during the first year is graded as pass or fail, which Dr. Manuel believes helps enhance student intrinsic motivation to lead.

While the general focus is on leadership theory during the first two years of the program, students also begin to engage with the practice of leadership through their social-action leadership project. These projects are designed to help each student understand how individual leadership functions in society. "Social" refers to the larger community, or society, and "action" refers to individual decision-making, or agency. The connection between the individual and community around the larger theme of leadership is what animates the social-action projects.

by random assignment, but researchers attempted to match the groups on age, gender, and geographical location. Compared to the control group, students participating in the leadership program demonstrated greater gains in leadership skills, along with other relevant skills such as communication and decision-making. Many of these gains were maintained at a follow-up assessment seven to ten months after the program concluded.

Leadership theory suggests that holding leadership positions should also help students develop leadership skills. It is difficult to empirically examine the impact of holding leadership positions since students typically self-select into these positions. While most studies in this area are correlational, one utilized an innovative experimental design to determine the impact of assigned classroom leadership positions within Grade 7 classrooms at a school in China (Anderson & Lu, 2017). These classroom leaders had considerable responsibility including representing the class in discussions with the teacher, organizing collective activities, maintaining order when outside of the classroom, collecting and distributing homework, and leading some academic activities. In order to incorporate random assignment, the researchers had instructors nominate two students for each leadership role. Of these two students, one was the instructor's first choice (first candidate) and the other was the instructor's second choice (second candidate). Without the researchers' intervention, first candidates would have been chosen by the instructor; however, the researchers specified a random assignment such that some roles were filled by first candidates while others were filled by second candidates. The comparison groups were composed of the first and second candidates who were not randomly assigned to the positions.

Researchers compared outcomes for those who were and were not assigned the role within each candidate group. Researchers asked students at the school to list who they would vote for if class leaders were democratically elected. Among first candidates, students who held the leadership positions were more likely to be hypothetically voted for by their peers. This finding shows that holding a leadership position relates to the social perception of being a leader, which may make it easier for students to take on leadership responsibilities in the future. First candidates who held the leadership positions also had higher test scores. While not directly related to leadership, better academic performance could increase students' academic motivation, which is associated with motivation to lead (Gottfried, Gottfried, Reichard, Guerin, & Oliver, 2011). Among second candidates, having a leadership position led to higher self-confidence and a greater willingness to lead by example. Overall, these findings indicate that holding leadership positions can help students develop some of the qualities that support future leadership endeavors.

When examining how leadership experiences in primary and secondary school impact leadership skills development, it is

In both the first-year and second-year social-action projects, students follow these basic research steps:

1. They identify a public-affairs problem, and those group(s) impacted by the problem.

2. They identify the associated leadership challenges created by the problem (i.e. how poor leadership choices created the problem and how good leadership choices might remedy the problem).

3. They create a decision matrix to explore possible solutions.

4. They propose a policy solution for the problem in the fall term, to be implemented in the spring term.

During the first year, students work in a six- or seven-person social-action project group. This group work helps students develop the "soft skills" of leadership including collaboration, listening, and motivating others. Then, during their second year, students individually work on their own social-action leadership project, following the same basic research steps as the first year. Topics of recent social-action leadership projects include addressing the lack of access to the internet for underprivileged youth in Washington, DC; the problem of food scarcity for low-income children in Washington, DC; the growing heroin and prescription opioid epidemic in the United States; the lack of college-readiness among students of immigrant backgrounds who are the first generation in their families to attend college in the United States; and the plight of refugees from Syria. As such, students in the School of Public Affairs leadership program are working to build social capital and thus to strengthen larger community bonds.

During their third and fourth years, students engage more fully with the practice of leadership. American University's location within Washington, DC, provides numerous opportunities for students to participate in public-affairs internships. Students are able to observe leaders within these organizations at first hand and to gain experience as leaders in their individual roles within these organizations. Students also complete a capstone course on political and organizational leadership during their final year which allows them to holistically explore political and bureaucratic leadership, integrating both theory and their own experiences in the program.

important to consider what leadership tasks are appropriate for different developmental stages. Murphy (2011) outlines the progression of these tasks. For example, preschool-aged children may demonstrate leadership through basic tasks such as getting others to like them or influencing others' choice of play activities. In elementary school, students may practice leadership by managing others as a class monitor. In middle school, students begin learning the self-management skills needed for leadership (i.e. goal-setting) and start coordinating groups. High-school students take on more complex coordination and collaboration tasks and may begin trying to motivate other students in the role of leader. Participation in leadership activities will have a more positive impact on the development of leadership skills if they are developmentally appropriate (Murphy & Johnson, 2011).

HIGHER EDUCATION

As with primary and secondary school, there is limited research that provides strong evidence regarding what interventions and experiences are effective at promoting leadership skills for college students. In this section, we focus our review on the more rigorous empirical studies that have been conducted as well as two large-scale survey studies that document what experiences are associated with changes in leadership skills during college.

Researchers examined the impact of the "Know, See, Plan, Do" model of curriculum design in a master of business administration (MBA) leadership and management skills course (Allen, Miguel, & Martin, 2014). The course was structured around four components:

1. **Know:** Developing knowledge of concepts relevant to leadership including emotional intelligence, creativity/problem-solving, supportive communication, and managing conflict.

2. **See:** Applying knowledge about leadership through a variety of activities including team-building activities, viewing film/video, small group discussion, coaching, and observation/reflection assignments.

3. **Plan:** Engaging in "consulting conversations" where participants explore a personal challenge or failure, reframe it, and develop a plan for addressing it.

4. **Do:** Further application of leadership concepts through problem-based learning and case-in-point teaching methodology. In particular, students attempt to set a Guinness World Record.

