Leadership Development in the Flow of Work

Leveraging Technology to Accelerate Learning

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Executive Summary

A recent industry trend survey of CEOs found that only 11% of organizations report having a strong enough bench to fill leadership roles (Rhyne, 2021). As such, effective leadership development is an imperative for any high-performing organization. Rather than focusing time, money, and energy on only a small subset of "high-potential" employees, organizations can realize the full potential of their entire workforce by providing tech-enabled leadership development to leaders at all levels. This paper shares the following insights for Chief Learning Officers interested in leveraging evidence-based practices to accelerate leader development at scale and unlock the collective potential of their workforce:

- A brief overview of why we need new ways to develop leaders and a high-level description of the new digital assessment and development tools that meet individuals where they are – offering a highly personalized approach to development in-the-flow of work.

- A review of eight research-based learning practices that provide a foundation for leveraging technology to make in-the-flow leadership development better, faster, and more accessible to leaders at all levels. For every learning practice, we provide implementation tips and discuss illustrative example tools.

- We conclude with a discussion around the strategic use of the eight learning practices for enabling better organization-wide development outcomes.

Introduction

Why We Need New Ways to Develop Leaders

Effective leadership development is an imperative for any high-performing organization (Young, et al., 2021). However, there are signs that traditional delivery methods need to evolve to keep up with the pace and complexity of today's highly interconnected world.

Four factors are driving the need for change (Moldoveanu & Narayandas, 2019):

1. The costs involved in traditional, face-to-face development typically limit the number of participants. As a result, not enough leaders have opportunities to build the skills and strategic focus organizations need.

2. Many leaders find it difficult to apply classroom learnings to their daily workflow.

3. Leadership development solutions often fail to address the "soft" skills needed to lead successfully, such as collaborating across boundaries, influencing through persuasion, or negotiating beneficial outcomes.

4. As a result of these limitations, organizations often fail to benefit from their investment in leadership development as much as individual learners do.

Forward-focused organizations now use scalable technology solutions to address the limitations of traditional leadership development. They leverage a range of evidence-based, digital assessment and development tools that incorporate learning into each leader's day-to-day workflow. These new tools meet individuals where they are – offering a highly personalized approach to development. As a result, both leaders and the organizations they support become more effective and catalyze their impact over time.

What does this mean for face-to-face leader development? It still has an important role to play. However, by implementing technology that supports more on-the-job development, organizations can retool in-person learning to focus on more complex and nuanced leadership skills that require deeper work.

The Power of New Technology

Advancements in artificial intelligence (AI) have already made their mark on leader assessment and development. These new tools (e.g., pulse surveys, virtual coaching tools, wearables) offer greater precision, objectivity, scalability, and personalization. Many of these tools now use machine learning algorithms to recognize patterns in speech, video, and text. Meaningful patterns in the data are then shared with leaders, allowing them to do more of the difficult, human-centered leader development (Diaz & Young, 2021).
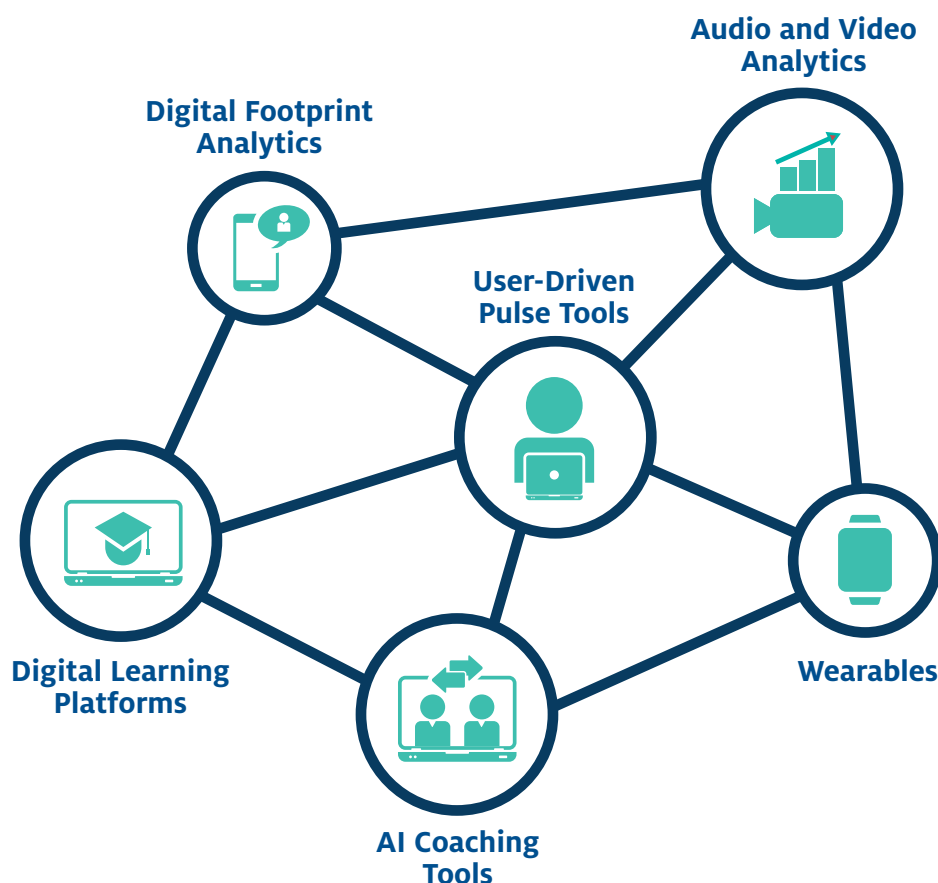
However, the true power of these new technologies lies in the way they use leadership assessment data to drive "in the flow" development. The learning process begins as individual leaders receive timely, personal feedback associated with their day-to-day work performance. It's like putting a mirror in front of them and showing what is and is not working.

