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Aligning leader development and organizational performance improvement: An international case study application of kirkpatrick's four -level assessment model

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Abstract

Healthcare organizations are increasingly recognizing leadership development as critical to advancing quality, financial sustainability, and overall organizational performance. Yet conventional training approaches often lack contextual relevance, experiential learning, and clear evaluation methods that link leadership education to applied outcomes. This study evaluates the Healthcare Executive Accelerated Leadership (HEAL) Program, designed to address these gaps through competency-based, interprofessional education aligned with institutional priorities. Using Kirkpatrick's four-level evaluation model, the program was assessed across three cohorts of 86 mid-career professionals in a large academic hospital system. Mixed-methods data sources included self-assessments, satisfaction surveys, reflective essays, and capstone project outcomes. Results demonstrated high satisfaction (Level 1), significant self-reported competency gains in finance, leadership, and quality (Level 2), observable behavioral changes through application of skills in the workplace (Level 3), and institutional impact via 35 capstone projects, generating an estimated $54 million in financial return (Level 4). The program's integration of applied learning, strategic alignment, and structured evaluation provides a replicable model for developing healthcare leaders who are equipped for today's complex and performance-driven environments. Findings contribute to the leadership development literature by demonstrating how experiential education, when tied to organizational metrics, can yield a measurable and scalable impact. Future research should investigate the long-term effects and conduct cross-contextual replication.

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1. Introduction

Leadership development is increasingly recognized as a critical strategic imperative in health care, driven by the need to improve clinical outcomes, enhance the patient experience, and reduce unnecessary waste and costs. Healthcare provider organizations worldwide are under intense pressure to do more with fewer resources, amid increasing complexity, the growing prevalence of value-based care, confounding regulatory demands, and persistent workforce challenges. In this dynamic and complex environment, amid uncertainty and rising expectations, the ability to lead effectively across the continuum of care in both clinical and administrative domains is no longer optional; it is essential.

1.1. Leadership and Organizational Performance

A growing body of research supports the positive relationship between effective leadership and improved organizational performance. Systematic reviews by Majeed et al. (2024); Lyons et al. (2021); Al-Habib (2020); Debets et al. (2023); Gifford et al. (2018) and Wong, Cummings, and Ducharme (2013) highlight how effective leadership can improve clinical quality, patient safety, operational efficiency, patient satisfaction, and population health. Restivo et al. (2022) found that leadership effectiveness is significantly associated with improved clinical performance and adherence to guidelines. Orme and Campbell (2019) and Dubas-Jakóbczyk et al. (2022) identified an association between leadership development practices and improved financial performance. Collectively, these findings underscore the crucial role of leadership in driving systemic improvement in healthcare organizations.

1.2. Common Leadership Development Challenges

Yet, despite widespread agreement on the importance of leadership in organizational performance, significant limitations remain in how effectively leaders are prepared to address real-world challenges. Many healthcare provider organizations still lack formal, structured leadership development programs aligned with their strategic goals and tied to measurable outcomes (Cummings et al., 2021).

Many programs focus heavily on conceptual frameworks but lack embedded, real-time experiential learning opportunities. Too often, leadership training in healthcare organizations fails to effectively connect theory to practice, leaving emerging leaders underprepared for the complex, high-stakes challenges they face daily. As a result, developing adaptive, relational, and operationally effective leaders who can influence teams and drive operational performance remains an elusive yet essential competency among emerging leaders (Sfantou et al., 2017). These findings highlight a persistent gap between leadership theory and applied practice that continues to challenge healthcare organizations.

What's more, conventional leadership development approaches are frequently criticized for lacking "hands-on" experiential learning, contextual relevance, and structured evaluation methods that link education and training to measurable outcomes (Black & Earnest, 2009; Frich, Brewster, Cherlin, & Bradley, 2015; Steinert, Naismith, & Mann, 2012). Stefl (2008) foundational work calls for more integrated, competency-based learning and assessment methods to ensure leaders acquire skills relevant to complex environments. This emphasis on experiential learning aligns with the broader critique that conventional leadership development approaches are insufficiently practical and fail to prepare participants for real-world leadership challenges.

The disconnect between training investment and its impact on applied performance underscores a deeper concern in the leadership development literature: the persistent skills-transfer gap. This gap reflects the failure to translate leadership education into practical, transferable competencies that yield a measurable and sustainable return on investment (ROI) for organizations. They argue that traditional classroom-based instruction alone is inadequate for preparing leaders to navigate the dynamic complexities of today's workplaces.