Student outcomes in this course were compared with two control groups:

1. students in arts and sciences graduate programs at the same university;

Throughout the program, students document their own leadership experiences in an online portfolio. By compiling work samples and composing a resume, students reflect on and summarize their leadership experiences during the program. In addition to functioning as a learning and self-assessment experience for students, the portfolios also provide evidence for how well the program is working. The assessment of student work products within the portfolio is intentionally aligned to the program learning outcomes as well as to broader School of Public Affairs and university-level goals. This assessment helps to document the value added by the leadership program. Additionally, as students transition to the workplace, or postgraduate study, the portfolio helps them tell their individual leadership story moving forward.

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2. students in an MBA leadership course at another university who were taught with the same textbook but not with the "Know, See, Plan, Do" curriculum model.

The three outcomes assessed were basic leadership knowledge, the ability to recognize leadership concepts in practice, and the ability to develop a plan of action in a leadership situation. At the end of the semester, students in the intervention group outperformed students in the other two groups on all three outcomes. Additionally, for students in the intervention group, their performance on all three outcomes improved from the beginning to the end of the semester. In contrast, the arts and sciences control group only improved on one outcome (developing a plan of action), while the MBA control group did not improve on any outcome. It should be noted that because the groups were based on existing classes or graduate programs and not random assignment, it is unclear whether the three groups being compared can be considered equivalent.

Another study examined the impact of an outdoor leadership development program (Leadership on the Edge; LOTE) among MBA students (Kass & Grandzol, 2011). Students in one section of an organizational behavior course attended a weekend camping and climbing trip (LOTE experience) at the beginning of the semester. The trip was primarily led and organized by the students, emphasizing shared responsibility. During the trip, students experienced making decisions under pressure and had to deal with changing circumstances. Students completed the Student LPI (Kouzes & Posner, 1998) at the beginning and end of the semester, and their responses were compared to another section of the same course that did not participate in the LOTE experience. The LOTE experience had a positive impact on the "challenge the process" practice, and there was a trend toward a positive impact on "inspire a shared vision." These findings suggest that participating in a challenging outdoor experience may help make students more comfortable challenging assumptions and taking risks as a leader. Again, the two groups being compared were not randomly assigned, so we cannot be certain that they were equivalent. In fact, students in the LOTE experience section scored particularly low on the "challenge the process" and "inspire a shared vision" practices at the beginning of the semester, which may have contributed to the study's findings.

Although classroom-based or experiential instruction in leadership is the norm, some organizations have developed simulation-based leadership training, such as SimuLearn's vLeader program series (2014). VLeader consists of a game-based simulation of business leadership situations. Within the simulation, students are presented with information, make business decisions, and then view the consequences of their decisions. Students can then attempt the same situation again, applying what they've learned. One study suggests that this type of training is more effective than traditional classroom instruction (Stewart, 2006). In this study, university honors students were randomly assigned to one of two types of leadership instruction. One group used vLeader for instruction while the other (the control group) was taught using a traditional method of lecture and case-study review. The training lasted for twelve hours over two consecutive Saturdays. The impact of the training was assessed using a business leadership simulation approximately two months after the training concluded. This simulation was a different format than vLeader (developed by a separate company) and allowed students to interact with

each other in a simulated business context. Students who were taught with vLeader were rated as more effective leaders by their peers in the follow-up assessment. While students in the control group generally acquired more knowledge during the follow-up simulation, students who were taught with vLeader made better decisions. This may be because there was more communication among students taught with vLeader, particularly communication across different levels within the simulated organization, which allowed them to use their knowledge for decision-making more effectively.

Another study examined the impact of a six-month, formal mentorship program on the leader efficacy of fourth-year West Point cadets (Lester, Hannah, Harms, Vogelgesang, & Avolio, 2011). Cadets selected mentors from among the West Point faculty and staff and met with their mentors at least six times during the program. During the sessions, cadets and their mentors discussed the mentor–protégé relationship, prior leadership challenges and situations, cadet personal development goals, and leading in ethically or morally ambiguous situations. Cadets were also asked to conduct two interviews with role models and write a final essay about their experience in the program. The formal mentorship program was compared to a classroom-based program covering the same topics. Following the intervention, cadets who participated in the mentorship program reported higher levels of leader efficacy. As discussed earlier in this paper, leader efficacy represents an individual's confidence in their ability to complete leadership-related tasks. Several of the items on the leaders' efficacy measure aligned to our leadership skills of establishing vision, empowering followers, and maintaining accountability. While this study didn't directly examine the impact of mentoring on the practice of leadership skills, research suggests that leader efficacy is associated with leader performance (Chemers, Watson, & May, 2000). It is also important to note that this sample of students was very different from a traditional higher-education sample. "The West Point experience is a structured and immersive, 24 hours a day, 7 days a week program resulting in the commissioning of Army lieutenants" (Lester et al., 2011, p. 418), and leadership training is emphasized for all cadets. Therefore, this finding may not generalize to civilian higher-education institutions.

Among medical-school students, a brief leadership intervention can help them respond more effectively to a cardiac arrest, a situation where quick, decisive leadership actions are important (Hunziker, et al., 2010). Medical students participated in a group activity responding to a simulated witnessed cardiac arrest. Students participated in the simulation, received twenty minutes of instruction on how to perform the resuscitation, and then were randomly assigned to one of two groups. One group (the control) received additional technical instructions about arm and shoulder placement during resuscitation while the other group received a ten-minute instruction on practical leadership practices during the event (i.e. make a decision, assign roles, provide clear and concise instructions). Four months later, students participated in the simulation again, and students who received the leadership instructions performed better. More specifically, they made more leadership utterances and started cardiopulmonary resuscitation (CPR) sooner, which resulted in them providing longer, more uninterrupted CPR.

In another study, business majors participated in a required leadership seminar during their first year of college (Posner, 2009). During the first semester, students mainly learned about leadership and the impact of leaders, while during the second semester the focus shifted to small group work around developing a set of specific leadership skills and applying them. Students were administered the Student LPI (Kouzes & Posner, 1998) prior to beginning the seminar and then again during their senior year. Senior students from other academic disciplines also completed the Student LPI to function as a quasi control group. The business students' scores increased between their first and last years of college on all five Student LPI practices. In addition, the business

students scored higher than the comparison group of students on four of the five Student LPI practices. It is important to note that, due to the design of this study, other factors besides the leadership seminar may have contributed to these differences.