On-demand, personalized development tools then offer the challenge and support needed to learn from on-the-job experiences and lead differently on a more consistent basis. As a result, organizations can develop better leaders at all levels and do it faster.

In this paper you will find evidence-based guidance on how to use technology for better, faster, and more accessible leadership development. Though we mention and hyperlink a variety of example technologies throughout our discussion, we do not endorse these offerings, including those offered by the Center for Creative Leadership (CCL). They are solely provided as illustrative examples of the type of technology that accelerates leadership development in the flow of work. For additional examples, we encourage you to explore Red Thread Research's learning tech landscape tool for others.

Scalable Development that Goes with the Flow

For decades, organizations have relied on formal classroom learning and executive coaching for leadership development. These traditional approaches deliver a significant ROI when grounded in evidence-based practices (Lacerenza et al., 2017). However, they do have limitations. Because they require a significant investment of time and resources, face-to-face development opportunities are often reserved for more senior leaders or those labeled high potential – creating a potential talent vacuum at lower levels.

To compete and win in today's hypercompetitive economy, organizations require continuous and scalable on-the-job development across *all* leadership levels.

So how should Chief Learning Officers respond? It is critical to support and enhance informal learning within the context of a leader's daily workflow – making challenging on-the-job experiences and stretch assignments the center of leadership development (McCauley & McCall, 2014).

Although the idea of learning from experience is not new (Kolb, 1984), today's digital assessment and development tools give organizations the technology needed to maximize daily learning. They offer highly personalized development for each leader, with clear learning goals, real-time feedback, access to new knowledge, and ongoing support.

One example:

With user-driven feedback tools, leaders can request "in-the-moment" responses from colleagues following specific performance events, such as meetings or formal presentations (Young & McCauley, 2019). By learning about themselves in the flow of work, they learn to lead more effectively.

Taking Action: Eight Strategies to Maximize the Impact of Technology

Technology-driven assessment and development tools are gaining traction. In a recent benchmarking study of nearly 100 senior talent management professionals, more than 50% reported using user-driven feedback technologies. Others report looking for sophisticated AI coaching tools to help them scale leadership development across all levels (Diaz & Young, 2021).

Regardless of where your organization is on the adoption spectrum, it is important to apply the right technologies in the right way. Based on decades of research studies and reviews of the field (e.g., McCauley & Grabow, in press), we present eight research-based development practices to inform technology selection and discuss implementation strategies.

1 Bring Focus to Challenging Assignments

CCL's *Lessons of Experience* research shows challenging job assignments are the greatest source of developmental experiences (McCauley & McCall, 2014). Employees are 2.6x more engaged when they learn on the job (Corporate Executive Board, 2009). The more time they spend on challenging tasks, the higher their promotability ratings from bosses (De Pater et al., 2009).

