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Virtual Reality-Based Leadership Development: A Conceptual Case of Experiential Learning

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Abstract

Leadership development programmes have relied predominantly on workshop instruction, coaching, and mentoring, although accumulating evidence indicates that experiential formats produce stronger behavioral transfer when participants engage in consequential practice under conditions that approximate the demands of real leadership situations. This paper develops a conceptual case of virtual reality leadership development that draws on experiential learning theory, leader self-efficacy research, and immersive learning scholarship to propose a five stage learning process through which immersive leadership scenarios generate durable developmental outcomes among middle managers. The conceptual case is situated in a professional consulting organization that piloted an immersive leadership scenario programme across two management cohorts. Four propositions are advanced concerning the relationships among scenario fidelity, self-efficacy development, feedback integration, and transfer readiness. The framework contributes a theoretically grounded basis for designing and evaluating immersive leadership development, extending experiential learning reasoning into the immersive training context and offering organizational practitioners a structured account of the conditions that govern developmental effectiveness.

Keywords

Virtual Reality, Leadership Development, Experiential Learning, Leader Self-Efficacy, Immersive Scenarios, Behavioral Transfer, Conceptual Case, Organizational Development

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1. Introduction

Leadership development represents one of the largest investments that organizations make in their human capital, with global expenditure ranking it among the highest categories of learning and development spending (Day, 2000). Returns on that investment remain uneven, and research continues to identify a persistent transfer gap between what participants acquire in development settings and what they apply within the complexity and time pressure of their leadership roles (Day et al., 2014; Baldwin & Ford, 1988). This gap reflects a structural limitation of widely used formats. Workshops, paper simulations, and low fidelity role play rarely replicate the situational complexity, interpersonal pressure, and consequential conditions under which leadership judgment is formed and tested (Blume et al., 2010; Lacerenza et al., 2017). Virtual reality offers a technically distinct response, providing immersive environments in which managers encounter realistic dilemmas, make consequential decisions, observe their effects, and engage in guided reflection that conventional formats seldom support (Kolb, 1984; Makransky & Petersen, 2021).

Practitioner interest in immersive leadership training has advanced considerably ahead of the academic evidence base (Lacerenza et al., 2017). Organizational developers have introduced immersive scenarios for difficult conversation management, inclusive decision making, crisis communication, and cross functional team leadership, drawing on the intuition that immersive fidelity improves experiential learning without systematic validation of the mechanisms that translate exposure into behavior change (Day, 2000; Haj-Bolouri et al., 2024). Immersive learning scholarship has produced frameworks and evidence primarily in educational and safety training contexts, with limited application to the cognitive, motivational, and behavioral demands of leadership development (Makransky & Petersen, 2021; Wu et al., 2020). The conceptual case in this paper addresses that gap, developing a theoretically grounded account of the learning process through which immersive leadership scenarios produce developmental outcomes and using the experience of a professional consulting organization to ground and illustrate the proposed framework (Petersen et al., 2022; Day et al., 2014).

Experiential learning theory provides the primary foundation for the framework developed here. Kolb (1984) proposed that learning proceeds through a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation, with each phase preparing the learner for the next. Leadership scholarship has drawn extensively on this account, identifying experiential practice as the primary driver of skill acquisition when the experience is sufficiently challenging, feedback rich, and situationally authentic to activate the reflective processes that convert experience into transferable understanding (Day, 2000; DeRue & Wellman, 2009). Immersive leadership scenarios aim to deliver the concrete experience phase with greater situational authenticity, interpersonal complexity, and consequence visibility than conventional simulation formats afford (Makransky & Petersen, 2021; Petersen et al., 2022). A central question follows for developmental design, namely whether the enhanced experiential quality of immersive practice carries forward into the reflective and conceptualization phases that determine whether development proves durable and transferable (Kolb, 1984; Baldwin & Ford, 1988).

Leader self-efficacy supplies the motivational mechanism through which engagement with immersive scenarios influences developmental outcomes (Bandura, 1986). Bandura (1977) established that self-efficacy, an individual's belief in their capacity to execute a course of action within a particular domain, operates both as a product of prior performance and as a determinant of the effort and persistence brought to later challenges. Subsequent measurement work confirmed that efficacy beliefs respond to mastery experience in practice contexts and predict performance across varied tasks (Chen et al., 2001; Bandura, 1986). Immersive scenarios offer mastery experiences that approximate the interpersonal and situational demands of real leadership challenges, with scenario designers calibrating complexity to match the developmental readiness of each participating manager (Makransky & Petersen, 2021; DeRue & Wellman, 2009). The remainder of the paper develops the theoretical background, presents the conceptual case of the Meridian Consulting Group, advances a five stage process model with four testable propositions, and considers theoretical and methodological implications for future research (Day et al., 2014).