In response, healthcare provider organizations are increasingly seeking leadership development models that integrate academic theory with real-world applications, producing competent leaders who can drive measurable and sustainable improvements. This trend is reinforced by broader developments in executive education, where researchers argue for immersive, applied, and context-sensitive learning experiences (Gordon, Darbyshire, & Baker, 2024; Hezlett, 2016; Smith & Roberts, 2022; West et al., 2015).

1.3. Healthcare Executive Accelerated Leadership Program (HEAL)

To address these challenges and bridge the skills transfer gap, the Healthcare Executive Accelerated Leadership Program (HEAL) was designed to integrate fundamental adult learning theory with competency-based leadership education, focusing on developing competencies in change management, financial management, operational efficiency, quality improvement, innovation, and population health. The HEAL Program was structured to offer rapid skill development through learning modules anchored in real-world applications, yielding immediate relevance and application with measurable improvements for both participating leaders and the sponsoring organization. The program facilitated interprofessional learning by bringing together participants from diverse roles and backgrounds, encouraging systems thinking, and supporting sustained engagement throughout.

The HEAL Program incorporated emerging insights from the leadership development literature, including Priore and Beauvais (2022a) work on making the business case for quality, critically linking leadership development to institutional performance metrics. Their body of work argues that quality, safety, experience, and efficiency are not independent goals, but rather deeply interconnected imperatives that require effective leaders with strong business acumen. It's no secret that many clinicians and non-clinicians lack formal training in cost analysis, ROI calculation, and strategic financial planning – gaps that the HEAL Program directly addresses. Their work further suggests that healthcare leaders must be able to quantify the impact of proposed improvements on quality outcomes, efficient throughput, and financial impact.

Unlike traditional leadership courses, which often emphasize theory and soft skills in isolation, the HEAL Program was grounded in practical application and focused on actionable improvement to achieve measurable results. Program participants brought leadership challenges into the learning environment and were expected to apply key concepts from the didactic lessons to address them throughout the course. A distinguishing feature of the HEAL Program was the deliberate crosswalk and intentional alignment of the national strategy, organizational goals, and key performance indicators (KPIs), which were translated into measurable learning objectives to develop and deliver relevant leadership education and training focused on performance improvement through experiential learning and interprofessional collaboration.

Participants identified and implemented a rapid-cycle pilot test of capstone projects to address institutional challenges. Beyond the intended leadership development, devising and implementing a performance improvement project from start to finish enhanced participants' comfort and confidence in tackling challenging problems. The projects were designed not only as learning exercises but also as mechanisms for driving measurable performance improvements in quality, service delivery, and the reduction of wasteful expenses.

This paper evaluates the HEAL Program's outcomes using Kirkpatrick's model as the guiding framework. This framework enabled a structured assessment of the program's impact across multiple dimensions, from participant satisfaction to organizational outcomes. At Level 1, HEAL assessed participant reaction to course content and facilitation; at Level 2, learning was measured through self-assessed competency gains; at Level 3, behavioral change was evaluated through reflective practice, supervisor feedback, and application of new skills in performance improvement initiatives; and at Level 4, institutional return was estimated based on project outcomes, both quality improvement and financial impact. The goal of this evaluation was twofold: first, to assess whether the HEAL Program successfully delivered on its potential to drive applied, outcome-driven leadership development; second, to contribute to the broader conversation on how healthcare organizations can build sustainable pipelines of high-impact leaders equipped to address 21st-century challenges.

2. Methods

This study employed a mixed-methods evaluation approach informed by Kirkpatrick's four-level typology (Kirkpatrick & Kirkpatrick, 2006) to assess the effectiveness of the HEAL Program. The Kirkpatrick model was selected for its widespread use in training evaluation and its compatibility with the program's goal of linking individual learning to organizational performance outcomes. The study design incorporated quantitative and qualitative data across multiple time points to capture a comprehensive view of participant satisfaction, learning gains, behavioral changes, and institutional impact.

2.1. Needs Assessment

The HEAL Program was developed following a structured needs assessment conducted at a major tertiary health system in Riyadh, the capital city of Saudi Arabia. The needs assessment included semi-structured interviews with senior leaders, who identified specific organizational challenges and key competencies needed to address them. Respondents emphasized the importance of financial management, strategic planning, quality improvement, business case development, and team leadership. These insights were used to define the program's competency model and curriculum, ensuring alignment with the health system's strategic plan and broader national priorities, including Saudi Vision 2030.