To maximize the potential of challenging assignments, it is important to be intentional. Leaders need the right stretch assignments and the right support to make learning happen.

Tools of the Trade

New tech-based talent management systems integrate skills assessment data, challenging assignments, and learning intervention – allowing you to embed leadership development into the heart of workforce planning.

The *Degreed* digital learning platform offers a career mobility service where managers post opportunities and required skills. AI algorithms then match the opportunity to employee profiles and the skills an individual needs to develop.

Gloat's AI ingests and analyzes existing data sources like employment records, resumes, and LinkedIn profiles to create a more holistic employee profile. Gloat also uncovers employees' goals and ambitions so employers can connect the right people, projects, and roles to drive impact.

Implementation Tips

- **Personalize.** Use natural language processing algorithms to assess each leader's needs and personalize their learning and development journey. Use this same information in aggregate to inform enterprise-wide development strategies.

- **Set up marketplaces.** Store stretch assignment opportunities online and tag them with required skills – making it easy for leaders to find and pursue challenging new projects that match their development goals

- **Track lessons learned.** Track the challenges leaders face on the job to collect real-time information on lessons learned. The data can help you understand the experiences needed to accelerate leadership development outcomes across your organization.

2 Promote Learning Agility

Research shows leaders with high learning agility outperform their peers, climb career ladders more quickly, adapt more effectively, and derail less often (Hallenbeck, 2016). Agile leaders also seek out new and challenging situations and embrace being out of their comfort zone (McCauley & Yost, 2021). They can also extract essential lessons from each experience and apply them in other contexts. What's more, companies with learning-agile leaders have 25% higher profit margins than their peer group (Swisher & Dai, 2014).

Fortunately, learning agility can be developed, and digital assessment and development tools can accelerate the learning curve.

Tools of the Trade

Digital learning platforms immerse leaders in simulations that flex their learning agility muscles. For example, PwC has used the Talespin CoPilot platform to simulate diversity and inclusion scenarios. Learners practice realistic workplace conversations with virtual humans and are measured on the inclusiveness of their communication and behaviors.

On the assessment side, digital tools can help individual leaders and talent management executives identify baseline levels of learning agility. CCL offers a Benchmarks for Learning Agility™ 360-degree assessment that evaluates a leader's ability to learn and to lead. The information can be used to personalize developmental experiences and increase learning agility.

Implementation Tips

- **Tend to culture.** To get the most out of your technology tools, create a context where learning agility can thrive. Psychological safety is vital. Leaders need to feel they can take risks with digital tools and platforms without jeopardizing their careers (Edmondson, 1999).

- **Encourage exploration.** Learning-agile leaders are curious and constantly seek new knowledge. To encourage this agency, choose learning experience platforms that give learners control over the algorithm that powers the content.

- **Provide practice opportunities.** Make simulations on digital learning platforms easy to access so leaders can "fail fast" and receive real-time feedback. Use VR-based hackathons to allow individuals to intensely collaborate across digital platforms to solve novel problems and develop collective agility.

3 Clarify Learning Goals

Studies show that setting specific, challenging goals leads to better performance (Locke & Latham, 2002). In fact, leaders who set improvement goals are likely to be viewed as more effective in those areas several months later (Johnson et al., 2012).

Despite the importance of goals, we find that leaders often struggle to set them, even when provided "how-to" training and coaching.

Tools of the Trade

Digital goal-setting applications deconstruct goal setting into bite-sized steps to make the process easier and the resulting goals more effective. Once leaders enter the core components of their goal statements into open-ended text boxes, the application converts the information into a clear and specific goal designed to motivate change.

For example, CCL's *SnapPulse Goal Wizard* allows leaders to select preloaded behaviors or skills from a curated library or can opt to write-in their own focus areas. The *Goal Wizard* then helps them articulate the context where they need to behave differently, as well as the team and organizational outcomes they want to support. The result is a clear and measurable goal statement that allows leaders to receive specific, actionable feedback from others.

Implementation Tips

- **Integrate tools** in the development context. It is not enough to add a goal-setting tool to your learning management system. Although feedback on goal progress should stay confidential to the leader, require leaders to set at least one goal and set up automated pulse checks to ensure they receive regular feedback on that goal over time.

- **Encourage goals that matter.** Ask leaders to share their goals with their boss, as well as a mentor, coach, HR business partner, or other trusted person. Promote discussions about how those goals will contribute not only to their own success, but also to the broader organization (Reinhold, Hegel, & Patterson, 2015).