Wabash National Study of Liberal Arts Education

Several studies have investigated the association of different college experiences with aspects of socially responsible leadership using data collected as part of the Wabash National Study of Liberal Arts Education. This longitudinal study followed students from forty-nine institutions through all four years of college. Students completed assessment measures prior to beginning college, after their first year of college, and during their last year of college. Socially responsible leadership was measured using the self-report Socially Responsible Leadership Scale (SRLS; Tyree, 1998). This design allows researchers to examine what experiences are specifically related to growth in socially responsible leadership by controlling for pre-college levels of these skills. Despite the strengths of this design, it does not allow us to say for certain whether these experiences caused changes in socially responsible leadership, as would be the case in a randomized, experimental design.

First, irrespective of any specific college activities, students tended to experience a small to moderate increase in their capacity for socially responsible leadership across the four years of college, with most of this change occurring during the last three years of college (0.36 Standard Deviation; Blaich & Wise, 2011). Looking just at the first year of college, students who reported more interaction with student-affairs staff experienced growth in all three types of socially responsible leadership (individual, group, and community; Martin, 2013). These interactions could involve discussions about personal concerns, career plans, or class assignments. It may be that these student-affairs staff were functioning as mentors.

Additionally, serving as a resident assistant (RA) at some point during college was associated with an increased awareness of one's attitudes, values, and beliefs, which is an individual aspect of socially responsible leadership (Martin & Blechschmidt, 2014). RAs serve as peer leaders who supervise other students on a college residence hall. While the researchers do not propose a particular mechanism of action, they conclude from these findings that "there is a unique contribution of the RA experience to students' understanding and clarification of their values, attitudes, and beliefs" (Martin & Blechschmidt, 2014, p. 42). Other research suggests that RAs who report having been mentored also demonstrated stronger socially responsible leadership skills, particularly collaboration, establishing a common purpose, maintaining civility during controversy, and valuing citizenship (Early, 2016). These findings suggest that having mentoring relationships could help students develop leadership skills from the RA experience. Additionally, the researchers considered whether the RA experience had a different impact on socially responsible leadership for students at liberal arts colleges compared to students at research or regional schools. RAs at liberal arts colleges demonstrated greater growth in four aspects of socially responsible leadership: self-awareness, acting in a way that is aligned with one's values, establishing a common purpose, and valuing citizenship (Martin & Blechschmidt, 2014). This finding suggests that there is something unique about the RA experience at liberal arts colleges in regard to fostering socially responsible leadership.

Another study examined how several college experiences impacted the development of socially responsible leadership differently for male and female students during their first year of college (Shim, 2013). Findings from this student are depicted in Table 2. Having positive relationships with peers and professors and having quality interactions with a diverse group of peers influenced several socially responsible leadership skills for both male and female students. Taking on leadership roles was associated

with better collaboration and common purpose skills for women and better self-awareness for men. While this study did not examine how leadership roles impacted these aspects of socially responsible leadership skills, it is possible that this leadership experience fostered students' leader identity and leader efficacy. Volunteer activity was related to increased values of citizenship (i.e. contributing to one's community) for both groups, as well as the value of common purpose for women only. Formal leadership training was only associated with citizenship values for female students.

	SELF-CONSCIOUSNESS	CONGRUENCE	COMMITMENT	COLLABORATION	COMMON PURPOSE	CONTROVERSY WITH CIVILITY	CITIZENSHIP
All students	Faculty relationships Peer relationships Diverse peer interactions	Faculty relationships Diverse peer interactions	Faculty relationships	Faculty relationships Peer relationships Diverse peer interactions	Faculty relationships Peer relationships	Faculty relationships Peer relationships Diverse peer interactions	Faculty relationships Peer relationships Diverse peer interactions Volunteer activity Positional leadership
Only female students				Positional leadership	Diverse peer interactions Volunteer activity Positional leadership		Leadership training
Only male students	Positional leadership	Peer relationships					

Table 2   Significant predictors of socially responsible leadership skills from Shim (2013).

While fraternity and sorority membership predicted higher socially responsible leadership scores at the end of the first year of college (Martin, Hevel, & Pascarella, 2012), this effect appears to dissipate by the end of college (Hevel, Martin, & Pascarella, 2014). The researchers hypothesize that this may be due to the heavier emphasis on leadership education and experiences for younger members and that more senior members may opt-out of leadership experiences as they prepare to transition out of college. Additionally, work during the first year of college may support socially responsible leadership skills, but only work that is off-campus and lasts at least ten hours per week (Salisbury, Pascarella, Padgett, & Blaich, 2012).

Another study found that college-based leadership trainings had a positive impact on socially responsible leadership within the Wabash study sample (Baccei, 2015). Students who reported participating in any college-based leadership training during college also reported higher socially responsible leadership scores during their senior year, after controlling for pre-college levels of these skills and a host of other relevant covariates.

Multi-institutional Study of Leadership

The Multi-institutional Study of Leadership (MSL) represents another large-scale effort to examine the association between different college experiences and socially responsible leadership skills. Published results are based on surveys completed by over 50,000 college students across all years of school. The design of this study is not quite as strong as in the Wabash study. In the MSL, controlling for pre-college skill levels is attempted, but these scores are based on recall as opposed to a truly longitudinal design.

In general, research from the MSL converges with that from the Wabash study. Dugan and Komives (2007, 2010) found several college experiences that were associated with perceived growth in socially responsible leadership. Having conversations about sociocultural issues with peers was the most consistent predictor of socially responsible leadership. These conversations involved discussions about multiculturalism, diversity, human rights, and social justice as well as differences in political opinions, personal values, and lifestyles. The researchers suggest that "these conversations may provide a platform for the development of listening skills, clarification of personal values and perspectives, and social perspective-taking" (Dugan & Komives, 2010, p. 539), which fosters socially responsible leadership skills. Having a faculty mentor also emerged as a strong predictor of socially responsible leadership skills, which corresponds to the findings of Lester and colleagues (2011) with a sample of West Point cadets. Students reported that their mentors specifically helped them develop leadership capabilities (i.e. engaging in ethical leadership; empowering others to engage in leadership) and supported their personal development (i.e. living up to one's potential, identifying areas for self-improvement; Campbell, Smith, Dugan, & Komives, 2012).