2. Theoretical Background

2.1. Experiential Learning and Leadership Skill Development

Experiential approaches rest on the finding that the challenges, assignments, and relationships managers encounter in their work produce more durable and transferable development than formal instruction conducted in settings removed from organizational demands (Day, 2000; DeRue & Wellman, 2009). Day (2000) identified three mechanisms through which experience builds leadership capability, comprising developmental challenge that stretches existing skill repertoires, feedback availability that supplies information about the consequences of leadership behavior, and a learning orientation that determines whether managers extract generalizable lessons from specific episodes. Immersive leadership scenarios address all three at once, presenting calibrated challenges that extend a manager's current range, embedding feedback within the scenario or delivering it through structured debrief, and supporting the learning orientation that situational authenticity tends to activate (Kolb, 1984; Day et al., 2014). Evidence from transfer research indicates that supportive conditions and motivation matter most for open skills such as leadership, which strengthens the case for attending to scenario design rather than technology alone (Blume et al., 2010; Baldwin & Ford, 1988).

DeRue and Wellman (2009) provided direct support for the developmental challenge mechanism, demonstrating that the relationship between work experience and leader development depended on the degree of challenge present and the availability of feedback that helped managers interpret the consequences of their behavior. Challenging experiences without adequate feedback produced less development than moderately challenging experiences accompanied by timely and specific feedback (DeRue & Wellman, 2009; Day, 2000). The implication for immersive design holds that fidelity must be paired with high quality in scenario and post scenario feedback to produce the efficacy gains and reflective learning the experiential framework requires (Makransky & Petersen, 2021; Petersen et al., 2022). Meta-analytic evidence on training transfer points in the same direction, with work environment support and feedback emerging as consistent predictors of whether trained behavior reaches the job (Blume et al., 2010; Lacerenza et al., 2017). Many organizational immersive programmes still fail to honor this principle in their design (Haj-Bolouri et al., 2024).

2.2. Leader Self-Efficacy and Mastery Experience

Bandura's (1977) account of self-efficacy proposed four sources of efficacy information, comprising mastery experiences that provide direct evidence of capability, vicarious learning that supplies comparative evidence through observation of similar others, verbal persuasion that offers encouragement from credible sources, and physiological states that signal arousal and readiness. Among these sources, mastery experiences exert the strongest influence, providing direct evidence about what a person can accomplish under demanding conditions and building beliefs that prove more stable and more resistant to setback than those formed through vicarious or verbal routes (Bandura, 1986; Day et al., 2014). Immersive leadership scenarios offer mastery experiences that are more controlled and more reproducible than those available in live organizational settings, allowing designers to sequence challenge so that efficacy accumulates progressively across a structured programme (Chen et al., 2001; Makransky & Petersen, 2021). General efficacy measures further indicate that gains achieved in one practice domain can extend to related performance situations (Chen et al., 2001; DeRue & Wellman, 2009).

The relationship between mastery experience and leader self-efficacy has been documented across conventional and technology supported formats, with performance in practice conditions shaping subsequent confidence and willingness to attempt demanding challenges (Bandura, 1986; Day, 2000). The distinctive contribution of immersive practice lies in the consequence fidelity of the mastery experience. Efficacy beliefs developed through scenarios that approximate the situational, interpersonal, and emotional texture of real challenges are more likely to generalize than beliefs formed in low fidelity contexts (Makransky & Petersen, 2021; Petersen et al., 2022). This generalization argument distinguishes immersive leadership development from conventional simulation training and supplies the theoretical rationale for the substantial organizational investment that immersive programmes require (Wu et al., 2020; Lacerenza et al., 2017). Psychological safety within the surrounding programme conditions the candor with which managers confront their performance gaps, a consideration that becomes central once scenario practice gives way to shared reflection (Edmondson, 1999; Day et al., 2014).