- **Promote monitoring.** Use tools that allow leaders to publicly share their goals and solicit feedback from others. Individuals who actively seek feedback are more likely to make meaningful progress. The more frequent and public the monitoring, the greater the chance of success (Harkin et al., 2016).

4 Provide Real-time Feedback

Regular feedback helps leaders recognize when behavior changes or skill development is needed. It also creates a social environment that motivates and supports change (McCauley et al., 2010).

Although many organizations have adopted 360-degree assessments, performance management programs, and employee engagement surveys, these processes rarely provide the *real-time* feedback needed to maximize learning from experience.

Tools of the Trade

User-driven feedback tools enable leaders to get quick, targeted feedback on a regular basis. Leaders have a voice in what they get feedback on, from whom, and when, all of which increase investment in development (Young & McCauley, 2019). As a result, leaders can stay focused on their goals, gain valuable insights about their behaviors and skills, and engage others in their improvement.

CCL's *SnapPulse* tool, for example, includes a module for personalized feedback on targeted goals. Individuals can set up automated requests for feedback at recurring intervals or can request immediate "in the moment" feedback to support specific workplace experiences.

Another example of a feedback tool is *Kudos*, a software platform that lets individuals and teams receive and share feedback – publicly or privately with others. The tool also can be used to trigger small monetary rewards when behavior is consistent with established goals.

Implementation Tips

- **Consider context.** Does your culture support giving and receiving frequent feedback? If so, consider deploying a user-driven feedback tool. If not, start by teaching the fundamentals of giving and receiving feedback using the situation-behavior-feedback model (Gentry & Young, 2017) to ensure text-based feedback is not misunderstood and feedback is internalized effectively.

- **Optimize value.** User-driven feedback are a low-cost way to deliver high-value (Young & McCauley, 2019). However, be wary of requesting feedback too often. In the flow feedback around specific performance events can be great. However, encourage leaders to space out their routine requests to avoid overwhelming colleagues. Suggest quarterly or monthly pulse surveys instead of daily or weekly outreach.

- **Set leaders up for success.** An emotional reaction to feedback is common, particularly if the feedback is negative (Kluger & DeNisi, 1996). Prepare your leaders for how to process and make sense of the information they receive. The right tips and resources can help them take constructive action and achieve their goals (Young & McCauley, 2019).

5 Make it Easy to Access Expert Knowledge

CCL's evaluation research has found sometimes leadership development participants experience information overload. When too much is shared in too short a time, leaders find it hard to incorporate new learnings into the day-to-day demands of their job. Instead, the right amount of information should be delivered to leaders in the flow of work and at the right time.

It is also important to personalize knowledge transfer to the needs and experiences of individual leaders. First-time leaders, for example, need a greater focus on foundational skills than their counterparts in middle to senior management (Ericsson & Charness, 1994).

Tools of the Trade

To democratize access to expert knowledge, CCL recently released an Everyday Leadership Learning Advice bot called ELLA. Based on an AI algorithm and CCL's research-based content, ELLA responds to user requests with short pieces of leadership advice on a range of topics. The information is personalized to each individual and available on demand to support daily workflow.

Numerous startups such as LEADx also offer AI chatbot coaches. For example, LEADx developed a "Coach Amanda," who personalizes a leader's manager training down to the sentence level because she reports knowing their personality.

Implementation Tips

- **Provide a content store.** License a "Netflix of learning" platform to support your team's need for on-demand guidance. However, use this as one of many elements of development, not to "check the box" or assume learning can be reduced to only watching an online course.

- **Curate the useful stuff.** To avoid information overload, use AI to curate relevant baseline content. Then, use dashboard-level data to identify search trends so you can better align content with the emerging needs of your organization.

- **Beat the forgetting curve.** When it comes to imprinting knowledge, repetition is key (Donovan & Radosevich, 1999). Research-based tools like QStream and Supermemo help leaders remember what they learn by presenting information repeatedly over multiple days and weeks.

6 Support Reflection

Regular reflection can help leaders explore the link between everyday behavior and outcomes (Schon, 1983). They can examine situations from numerous perspectives, question their assumptions, interrogate their successes and failures, and apply what they learn to future experiences.