Involvement in campus clubs and organizations and participation in community service were also associated with several aspects of socially responsible leadership as was holding a positional leadership role. Lastly, participating in formal leadership programs was associated with several socially responsible leadership skills, particularly collaboration skills, establishing a common purpose, maintaining civility during controversy, and valuing citizenship. When looking more specifically at different types of formal leadership programs using a subset of the full MSL sample, the following predicted stronger socially responsible leadership: attending conferences, retreats, and lecture or workshop series; having positional leadership training; taking leadership courses; participating in service immersion or multicultural programs; being part of a peer educator team; and completing a leadership capstone program (Dugan, Bohle, Gebhardt, Hofert, Wilk, & Cooney, 2011). Notably, living-learning programs and outdoor leadership programs were associated with lower socially responsible leadership scores, and completing a leadership major or minor was unrelated. These findings suggest the need to further examine certain types of leadership experiences. For example, leadership majors and minors probably vary considerably in their pedagogical frameworks as well as the extent to which they incorporate hands-on leadership experiences. More research is needed to determine what specific factors of these leadership experiences may be associated with growth in leadership skills.

WORKPLACE LEADERSHIP TRAINING

The majority of empirical research about teaching leadership and leadership training has been conducted in organizational contexts with adult workers. While these instructional techniques may not completely generalize to K-12 or higher-education contexts, we believe it is helpful to summarize the findings of this research.

One meta-analysis, a statistical review of the research literature, examined 200 studies of leadership intervention programs (Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009). The researchers confined their examination to experimental and quasi-experimental studies,

which provide the strongest causal evidence. Overall, the review found that interventions had a moderately strong positive effect (effect size = 0.67). Interventions had a slightly stronger impact on behavioral outcomes (observable actions, including individual and group performance) and cognitive outcomes (how individuals process information and make decisions) compared to affective (how individuals feel about a leader or their work). Interventions most strongly affected the performance of the participant's organization (i.e. profit or productivity increases), although this finding is based on only two studies and thus should be interpreted with caution. Researchers also divided intervention into two types:

1. leadership training or development that focused on enhancing an individual's knowledge, skills, ability, motivation, and self-concept;

2. nondevelopmental interventions where a leader's behavior was manipulated through strategies including role plays, scripts, and assignments.

While the nondevelopmental interventions had a slightly stronger effect, results suggest that both types of interventions have the potential to positively impact leadership outcomes.

Lacerenza, Reyes, Marlow, Joseph, and Salas (2017) conducted a review of 335 leadership training evaluation studies and found that these programs had a strong, positive impact (effect size = 0.76). Outcomes specifically included:

■ trainees' perception of the training program as related to its utility and general likability;

■ trainees' acquisition of the knowledge, skills, and abilities represented during training;

■ on-the-job behavior, as assessed by trainees, supervisors, peers, or subordinates;

■ positive changes in the trainees' organization and the experience of the trainees' subordinates.

This study also examined what aspects of leadership training programs impacted effectiveness. Practice-based programs were generally more effective than information- or demonstration-based programs, and programs incorporating multiple methods were more effective than programs using either a single delivery method or two delivery methods. Feedback appeared to enhance the effectiveness of programs, particularly on how well participants put into practice the skills and abilities learned through the interventions.

SUMMARY OF TEACHING LEADERSHIP SKILLS

While the research on leadership interventions for children, adolescents, and young adults is still growing, several conclusions can be drawn from the existing literature. In addition to teaching about leadership skills, instructors should pay attention to the development of students' leader identity as well as students' beliefs about their capacity to be a leader. More research is needed to determine what specific instructional strategies are most effective in helping students develop a leader identity and leader efficacy. In order to be effective leaders, students will also need competencies in several associated skills such as communication, interpersonal skills, and self-management.

The combination of learning about leadership and practically applying leadership skills was a common feature of the effective leadership programs reviewed here, which corresponds to workplace leadership research. Additionally, there was an emphasis on how students could lead and engage with their communities. Student involvement in planning and decision-making was also a key component in a study

of extracurricular youth leadership program. Providing students with some level of responsibility and authority may be particularly important for helping them build a leader identity. Lastly, there is some evidence that teaching leadership using simulations is more effective than classroom-based instructional methods.

Longitudinal and cross-sectional studies also suggest several experiences that are associated with growth in leadership skills. Holding leadership positions appears to be associated with the development of leadership skills, and it is important that these positions are developmentally appropriate, particularly for younger children. Students also benefit from having a faculty mentor, engaging in conversations with a diverse group of peers, and participating in extracurricular activities such as clubs, organizations, and community service. Some formal leadership programs were associated with the development of leadership skills in college. These programs include attending conferences, retreats, and lecture or workshop series; having positional leadership training; taking leadership courses; participating in service immersion or multicultural programs; being part of a peer educator team; and completing a leadership capstone program.

Image by Debdatta Chakraborty

Assessing Leadership Skills

EVIDENCE-CENTERED DESIGN

Evidence-centered design (ECD) provides a useful framework for understanding and developing assessment, particularly those designed to assess complex skills like leadership (Mislevy, Steinberg, & Almond, 2003).