3. The Conceptual Case of the Meridian Consulting Group

3.1. Case Context

Meridian Consulting Group is a professional services organization employing approximately 1,400 consultants across strategy, operations, and digital transformation practices in seven national offices. The organization identified middle manager leadership capability as a strategic priority following a talent retention analysis that attributed above average voluntary turnover to management quality concerns raised in exit interviews (Day, 2000; Day et al., 2014). An immersive leadership programme was piloted across two middle management cohorts of twenty participants each, using a scenario platform that presented six modules covering difficult performance conversations, cross functional conflict resolution, inclusive decision making in diverse teams, communicating organizational change under uncertainty, managing upward to senior stakeholders, and ethical dilemma navigation under commercial pressure (Lacerenza et al., 2017; Haj-Bolouri et al., 2024). The pilot offered an opportunity to observe the developmental contribution of immersive practice within an authentic organizational setting rather than a controlled laboratory environment (DeRue & Wellman, 2009;

Petersen et al., 2022).

3.2. Programme Structure and Learning Stages

The Meridian programme was organized around five learning stages intended to align with the experiential cycle, though the correspondence between design intention and participant experience varied across cohort members in ways that inform the framework developed below (Kolb, 1984; Day, 2000). The first stage, preparatory orientation, briefed participants on the competency targeted by each module alongside their prior multisource feedback on that competency (Chen et al., 2001). The second stage, immersive engagement, asked participants to complete the scenario without interruption or external support. The third stage, immediate reflection, used a structured self-assessment protocol administered directly after completion, as experiential memory remained vivid (Bandura, 1977). The fourth stage, facilitated debrief, convened small peer groups within twenty four hours under facilitator guidance (Edmondson, 1999; Day et al., 2014). The fifth stage, transfer planning, asked participants to identify specific real situations for applying scenario insight within the following four weeks (DeRue & Wellman, 2009; Blume et al., 2010).

3.3. Observed Learning Patterns

Three observations across both cohorts carry direct significance for the proposed framework (Day, 2000). Scenario fidelity emerged as the factor most consistently cited in participant accounts of developmental value, with managers reporting stronger engagement and deeper self-reflection when scenario situations matched the interpersonal and organizational challenges of their current roles and team compositions (Makransky & Petersen, 2021; Petersen et al., 2022). The immediate reflection stage produced richer and more specific insight when completed within the first thirty minutes after the scenario, and delayed reflection yielded more generic and less affectively connected accounts of what the experience revealed about leadership behavior and its consequences (Bandura, 1977; Kolb, 1984). Transfer planning varied widely in effectiveness, and participants who identified specific, near term, and contextually concrete situations reported markedly stronger application of scenario learning in follow up conversations than those whose plans remained abstract or aspirational (DeRue & Wellman, 2009; Blume et al., 2010). These patterns supplied the empirical motivation for the propositions advanced in the following section (Day et al., 2014).

4. Conceptual Framework and Propositions

4.1. The Five Stage Learning Process

The Meridian case supports a five stage learning process that advances the experiential cycle into the conditions of immersive leadership development (Kolb, 1984; Day, 2000). Developmental outcomes depend not only on the quality of the immersive scenario but on the design and sequencing of the four stages surrounding it, with each stage contributing a distinct function to the overall process (DeRue & Wellman, 2009; Makransky & Petersen, 2021). Preparation orients attention and activates relevant prior feedback, immersive engagement supplies the consequential mastery experience, immediate reflection captures affectively rich detail before it decays, facilitated consolidation integrates individual insight through peer sense making, and transfer planning converts insight into concrete intention for application (Bandura, 1977; Edmondson, 1999). Figure 1 represents the process and the iterative feedback that links later stages back to subsequent cycles of practice (Day et al., 2014; Petersen et al., 2022). The sequence treats the immersive scenario as one component within a designed progression rather than as a self-contained event, directing developmental attention to the conditions that surround it (Lacerenza et al., 2017; Blume et al., 2010).

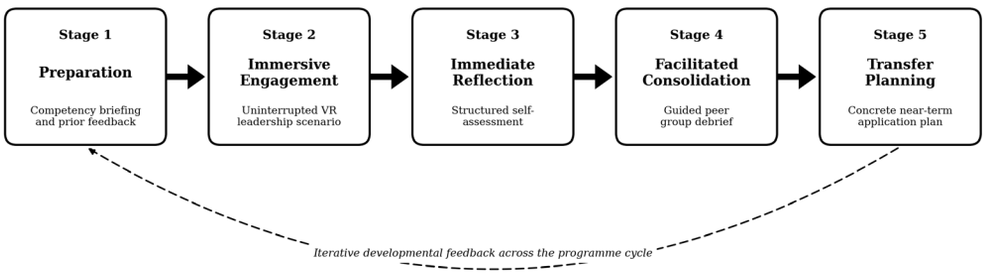

Figure 1. Five stage immersive leadership learning process.