Despite its importance to continuous learning (Kolb, 1984), it can be challenging for leaders to carve out time for regular reflection. Here, learning and development teams can add value by providing supporting tools and by reinforcing the importance of reflection time.

Tools of the Trade

CCL's Visual Explorer® digital card decks promote regular reflection and spur dialogue through relating experiences to visual imagery. Digital journaling apps offer a quick way to record and archive both audio and video reflections.

Powered by digital footprint analytics, tools like Boomerang Insights and Foxtype help leaders reflect on the tone of their written communications. Similarly, AI and machine learning platforms can measure digital behavior, such as how many messages leaders send or how often they praise others via email. This data serves as a powerful starting place for individual reflection on behavior and impact.

Implementation Tips

- **Leverage communication channels.** Set up a subscription-based listserv for routine reflection questions. Send intermittent prompts, such as, "How could you have better handled a recent interaction with a colleague?" Encourage all employees to place a dedicated block of reflection time on their calendar to encourage regular reflection.

- **Harness metadata.** Use digital reflection and journaling apps to assess reflection habits at the organizational level. Anonymous data collected by these tools helps you uncover content trends and monitor adoption rates.

- **Lead by example.** Start every team meeting or huddle with a reflection exercise. For significant work projects, establish after-action reviews using shared digital whiteboards to explore the behaviors and mindsets that contributed to specific outcomes (DeRue et al., 2012). These sessions also provide a framework for leaders to model as they reflect during the daily flow of work (Ash & Clayton, 2004).

7 Offer Social Support & Coaching

Social support plays a critical role in leadership development. It facilitates belonging, provides affirmation, introduces alternative perspectives, and amplifies engagement (Gosnell, 2017).

CCL traditionally promotes social support by establishing learning partners who come together individually or in communities of practice to address key challenges. These communities help drive strategy, share ideas and best practices, develop professional skills, and recruit and retain employees (Wenger, 2009).

While social support is typically associated with live interaction, the human-centered approach has its limits. It can be expensive and inflexible, particularly when it comes to coaching.

Tools of the Trade

Social support technologies accelerate learning with and from others over time and space. Organizations can form new communities of practice as accessibility soars.

Social support tools like Braindate and Swapcard provide a digital learning (sharing) platform where participants meet individually or in groups to share and learn. These engagement platforms are powered by AI and can service thousands of "events" around various business topics and learning challenges.

In addition, new AI-driven assistants powered by audio and video analytics can coach leaders on observable "micro" skills. For example, PitchVantage helps develop verbal communication and persuasion skills. Leaders record business pitches or formal speeches in front of virtual avatars. They receive instant feedback on both the delivery and content, including pace, grammar, and clarity. Leaders can also invite peers to view their presentation and provide subjective feedback.

Such tools are even being embedded in standard office technology products for greater convenience (e.g., Presenter Coach in Microsoft PowerPoint).

Implementation Tips

- **Add to the flow.** Introduce A.I. coaching tools in your current leader development process and make them available in your current digital workspaces such as Slack or MS Teams. Your leaders will be more likely to practice specific micro-skills important to job performance if they are embedded in platforms they are already using for work.

- **Support rollout.** Take time to demonstrate new tech tools. Explain how they work and how they can be used for support and coaching. It is helpful to pair up team members during the process so they can provide mutual support during rollout.

- **Leverage collaboration channels.** To promote adoption of social support tools, use existing collaboration channels (e.g., Slack, Google Chat, Discord, MS Teams) to discuss experiences with the technology and lessons learned. These discussions can help your team identify helpful hints and address frequently asked questions.

8 Manage Stress

Stress is one of the most persistent challenges faced by today's leaders (Harms et al., 2017). The same challenging assignments that help leaders grow can promote stress and erode retention (Dong et al., 2014). However, when leaders are aware of their physiological reactions to stress, they can recognize common triggers, explore their feelings, and identify better ways to respond.

Although 360-degree feedback assessments offer self-awareness on general competencies (e.g., lacking composure under stress), they rarely include the nuanced and specific information needed for leaders to know exactly how to adjust stress-induced behavior for better results (Ruderman & Clerkin, 2020).

Tools of the Trade

Wearable devices like Fitbit or Apple Watch provide leaders with data on how their body responds to stress. These tools monitor changes in heart rate and blood pressure, track metrics over time, provide guidance on stress management, and facilitate social support through peer communities. Many wearables even come equipped with mindfulness and breathing exercises to help individuals regulate their reactions.