The ECD framework consists of three models:

1. Student model: define the claims to be made about learners' competencies.

2. Evidence model: establish what constitutes valid evidence of the claim.

3. Task model: determine the nature and form of tasks that will elicit that evidence.

Within an ECD framework, an assessment designer must clearly identify the link between the assessment task or activity, the behaviors elicited by the task, and the target skills about which claims will be made. This thoughtful approach to assessment design supports the validity of the assessment and is a useful tool when expanding assessment to more innovative tasks (i.e. games and simulations). In the following sections, we frame our discussion about measures of leadership using ECD concepts and terminology to demonstrate how the ECD framework can be applied to the development of future leadership measures. The student model is typically comprised of the skills and subskills within a particular theoretical framework. We present several task models that have been used in the assessment of leadership skills and also specify the associated evidence models detailing how information gathered from the tasks generates information about leadership skills. Since our leadership framework is based on the synthesis of several existing theories, not all of the measures reviewed here completely align with our model. Where possible, we note how these existing measure overlap with the skills specified in our leadership model.

SELF-REPORT AND INFORMANT-REPORT QUESTIONNAIRES

Self- and informant-report questionnaires represent the most common leadership skills assessments. These questionnaires allow an individual to report on their own or another person's behavior or qualities. Items are presented, and the respondent is asked to report how much they agree with each statement or how true each statement typically is for them, often on a Likert scale. Applying an ECD framework to these types of measures, the task model is left open-ended for self- and informant-report questionnaires. The person completing the questionnaire is asked to think about the person of interest's behavior, skills, and attitudes generally, possibly across several different situations. The statements and rating scale make up the evidence model, with specific statements mapping onto leadership skills or subskills. Table 3 provides a list of several leadership questionnaires aligned to the leadership skills within our framework.

SKILL	REPRESENTATIVE MEASURES
Challenges assumptions	Multifactor Leadership Questionnaire (MLQ) – Intellectual Stimulation (Avolio, Bass, & Jung, 1995); Student Leadership Practices Inventory (LPI) – Challenge the Process (Kouzes & Posner, 1998; Posner, 2004)
Establishes vision	Emotionally Intelligent Leadership for Students: Inventory 2.0 (EILS: I 2.0) – Inspiring Others (Miguel & Allen, 2016); MLQ – Inspirational Motivation (Avolio, Bass, & Jung, 1995); Organizational Leadership Assessment (OLA) – Provides Leadership (Laub, 1999); Socially Responsible Leadership Scale (SRLS) – Common Purpose (Tyree, 1998); Student LPI – Inspire a Shared Vision (Kouzes & Posner, 1998; Posner, 2004)

SKILL	REPRESENTATIVE MEASURES
Fosters collaboration	EILS: I 2.0 – Developing Relationships, Building Teams (Miguel & Allen, 2016); OLA – Builds Community (Laub, 1999); SRLS – Collaboration (Tyree, 1998)
Respects followers	OLA – Develops People (Laub, 1999); Student LPI – Encourage the Heart (Kouzes & Posner, 1998; Posner, 2004)
Empowers followers	OLA – Shares Leadership (Laub, 1999); Student LPI – Enables Others to Act (Kouzes & Posner, 1998; Posner, 2004)
Maintains accountability	MLQ – Contingent Reward (Avolio, Bass, & Jung, 1995); OLA – Displays Authenticity (Laub, 1999)
Stays open-minded	EILS: I 2.0 – Flexibility (Miguel & Allen, 2016); OLA – Values People (Laub, 1999); SRLS – Controversy with Civility (Tyree, 1998)
Supports followers	EILS: I 2.0 – Coaching Others (Miguel & Allen, 2016); MLQ – Individualized Consideration (Avolio, Bass, & Jung, 1995); OLA – Develops People (Laub, 1999); SRLS – Commitment (Tyree, 1998)

Table 3   Pearson Leadership Framework with Representative Self-Report

Evidence Model

Within the business world, self- and informant-report questionnaires are often used within the context of 360-degree feedback. This performance rating system involves gathering an individual's perception of their own leadership skills, as well as perspectives from that individual's subordinates, peers, and superiors. The goal of this type of assessment is to provide a comprehensive perspective on someone's leadership skills and use areas of discrepancy to drive improvement. Of the leadership assessments targeted at young adults, the Student LPI (Kouzes & Posner, 1998; Posner, 2004) can provide 360-degree feedback. Evidence for the validity of self- and informant-report questionnaires of leadership skills is varied. For more established measures like the Multifactor Leadership Questionnaire (Avolio, Bass, & Jung, 1995), there is a large body of evidence suggesting that these measures are reliable and predict a range of relevant outcomes including leader effectiveness, leader job performance, and follower perceptions of the leader (i.e. Antonakis, Avolio, & Sivasubramaniam, 2003; Judge & Piccolo, 2004). While both the Student LPI and the SRLS have been administered to large student samples and demonstrate some evidence of validity, this would be strengthened by evaluating how well these measures predict outcomes associated with leadership skills (Dugan, 2015; Posner, 2010).

ACTIVITY-BASED TASKS

While self- and informant-report questionnaires have considerable utility in leadership skills assessment, there are concerns that this type of assessment is susceptible to the social desirability bias (Gonyea, 2005; Bowman & Seifert, 2011). When favorable responses are fairly evident to the individual taking the assessment, they may offer inaccurate responses to appear better than they actually are. Individuals also may lack insight into their own leadership skills or how they would actually behave in leadership situations. Direct observation of behavior during a leadership task can address these concerns. These tasks can involve role-playing (i.e. taking on roles in a hypothetical leadership scenario) or natural leadership scenarios (i.e. observing a student's behavior

in group meetings throughout the semester). Rubrics represent an evidence model often applied to observational tasks, which we detail in the following section.

Evidence Model: Rubrics

The state of Massachusetts has developed a Performance Assessment of Leaders (PAL) consisting of four field-based performance tasks which are scored using a rubric (Massachusetts Department of Elementary and Secondary Education, 2017). This leadership assessment is used to assess candidates' readiness for school leader positions and to inform licensing decisions. We will review one of the tasks here (leadership through a vision for high student achievement) which aligns in part to our leadership skill of establishing vision. As part of this task, the candidate develops an improvement plan and vision around one school-based priority area. The candidates' performance is evaluated based on three work products:

1. a memo describing the content area and rationale for selection;

2. an outline of goals, objectives, action strategies, and a theory of action for how to make improvements in the priority area;

3. a report detailing how the candidate sought and incorporated feedback on the improvement plan from other stakeholders.