Senior hospital leadership nominated participants based on their performance and advancement potential. The cohorts included physicians, nurses, pharmacists, and non-clinical administrators in supervisory or management roles. The program was accredited by the Saudi Commission for Health Specialties (SCFHS) and structured as an eight-module certificate course, delivered over a four-month period.

Before the program began, participating leaders were administered an in-depth personal leadership assessment, the Gallup Clifton Strengths 34 Individual Leadership Assessment, by a certified coach. The coach reviewed each participant's results to create an individualized professional development plan. The plan aimed to help leaders discover what they naturally do best, learn to develop their greatest talents, and apply these insights to improve their developmental readiness and performance within the organization (Avolio & Hannah, 2008; Salas, Tannenbaum, Kraiger, & Smith-Jentsch, 2012).

2.2. Curriculum Design and Delivery

The program curriculum integrated learning principles, including peer learning, problem-centered instruction, and provided opportunities for immediate application. It covered a range of topics identified during the development of the competency model, including quality improvement, operations efficiency, financial management, business case development, innovation, team performance, and population health. Financial modeling, stakeholder mapping, and project management were integrated into the HEAL curriculum alongside traditional leadership content, including improving effective communication, building high-performing teams, and creating capacity for growth.

The HEAL Program was delivered by a team of scholar-practitioner faculty and senior healthcare executives with experience in both teaching adult learners and applied leadership. Program faculty possessed

in-depth subject-matter expertise, the ability to achieve best-practice outcomes among adult learners, and advanced skills in translating current research and theories into actions that participating leaders could immediately apply in their jobs. Faculty provided individualized coaching and facilitated application exercises tailored to participants' organizational contexts, including the use of relevant tools and techniques, such as stakeholder analysis, ROI calculators, and other practical methods, that participants could immediately apply.

The program culminated in a capstone project in which participants presented an improvement initiative aligned to institutional priorities, demonstrating both skill acquisition and business case justification for change. Each module was delivered face-to-face over two to three days, encompassing pre-reading materials, interactive lectures, structured group exercises, and individual reflection activities.

2.3. Evaluation Framework: Kirkpatrick's Four Levels

Donald Kirkpatrick's four-level evaluation model is a foundational framework for assessing the effectiveness of training and development programs and is central to the HEAL Program's design. Introduced in 1959 and later expanded, the model includes four sequential levels: reaction, learning, behavior, and results. It emphasizes not only the participant's satisfaction and knowledge acquisition but also the transfer of learning to workplace behaviors and the ultimate impact on organizational performance.

Kirkpatrick's model remains one of the most widely applied frameworks for evaluating the effectiveness of training programs (Bates, 2004; Smidt, Balandin, Sigafoos, & Reed, 2009; Ulum, 2015). Ulum (2015) emphasized the model's ability to evaluate how participant learning is transferred into actual workplace behavior and aligned with institutional objectives. Sim et al. (2017) applied the model to a 12-week intensive ultrasound course, demonstrating meaningful progression from participant engagement to improved diagnostic competencies and measurable clinical outcomes, which illustrates the model's capacity to assess the transfer of learning in complex, applied settings. These examples affirm Kirkpatrick's model as a practical tool for capturing both individual learning and systemic improvement when used with attention to learner readiness, context, and strategic alignment, providing a robust foundation for evaluating the real-world impact of leadership and training programs.

This framework enabled a structured evaluation of the program's impact across multiple dimensions, including participant satisfaction and organizational outcomes. The four levels of Kirkpatrick's evaluation model, along with their corresponding measurements, are presented in Table 1.

Table 1. Kirkpatrick typology and heal program assessment.

Level	Category	HEAL assessment	HEAL assessment frequency
	Reaction	Participant feedback on program	Post-module
2	Learning	Participant self-assessed competence	Pre-course and post-module
		Faculty ratings of participant acquisition of knowledge and skills	
3	Behavior	Faculty ratings of participant performance	Immediately after course and three months post-course
4	Results	Participant improved skills lead to improve processes	Post-course
		Improvement in organizational performance and ROI	Post-course

2.3.1. Level 1: Reaction

Learner satisfaction and engagement were evaluated at the end of each module using anonymous post-session surveys. The surveys included Likert-scale items assessing content relevance, instructional quality, facilitator effectiveness, and overall value. Open-text fields captured qualitative feedback on strengths and areas for improvement. Participants were also asked to rate their level of agreement with statements regarding their confidence in applying the program content in their workplace.