Implementation Tips

- **Make the business case.** Illustrate to senior leaders how wearable devices can be used to manage stress, improve leadership effectiveness, and increase retention.

- **Articulate this same business case to the leaders who will use the devices.** A weak rationale negatively impacts adoption.

- **Focus on usability.** To ensure users understand the tool's output, look for wearables with easy-to-understand, high-level dashboards, as well as deep-dive metrics.

- **Find a good match.** Select devices grounded in science and conduct a pilot to evaluate performance in your own environment. In addition to price, consider ease of use, adaptability, accessibility of raw data, and how the device will support your leadership development curriculum (Ruderman & Clerkin, 2020). Avoid wearables designed for special populations (e.g., military, athletes). They may not be appropriate for general use.

Maximizing Development Outcomes Using the Eight Learning Practices

Continuous leadership development is the key to helping your organization thrive in unpredictable times. Unfortunately, though, there is no "silver bullet" to ensure development happens. What we do know is that individuals relate better to their leadership development journey when it is presented with a clear storyline rather than as disjointed pieces and parts. This means Chief Learning Officers must be thoughtful about providing both "in-the-flow" solutions linked to day-to-day work, as well as "out-of-flow" solutions based in face-to-face or virtual classrooms.

The eight key learning practices in this paper are mutually reinforcing and can collectively produce greater impact over time in both types of development contexts. However, it matters how learning and development teams bring these practices together and to life. When done well and supported by the latest technologies, development becomes more integrated, personalized, and available to leaders at all levels.

This evidence-based approach also ensures that organizations benefit from leadership development, just as individual learners do. When leaders develop the soft skills they need to succeed and apply these skills to their day-to-day work contexts, organizations develop more leaders faster, enriching their talent pipeline for years to come.

Tools of the Trade

New platform-based approaches to leader assessment and development integrate both in-flow and out-of-flow learning – producing a highly personalized, cohesive experience. One example: With support from the Edna McConnell Clark Foundation, CCL is building the *PropelNext* application. The goal is to help nonprofits make a greater impact on the lives of those they serve by strengthening their leadership skills, program design, and use of data for learning and improvement.

Through an engaging mix of virtual and mobile experiences, *PropelNext* provides opportunities to learn, stretch, reflect, and apply key concepts related to leadership and program design. Participants will have access to professional learning coaches, on-demand AI-based coaching, and quarterly learning sessions with other *PropelNext* teams. It is just one example of how technologists, instructional designers, data scientists, and user experience specialists can collaborate to produce a seamless learner experience across the entire developmental spectrum.

Action Tips

- **Start with strategy.** Business strategy sets organizational direction, while leadership strategy acts as the human enabler (Dinwoodie et al., 2014). Before determining what learning should look like in your organization, understand what you want to achieve. Use new technology only if it is linked to achieving better individual and organizational outcomes.

- **Consider your adoption approach.** Decide on the role that your learning and development team will play in adoption. Will you scour the market and integrate new technologies internally or select an external provider to deliver integrated in-the-flow and out-of-flow solutions (Moldoveanu & Narayandas, 2019)? Clarifying your approach will help you spend your time and resources more effectively.

- **Enrich your offerings.** Use the eight learning strategies in this paper to ensure better leadership development outcomes. Create a matrix that lists each best practice, along with learning strategies for each leader level. This high-level audit can help you find the right mix of in-flow and out-of-flow development along with the right supporting technologies.

Conclusion

Traditional delivery methods need to evolve to keep up with the pace and complexity of today's highly interconnected world. To compete and win in today's hypercompetitive economy, organizations need continuous and scalable on-the-job development across all leadership levels. Though the idea of learning from on-the-job experience is not new, today's digital assessment and development tools give organizations the technology needed to increase daily learning. The impact of these tools can be maximized when they are grounded in eight research-based practices. Rooted in science, the art involves bringing these practices together and to life. When done well and supported by the latest technologies, development becomes more integrated, personalized, and available to leaders at all levels.

References

Ash, S. L., & Clayton, P. H. (2004). The articulated learning: An approach to guided reflection and assessment. *Innovative Higher Education,* 29(2), 137–154. https://doi.org/10.1023/b:ihie.0000048795.84634.4a

Corporate Executive Board (2009). *Unlocking the Value of On-the-Job Learning.* Arlington, VA.