These work products provide evidence regarding indicators of leadership skills, which are nested within several domains. The domains and indicators for this task are presented in Table 4. Raters evaluate the work product and provide scores for each indicator using the following rubric:

- **Level 1** represents a performance that is beginning and may not demonstrate competency.

- **Level 2** represents a performance that is developing but does not yet meet the level of performance required for a beginning school leader.

- **Level 3** represents a performance that does meet expectations for a beginning school leader.

- **Level 4** represents a performance that would be exceptional for a beginning school leader.

DOMAIN	INDICATOR
Plan to create a vision	Data collection
	Data analysis and priority definition
Design an integrated plan to develop and implement improvement in the priority area	Vision and plan focus
	Plan details
Assess and analyze feedback from candidates	Plan feedback
	Planning analysis

Table 4   Sample Domains and Indicators from the Massachusetts PAL

Rubrics have been developed that correspond to the eight critical values of socially responsible leadership (Komives & Wagner, 2017). For example, the rubric for the common purpose value lists four sub-components, including shared vision (which aligns to our leadership skill of establishes vision). For each of the subcomponents, behavioral descriptions are provided that align to four different proficiency levels. Listed below are examples of the behaviors associated with each proficiency level of shared vision (listed in ascending order; Komives & Wagner, 2017, p. 183):

- **Needing Improvement:** "Does not understand the importance of establishing a shared vision in a group."

- **Developing:** "Occasionally interacts with group members to listen to others' visions for the group and share his or her own vision."

- **Achieving:** "Genuinely engages in processes that pursue shared vision in a group."

- **Excelling:** "Actively pursues a shared vision in a group setting by enacting leadership in group processes that establish the shared vision."

Notably, the descriptors in these rubrics are broad enough that this type of evaluation could be used in a variety of tasks including school-based group projects, club and organization activities, or workplace meetings. As a tool for self-assessment, these rubrics also offer an easy way for students to identify next steps for the development of their leadership skills. For example, if a student rates themselves as falling in the developing range for a particular skill, they can look to the descriptors in the next level (e.g., Achieving) to identify specific behaviors they can engage in to develop and demonstrate stronger levels of the skill.

Another example of leadership rubrics have been designed around the student leadership competencies (Seemiller, 2016), a set of sixty competencies derived from young adult leadership theories and leadership learning outcomes of higher-education institutions. For example, the mentoring rubric (which aligns to our skill of supports followers) contains several evaluation criteria descriptions such as "Seeks out individuals with less experience to offer guidance" and "Shares resources that would be helpful for a protégé" (Seemiller, 2016, p. 60). For each of these criteria, the evaluator can specify the student's proficiency level based on how well the student demonstrates that criteria (ranging from minimally to exceptionally well). Rubrics can also be much narrower in scope by constraining the task models to a specific activity. For example, Dr. Thomas Hajduk uses rubrics to measure student proficiency in leading in-person meetings, leading videoconference meeting, and leading discussions in communication courses in the Tepper School of Business and Carnegie Mellon University (see Hajduk n.d.[a], n.d. [b] and n.d.[c] for examples).

SCENARIO-BASED TESTS

Scenario-based tests of leadership (sometimes called situational judgment tests or SJTs) describe a hypothetical, realistic scenario and ask respondents how they would approach or respond to the situation. This scenario and associated questions represent the task model of this type of assessment. Scoring of responses to scenario-based tests typically utilizes expert ratings. Leadership experts identify the best response(s) or ways of thinking about a situation, and a respondent's answers are compared with those of the experts. In this section, we describe several scenario-based assessments of leadership along with how these assessments are scored (i.e. the evidence models).

Evidence Model: The Situational Judgment Test of the Full Range of Leadership Model

One leadership skills SJT aligns to the full range leadership theory (the situational judgment test of the full range of leadership model, SJT-FRLM; Peus, Braun, & Frey, 2013). Notably this test was framed as a way for employees to describe the leadership skills of their managers and supervisors. Each item presents the employee with a hypothetical situation their manager might experience (i.e. an employee regularly shows up late and is making little progress on their projects). The employee then reviews eight possible responses the manager could have to the situation. For each response, the employee rates the probability that their manager would engage in that behavior, on a 5-point scale from "Very Unlikely" to "Very Likely." Each of the eight possible responses is aligned to a component of the full range leadership theory (i.e. individualized consideration, contingent reward, etc.). The likelihood ratings are then weighted based on the strength of the relationship between the skill aligned to that response and leader effectiveness. For example, if an item response was related to leader effectiveness with a positive correlation above 0.50, that response was given a weight of +3. The SJT-FRLM appears to be a valid measure of these facets of leadership. Scores on this measure were associated with scores on the MLQ, a corresponding self-report measure. The SJT-FRLM was also a better predictor of leadership outcomes (followers' trust and loyalty toward the leader) than the MLQ, suggesting the importance of incorporating more situation-based measures in the assessment of leadership skills.

Evidence Model: Educational Testing Services Measure

Researchers at the Educational Testing Service (ETS) developed an assessment of teamwork and collaboration for high-school students (Wang, MacCann, Zhuang, Liu, & Roberts, 2009; Zhuang, MacCann, Wang, Liu, & Roberts, 2008). While the measure generally focused on teamwork skills, one of the situation-based items focused on leadership and can serve as a guide for developing this type of leadership measure for high-school students. The leadership item presents a scenario ("You are the president of a school club and are assigning jobs to the club members") and four courses of action (i.e. "Ask each club member which job they would like to take on, and then resolve any conflicts based on who asked first"). Students then rate how effective each course of action is. For each scenario, item developers identified which course of action was most effective, and the student's effectiveness rating for that specific course of action constituted the student's score for that particular scenario.