4.2. Propositions and Predictions

4.2.1. Scenario fidelity and self-efficacy

Proposition 1 holds that the developmental impact of immersive leadership scenarios on leader self-efficacy is positively moderated by the perceived fidelity of the scenario to the participant's current leadership context, with higher fidelity generating stronger mastery experience and more generalizable efficacy gains than lower fidelity scenarios experienced as unrepresentative of real demands (Bandura, 1986; Makransky & Petersen, 2021). The fidelity efficacy relationship should prove most pronounced for participants whose prior efficacy in the targeted competency sits at a moderate level, given that floor and ceiling effects constrain change at the extremes of the prior efficacy distribution (Chen et al., 2001; Bandura, 1977). Fidelity in this sense extends beyond visual realism to the interpersonal and situational correspondence between practice and application, a correspondence that participant accounts in the Meridian pilot identified as decisive (Petersen et al., 2022; DeRue & Wellman, 2009). Programme designers can therefore treat scenario authoring as a central developmental lever rather than a technical afterthought (Day, 2000; Lacerenza et al., 2017).

4.2.2. Temporal proximity of reflection

Proposition 2 holds that immediate post scenario reflection conducted within thirty minutes of completion, as situational memory and affective responses remain vivid, produces more specific, behaviorally grounded, and transferable insight than delayed reflection conducted more than twenty four hours afterward (Kolb, 1984; DeRue & Wellman, 2009). The temporal gradient of reflection specificity follows the episodic memory decay curve for experientially encoded learning, which is steeper for the affectively rich situational memories that immersive scenarios generate than for declaratively encoded instructional content (Bandura, 1977; Makransky & Petersen, 2021). Reflection quality therefore represents a design parameter rather than an incidental feature of the programme, and the scheduling of reflection deserves the same attention given to scenario construction (Day, 2000; Petersen et al., 2022). The Meridian accounts of vivid early reflection and comparatively generic delayed reflection illustrate the practical magnitude of this timing effect within an applied programme (Day et al., 2014). Programmes that defer reflection to a later session therefore risk forfeiting the most developmentally informative window of the entire learning sequence (Kolb, 1984; Bandura, 1986).

4.2.3. Facilitated peer debrief

Proposition 3 holds that facilitated peer group debrief following an immersive scenario produces stronger conceptual integration of scenario learning than individual self-reflection alone, through the social validation, alternative perspectives, and shared sense making that peer discussion provides (Edmondson, 1999; Day et al., 2014). The contribution of facilitated debrief to integration is moderated by the psychological safety of the peer group, and participants in higher safety groups disclose performance difficulties more candidly and engage more productively with peer feedback (Edmondson, 1999; DeRue & Wellman, 2009). Facilitator skill in establishing that safety becomes a determinant of developmental yield rather than a peripheral concern, given that candid disclosure is the raw material of collective sense making (Haj-Bolouri et al., 2024; Day, 2000). The Meridian debrief stage, convened in small groups within a day of completion, offered the conditions under which such integration could occur across cohort members with differing scenario outcomes (Makransky &

Petersen, 2021; Lacerenza et al., 2017).

4.2.4. Transfer planning specificity

Proposition 4 holds that transfer planning specificity, operationalized as the degree to which subsequent transfer plans identify concrete, near term, and contextually particular situations for applying scenario learning, positively predicts self-reported behavioral application at four week follow up (DeRue & Wellman, 2009; Blume et al., 2010). The planning application relationship is moderated by managerial support for development, and participants whose supervisors actively reference and support programme content show stronger transfer than those whose supervisors remain uninvolved or unaware (Blume et al., 2010; Lacerenza et al., 2017). Transfer research consistently identifies the work environment as a decisive condition for whether trained capability reaches performance, which positions supervisor engagement as a structural component of programme design rather than an optional supplement (Baldwin & Ford, 1988; Blume et al., 2010). The Meridian pattern, in which concrete and proximate plans accompanied stronger reported application, indicates that the final stage warrants explicit scaffolding rather than treatment as a closing formality (Bandura, 1977; Day et al., 2014). Table 1 consolidates the four propositions together with their core predictions, principal moderators, and theoretical grounding (Lacerenza et al., 2017; Makransky & Petersen, 2021).

Table 1. Summary of propositions for the immersive leadership learning process.