De Pater, I. E., Van Vianen, A. E., Bechtoldt, M. N., & Klehe, U. C. (2009). Employees' challenging job experiences and supervisors' evaluations of promotability. *Personnel Psychology,* 62(2), 297– 325. https://doi.org/10.1111/j.1744-6570.2009.01139.x

DeRue, D. S., Nahrgang, J. D., Hollenbeck, J. R., & Workman, K. (2012). A quasi-experimental study of after-event reviews and leadership development. *Journal of Applied Psychology*, 97(5), 997–1015. https://doi-org.ccl.idm.oclc.org/10.1037/a0028244

Diaz, J. B. B., & Young, S. F. (2021). The future is here: A benchmark study of digitally-enabled assessment and development tools. *Consulting Psychology Journal: Practice and Research.*

Dinwoodie, D., Quinn, L., & McGuire, J. (2014). *Bridging the Strategy/Performance Gap. How Leadership Strategy Drives Business Results* [White Paper]. Center for Creative Leadership. http://cclinnovation.org/wp-content/uploads/2020/02/bridgingthestrategy.pdf.

Dong, Y., Seo, M. G., & Bartol, K. M. (2014). No pain, no gain: An affect-based model of developmental job experience and the buffering effects of emotional intelligence. *Academy of Management Journal*, 57(4), 1056–1077. https://doi.org/10.5465/amj.2011.0687

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly,* 44(2), 350–383. https://doi.org/10.2307/2666999

Ericsson, K. A., & Charness, N. (1994). Expert performance: Its structure and acquisition. *American Psychologist*, 49, 725–747. https://doi.org/10.1037/0003-066x.49.8.725

Gentry, W., & Young, S. (2017). Busting myths about feedback: What leaders should know [White paper]. Center for Creative Leadership. https://doi.org/10.35613/ccl.2017.1053

Gosnell, C. L. (2017). Leading with support: The role of social support for positive and negative events in leader development. In M. G. Clark & C. W. Matthew (Eds.), *Leader development deconstructed* (pp. 275–300). Springer.

Hallenbeck, G. (2016). *Learning agility: Unlock the lessons of experience.* Center for Creative Leadership.

Harkin, B., Webb, T. L., Chang, B. P., Prestwich, A., Conner, M., Kellar, I., ... & Sheeran, P. (2016). Does monitoring goal progress promote goal attainment? A meta-analysis of the experimental evidence. *Psychological bulletin*, 142(2), 198.

Harms, P. D., Credé, M., Tynan, M., Leon, M., & Jeung, W. (2017). Leadership and stress: A meta-analytic review. *The Leadership Quarterly*, 28(1), 178–194. https://doi.org/10.1016/j.leaqua.2016.10.006

Johnson, S. K., Garrison, L. L., Hernez-Broome, G., Fleenor, J. W., & Steed, J. L. (2012). Go for the goal(s): Relationship between goal setting and transfer of training following leadership development. *Academy of Management Learning & Education*, 11(4), 555–569. https://doi.org/10.5465/amle.2010.0149

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, 119(2), 254–284. https://doi-org.ccl.idm.oclc.org/10.1037/0033-2909.119.2.254

Kolb, D.A. (1984). *Experiential learning: experience as the source of learning and development*. Prentice-Hall, Inc.

Lacerenza, C. N., Reyes, D. L., Marlow, S. L., Joseph, D. L., & Salas, E. (2017). Leadership training design, delivery, and implementation: A meta-analysis. *Journal of Applied Psychology,* 102(12), 1686. https://doi.org/10.1037/apl0000241

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 705–717. https://doi-org.ccl.idm.oclc.org/10.1037/0003-066X.57.9.705

McCauley, C., & Grabow, K. (in press). Leadership development. In R. Silzer, J. Scott, & W. Borman (Eds.). *Handbook on the Practice of Organizational Psychology: Leveraging Psychology for Individual and Organizational Effectiveness*. Oxford University Press.

McCauley, C. D., & McCall, Jr., M. W. (2014). *Using experience to develop leadership talent: How organizations leverage on-the-job development*. John Wiley & Sons.

McCauley, C. D., & Yost, P. R. (2021). Stepping to the edge of one's comfort zone. In V. S. Harvey & K. P. De Meuse (Eds). *The age of agility: Building learning agile leaders and organizations* (pp. 204– 228). Oxford University Press.