Evidence Model: Leader Problem-Solving Measures

Two scenario-based assessments of leader problem-solving have been developed within the context of military leadership. The first, the Military Leadership Exercises (MLE©), is a measurement system assessing the skills of planning, problem construction, solution construction, social judgment, and metacognition (knowledge and monitoring of one's thinking; Marshall-Mies et al., 2000). The MLE presents individuals with a military scenario, including relevant background information, goals for the situation, and constraints on possible solutions to the situation. The system then provides question prompts along with possible response options. These response options are aligned to the targeted skills, with different responses representing different levels of quality as determined by subject matter experts. Scores are also assigned based on whether different responses were completed in the optimal order and whether the responses addressed all critical aspects of the problem situation. Researchers found that metacognitive and solution construction skills as measured with the MLE© predicted performance of high-level officers at the National Defense University, Industrial College of the Armed Forces.

A similar situation-based measure of leadership problem-solving skills also presented individuals with scenarios and related questions, but instead of

choosing from pre-specified response options, responses were open-ended (Zaccaro, Mumford, Connelly, Marks, & Gilbert, 2000). For example, as a measure of problem construction, individuals were presented with a hypothetical World War I military scenario and asked the following questions:

- What do you see as the problem facing your army?

- What do you think should be your goal?

As a measure of social judgment, individuals were presented with a scenario where a department head at a pharmaceutical company did not include information relevant to potential side effects in a report. The respondent then provided written responses to the following questions:

- Why did this situation occur?

- What was the central mistake made by the manager in this scenario?

- What would you do if you were the manager in this situation?

Responses were evaluated on a 1 to 5 scale by expert raters. When administered to army officers of different seniority levels, performance on this measure of leadership problem-solving skill predicted leadership expertise as well as career leadership achievement.

SIMULATIONS AND GAMES

Simulations and games also provide an authentic context for leadership assessment and can be more dynamic than SJTs. While SJTs are typically restricted to a single scenario, in a simulation participants can progress through a series of scenarios, with past decisions impacting what new information is provided as the participants progress. This complexity is particularly useful when assessing something as nuanced as leadership skills.

Simulations can take multiple forms. Some simulations occur in the physical world, where other individuals act as confederates, following a predetermined script designed to evoke specific responses from the participant. These types of simulations are common in medical school and residency training (i.e. conducting a cardiac resuscitation with nurses and emergency-room techs). Advances in computer technology have also supported the development of online, game-based simulations where participants navigate through a virtual world. Assessment of leadership skills in these simulations are based on in-game behaviors.

Task and Evidence Model: Emergency-Room Simulation

Rosen and colleagues (2008) describe how a real-world simulation can be used as an assessment of team leadership for medical residents. In developing this assessment, first the team leadership competency is aligned to specific learning objectives as well as the knowledge, skills, and attitudes (KSAs) that demonstrate mastery of the learning objectives. Critical events (or components of the scenario) are then constructed which will elicit the associated KSA, and targeted responses for these events are specified. The targeted responses form the basis of a checklist that can be used for assessment and evaluation (i.e. the evidence model). A sample of this alignment (adapted from Rosen et al., 2008) is included in Table 5.

KSAs	CRITICAL EVENTS	TARGETED RESPONSES
Identifies and declares themselves as the team leader during the resuscitation	55-year-old male is visiting another Emergency Department patient and suddenly collapses. The resident is called into the room, but the Registered Nurse begins yelling out orders.	The resident: - identifies themselves as the team leader; - establishes unresponsiveness; - opens the airway (jaw thrust and chin lift); - inspects for chest rise and fall; - listens for air movement from the mouth; - feels for a pulse; - calls for or activates a "CODE" to recruit more team members to help.
Observes and helps direct activities of other team members	The patient remains apneic and pulseless. The confederates just stand at the patient's bedside awaiting direction or orders.	The resident: - asks for the RN to put the patient on a cardiac monitor and for an IV to be secured; - asks for the ED tech to begin chest compressions.

Table 5   Alignment between Knowledge, Skills, and Attitudes (KSAs), Critical Events, and Targeted Responses in Team Leadership Assessment (adapted from Rosen et al., 2008).

Task and Evidence Model: FLIGBY

Simulations can also be administered virtually and take the form of a game. FLIGBY ("FLow Is Good Business for You"; www.fligby.com) is an immersive business simulation game that provides assessment of leadership skills. Within the game, the participant takes on the role of a general manager at a winery, interacting with a management group of eight virtual agents. The assessment is based on the decisions the participant makes in response to challenges that develop throughout the game. Scores on twenty-nine leadership competencies are generated based on in-game behavior. Several of these competencies correspond to skills within our leadership framework including empowerment, entrepreneurship (risk-taking), active listening, and future orientation. Notably, the digital nature of this game allows these scores to be computed automatically and to be continually updated as the player progresses through the game. The "Flow" component of the game is based on the research of Dr. Mihaly Csikszentmihalyi, one of the game's co-designers. Flow refers to being fully engaged in an activity such that worries and other concerns slip away (Csikszentmihalyi, 1997; Marer, Buzady, & Vecsey, 2015). One of the central tenets of FLIGBY is that encouraging flow in employees is a hallmark of a good leader. This concept helped the designers determine the choice of competencies to evaluate within the game.

Task and Evidence Model: Evaluation of Job Candidates

Many businesses have also adopted online simulations in the evaluation of candidates for senior-level positions as well as for professional development. McNelly, Ruggeberg, and Hall (2011) detail the development of web-based simulations to assist a major restaurant group in hiring for executive-level positions. The simulation mimics a "day in the life" of a business executive, where the potential hire has to manage incoming information (via email, voicemail, text message), make decisions, and effectively communicate with employees and clients. The latter is accomplished using live telephone role plays, so the entire experience is not digital. The system collects some data such as when the applicant receives and sends information or utilizes an organizational tool which is automatically scored to provide evidence of skills such as personal productivity and prioritizing. The evaluation of more interpersonal aspects of leadership relies on trained observers who review performance in the simulation and provide ratings. Individuals scoring higher on this assessment were more likely to be hired and/or promoted within the organization. While this finding provides some

evidence for the validity of this assessment, it may also simply mean that hiring managers within the organization use this assessment measure in their hiring/promotion decisions.