Proposition	Core Prediction	Key Moderator	Theoretical Basis
P1. Scenario Fidelity and Self-Efficacy	Higher fidelity yields stronger mastery experience and greater self-efficacy gain	Prior self-efficacy level	Bandura (1986); Makransky and Petersen (2021)
P2. Temporal Proximity of Reflection	Immediate reflection yields richer and more transferable developmental insight	Scenario affective intensity	Kolb (1984); DeRue and Wellman (2009)
P3. Facilitated Peer Debrief	Group debrief yields stronger conceptual integration than solo reflection	Peer group psychological safety	Edmondson (1999); Day et al. (2014)
P4. Transfer Planning Specificity	Concrete plans yield stronger real context behavioral application	Managerial support for application	Blume et al. (2010); Baldwin and Ford (1988)

5. Discussion

The conceptual case and framework advance understanding of immersive leadership development by identifying the learning process conditions that determine whether scenario exposure converts into durable behavioral change (Day et al., 2014; Makransky & Petersen, 2021). Prior work on immersive technology in organizational training has concentrated on comparing immersive against conventional formats without examining the design conditions that govern effectiveness within immersive programmes themselves (Wu et al., 2020; Petersen et al., 2022). The five stage framework offers a more granular account than the before and after comparisons that dominate the empirical literature, treating preparation, reflection, debrief, and transfer as active contributors to developmental outcome rather than as supplements to the immersive experience (Kolb, 1984; DeRue & Wellman, 2009). The Meridian case indicates that the qualitative character of each stage, including the specificity of briefing, the temporal proximity of reflection, the psychological safety of debrief, and the concreteness of transfer planning, shapes developmental impact as substantially as the immersive quality of the scenario itself (Edmondson, 1999; Lacerenza et al., 2017).

The proposition concerning scenario fidelity and self-efficacy extends Bandura's (1986) mastery

experience account into the immersive leadership context, proposing that the generalizability of efficacy gains depends on the perceived correspondence between practice and transfer settings (Bandura, 1977; Chen et al., 2001). This extension carries practical consequence for scenario development, indicating that generic scenarios built around idealized organizational situations produce weaker efficacy transfer than scenarios authored in close consultation with participants to reflect their role demands, team compositions, and organizational cultures (Day, 2000; DeRue & Wellman, 2009). The framework also positions feedback quality and work environment support as conditions that govern whether immersive practice reaches the job, aligning the immersive case with established transfer findings (Blume et al., 2010; Baldwin & Ford, 1988). Treating the immersive scenario as one component within a designed sequence, rather than as a self-sufficient intervention, offers organizations a more defensible basis for the investment that immersive platforms demand (Lacerenza et al., 2017; Petersen et al., 2022).

6. Limitations and Future Research

The conceptual case methodology offers theoretical purchase on the immersive leadership learning process, though it cannot substitute for empirical investigation of the proposed mechanisms across diverse contexts, populations, and platform implementations (DeRue & Wellman, 2009; Day et al., 2014). The Meridian case depicts a professional services environment that may not generalize to manufacturing, healthcare, or public sector applications, where the leadership dilemmas, organizational cultures, and learning orientations differ from those represented here (Day, 2000; Lacerenza et al., 2017). The four propositions require testing through longitudinal designs that track efficacy, reflective engagement, and behavioral transfer across the full five stage process, measuring each stage independently rather than inferring process quality from outcome differences between immersive and control conditions (Blume et al., 2010; Bandura, 1977). Future work might examine whether the framework applies equally to remote and in person immersive delivery, a distinction of growing practical consequence as organizations integrate immersive development into distributed workforce arrangements (Makransky & Petersen, 2021; Wu et al., 2020). Measurement of fidelity and psychological safety also warrants validated instrumentation drawn from established scales (Chen et al., 2001; Edmondson, 1999).

7. Conclusion

The paper has developed a conceptual case of immersive leadership development situated in the Meridian Consulting Group, proposing a five stage learning process in which scenario fidelity, temporal reflection quality, facilitated peer debrief, and transfer planning specificity jointly determine whether immersive scenario experience produces durable efficacy and behavioral transfer (Kolb, 1984; Bandura, 1986). Four propositions advance specific and testable predictions about the mechanisms that connect each stage to developmental outcome, extending experiential learning and self-efficacy research into the organizational immersive context (DeRue & Wellman, 2009; Day et al., 2014). The central contribution reframes immersive leadership development from a technology selection question into a learning design question, directing attention to the structure of the stages surrounding the immersive experience (Makransky & Petersen, 2021; Lacerenza et al., 2017). Organizations that invest in immersive platforms without attending to reflection quality, debrief structure, and transfer support are unlikely to realize the developmental potential of the format, regardless of the technical sophistication of the scenarios deployed (Blume et al., 2010; Petersen et al., 2022).

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