McCauley, C.D., Van Velsor, E., & Ruderman, M.N. (2010). Introduction: Our view of leadership development. In E. Van Velsor, C.D. McCauley, & M.N. Ruderman (Eds.), *The Center for Creative Leadership handbook of leadership development* (pp. 1-26). San Francisco, CA: Jossey-Bass.

Moldoveanu, M., & Narayandas, D. (2019). The future of leadership development. *Harvard Business Review*, 97(2), 40–48. https://hbr.org/2019/03/the-future-of-leadership-development

Reinhold, D., Patterson, T., & Hegel, P. (2015). *Make learning stick: best practices to get the most out of leadership development* [White Paper]. Center for Creative Leadership. https://cclinnovation.org/wp-content/uploads/2015/06/makelearningstick.pdf

Ruderman, M. N., & Clerkin, C. (2020). Is the future of leadership development wearable? Exploring self-tracking in leadership programs. *Industrial and Organizational Psychology,* 13(1), 103–116. https://doi.org/10.1017/iop.2020.18

Rhyne, R. (2021). *Low potential: Leadership pipelines running dry*. Chief Learning Officer. https://www.chieflearningofficer.com/2021/11/05/low-potential-leadership-pipelines-running-dry/.

Schon, D.A. (1983). *The reflective practitioner: How professionals think in action*. Basic Books.

Swisher, V. & Dai, G. (2014*). The agile enterprise: Taking stock of learning agility to gauge the fit of the talent pool to the strategy*. The Korn Ferry Institute. https://www.kornferry.com/content/dam/kornferry/docs/article-migration/KF-Agile-Enterprise.pdf

Wenger, E. (2009). *Communities of practice: A brief introduction*. National Science Foundation.

Young, S. F., & McCauley, C. D. (2019). User-driven feedback tools for leader development. In *Feedback at work* (pp. 265–285). Springer.

Young, S. F., Leslie, J. B., Balakrishnan, R. & Winn, B. (2021). The Chief of Leadership Development: Preparing Today's Leaders for Tomorrow's Challenges. *People & Strategy,* 44(2), p. 52–56. https://cclinnovation.org/wp-content/uploads/2021/05/young-leslie-balakrishnan-winn-2021.pdf

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Stephen is global head of employee experience and leadership assessments at Caterpillar, Inc. At the time this paper was written, he was manager of leadership analytics and a senior research scientist at the Center for Creative Leadership. Stephen has worked with organizations in a variety of industries, including Fortune 500 companies, the military, and other large U.S. government agencies. He has helped them design, develop, and evaluate new technology-based ways for leaders to receive feedback on their behaviors and practices. Stephen has a Ph.D. in industrial/organizational psychology from Florida Institute of Technology.

Jessica Diaz

Jessica Diaz is a scholar-practitioner focused on leader development and the employee experience across a variety of industries and organizations. She is an Assistant Professor and incoming Director of the Human Resource Management Program in the Division of Behavioral and Organizational Sciences at Claremont Graduate University, where she also serves as Director of Coaching for LeAD Labs. Jessica collaborates with the Center for Creative Leadership on their future of leader assessment work and also serves as a managing partner at BCD Consulting Group, a small public sector selection, development, and promotion firm. Jessica previously spent over a decade focused on leader development in the education sector, including serving as managing director of leader development for Teach for America

Bert De Coutere

Bert is IP & innovation lead at the Center for Creative Leadership. Over the past decade, he has designed and facilitated leadership development programs for Fortune 500 clients, ranging from first time manager programs to strategic programs for executives. Previously Bert worked at IBM Learning and Development where he was responsible for e-learning production projects across Europe. He holds an MBA degree from Vlerick Business School and a master's degree in commercial engineering in information management from KU Leuven. He frequently speaks at learning conferences.

Holly Downs

Holly is currently the Director of the PropelNext project, a digital leadership and data training program for nonprofit leaders, at the Center for Creative Leadership. She has over 20 years of experience in research and evaluation with an emphasis in using digital tools to investigate leadership and science, technology, engineering, and mathematics (STEM) programs delivered via traditional, hybrid and online learning environments. Holly has her Ph.D. in Educational Psychology with a dual emphasis in Technology Studies in Education and Evaluation from the University of Illinois in Urbana-Champaign.

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Center for Creative Leadership

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