SUMMARY OF ASSESSMENT OF LEADERSHIP

The most established and well-studied measures of leadership are either self- or informant-report. Given the complexity of leadership skills, there is also interest in developing assessments around more authentic leadership tasks. Rubrics can be applied to evaluate the skills displayed during role-played or naturally occurring leadership activities (i.e. leading a group project). Additionally, SJTs elicit how individuals believe they would respond to hypothetical leadership scenarios. Games and simulations also target responses to simulated leadership tasks. Online simulations in particular can support continuous tracking and scoring of behavior, which allows for immediate and continuous feedback. As such, simulations can also support leadership training. Of note, many of these measures are designed for adults in business settings. While college and advanced secondary-school students may still utilize these measures, they are probably not appropriate for young students (i.e. those in primary school). More work is needed to develop authentic leadership assessments for younger students.

Image by Juan Jose Pantino Vallejo

Avenues for Future Exploration

E-leadership represents an important topic within organizational research that is not well represented in the literature on youth leadership development. E-leadership refers to the practice of leadership across electronic or virtual channels (Zaccaro & Badar, 2003). With the advent of increasingly sophisticated technology, remote work and global companies have become more common. As a result, organizational leaders are more frequently asked to lead individuals and teams that are not in the same physical location. Future leaders will need to alter some strategies and develop more nuanced skills in order to meet the challenges of this new leadership context (see DasGupta, 2011, for review). For example, e-leaders need to convey vision, motivation, and caring through videochat, phone calls, or writing rather than in-person meetings, which requires a different set of communication skills. Also, a more formal system for mentoring followers may need to be developed, since casual encounters in the office do not occur within virtual teams. This emphasis on e-leadership is particularly important for current students, as they will likely be entering a workplace where virtual teams are even more commonplace. Instructors and administrators should consider this leadership context as they develop programs for teaching leadership skills, and more research is needed regarding the most effective ways to help students develop the skills to lead in a virtual context.

Relatedly, current students will be entering an increasingly global economy and society, which presents new challenges for future leaders. A 2003 report by the Rand Corporation predicted a shortage of global leaders within the United States, highlighting the need for colleges and universities to emphasize this aspect of leadership (Bikson, Treverton, Moini, & Lindstrom, 2003). Global leaders are those who "effect significant positive change in global organizations by building communities through the development of trust and the arrangement of organizational structures and processes in a context involving multiple stakeholders, multiple sources of external authority, and multiple cultures under conditions of temporal, geographical and cultural complexity" (Mendenhall, 2008, p. 17). In addition to the leadership skills detailed in our model, global leaders also need to be culturally competent. They need to understand differences in cultural values and have the flexibility to modulate their behavior in response to these differences (Osland, 2009). While the research on global leadership development for young adults is still in its infancy, there is an interest in study-abroad experiences and international internships as ways to develop global leadership competencies. Simulations are another teaching tool that might be particularly useful for students who do not have the means or ability to travel internationally (Oddou & Mendenhall, 2008).

Conclusions and Recommendations

The research on leadership reviewed here leads to several conclusions and related recommendations for practice, which are summarized in Table 6.

CONCLUSIONS	RECOMMENDATION
Leadership skills are important for admission to higher-education institutions and in hiring decisions.	Educators should encourage leadership development through their teaching.
Leadership involves the skills of challenges assumptions, establishes vision, fosters collaboration, respects followers, empowers followers, maintains accountability, stays open-minded, and supports followers.	Educators should address each of these specific leadership skills in their instruction.
The development of leadership skills requires several prerequisite and corequisite skills including creativity, communication skills, interpersonal skills, and self-management.	Educators who want to cultivate leadership, especially for younger children, should also consider student development of prerequisite and corequisite skills.
Leaders are key in supporting creative and effective problem-solving within groups or organizations. This requires the application of leadership skills, critical thinking skills, and advanced domain knowledge.	Educators should also support the development of problem-solving skills and help student leaders support group problem-solving.
Leader identity and leader efficacy are important components of the development of leadership skills.	It is generally not enough to simply teach students about leadership skills. They also need to develop an identity as a leader (leader identity) and believe in their capacity to lead effectively (leader efficacy).
Effective leadership programs typically have a combination of instruction and application.	When designing leadership training, educators should consider how to combine both instruction and application into their intervention. Leadership application should also be appropriate for the students' developmental level.
Simulation-based leadership training can be just as effective as classroom-based instruction that combines lectures and case-study review.	When it is not possible to involve students in real-life leadership experiences, simulations may be an effective alternative.
A variety of college experiences are associated with increases in leadership skills during college: engaging in conversations with a diverse group of peers; having a faculty mentor; participating in clubs, organizations, and community service; holding formal leadership positions; serving as a resident advisor; and some instances of working off-campus.	Educators should encourage participation in experiences that are associated with increases in leadership skills. It is also important for students to have mentors who can help them make sense and learn from these experiences.
There are many self- and informant-report questionnaires that assess skills in leadership. These questionnaires allow students to rate their own leadership skills and allow teachers to rate students' leadership skills.	Educators may consider self- and informant-report questionnaires to measure students' leadership skills.

CONCLUSIONS	RECOMMENDATION
Evidence-centered design (ECD) provides a useful framework for developing new assessments, particularly those that focus on leadership behaviors.	Consider utilizing ECD to develop new assessments of leadership skills.
Rubrics can be applied to evaluate the skills displayed during role-played or naturally occurring leadership activities (i.e. leading a group project).	Educators may consider rubrics to measure students' leadership skills, particularly if their courses involve role-played or naturally occurring leadership activities.
Recent advances in technology have allowed the assessment of leadership skills through real-time performance data from simulations and games.	Specific behaviors captured in these simulations and games can provide direct evidence of different leadership skills. The consistent tracking of behavior in a simulation also allows for continuous feedback.

Table 6

Image by Lu Yi

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