2.3.2. Level 2: Learning

Participants completed structured pre-course and post-module competency self-assessments. These used a 5-point Likert scale to measure self-perceived confidence and skill for each module-specific objective. For example, participants rated their ability to develop operating budgets, interpret financial statements, apply performance improvement tools, and lead cross-functional teams.

2.3.3. Level 3: Behavior

Behavioral change was assessed through written reflections, capstone project design, and informal follow-up interviews. Participants were asked to describe how they engaged stakeholders in change initiatives, how they applied new concepts in the workplace, and the challenges they encountered during change implementation. Participants were also asked to share progress on capstone initiatives and stakeholder engagement.

2.3.4. Level 4: Results

The organizational impact was evaluated through participant-submitted capstone summaries that included project metrics, estimated ROI, alignment with institutional priorities, implementation plans, and sustainability strategies. Although long-term tracking was not feasible within the study timeframe, participants reported short-term improvements in quality, efficiency, and cost, which were confirmed through informal feedback from institutional leaders.

2.4. Participants and Sampling

The HEAL Program was delivered to three cohorts comprising 86 mid-career healthcare professionals over 18 months. Response rates for evaluation instruments were high: 96 percent of participants completed both pre- and post-course competency assessments, and 100 percent completed satisfaction surveys for at least six of the eight modules. Participants had a median of 12 years of healthcare experience; 68 percent held clinical credentials, while 32 percent had administrative or non-clinical backgrounds. Only 19 percent had formal education in healthcare finance, and 26 percent reported experience in quality improvement or project management.

All participants were assured of confidentiality and anonymity during the evaluation process. Surveys were administered electronically and analyzed independently. Open-ended reflections and capstone project summaries were de-identified before coding and thematic analysis.

2.5. Ethics and Consent

This study was reviewed and approved by institutional leadership as part of a programmatic quality improvement initiative and was deemed not to constitute human subjects research under applicable ethical guidelines. Participation in all surveys and feedback activities was voluntary, and no personally identifiable information was collected. Open-ended responses and capstone materials were anonymized before analysis to ensure participant privacy and confidentiality.

2.6. Instruments and Data Analysis

2.6.1. Instruments

Four instruments were used to evaluate program outcomes: pre-course competency assessment, post-module satisfaction surveys, capstone project submissions, and post-course reflection essays.

Pre-Course Competency Assessment.

A structured 21-item self-assessment tool was administered to measure baseline confidence in leadership, financial management, and quality improvement competencies aligned to the learning objectives of Modules 1–4 and 5–8. Participants rated their confidence on a five-point Likert scale ranging from "Not at all confident" to "Exceptionally confident."

Post-Module Satisfaction Surveys.

After each module, participants completed standardized surveys that included Likert-scale items evaluating content relevance (e.g., "The content was relevant to my role"), instructional effectiveness (e.g., "The instructor was engaging"), and self-efficacy (e.g., "I am confident I can apply what I learned"). Open-ended questions invited feedback on what worked well and what could be improved.

Capstone Project Summary and Presentation.

Each participant submitted a one-page executive summary and delivered a 15-minute presentation to institution stakeholders describing a quality improvement initiative that applied program tools and concepts. The summaries included problem and goal statements, stakeholder analysis, KPIs, a pilot implementation plan, anticipated ROI, and a sustainability strategy.

Post-Course Reflection Essay.

Participants completed a structured reflection summarizing key insights, intended applications, personal growth, and ongoing development needs. These narratives served as a source of qualitative data on learning transfer and leadership confidence.

2.7. Data Analysis

Quantitative data were analyzed using descriptive statistics, including means, modes, and ranges. Paired-sample comparisons of pre- and post-assessment scores were used to calculate confidence gains. Qualitative data from reflection essays, survey comments, and capstone summaries were analyzed thematically by two independent reviewers. Coding focused on behavioral application, leadership insight, implementation barriers, and perceived organizational impact.

Triangulation of qualitative and quantitative data strengthened the credibility of findings and identified converging evidence across multiple data sources. A formal ROI methodology, as presented, Priore and Beauvais (2022b) was applied to estimate the potential value to the sponsoring institution. The approach for making a sound business case involves five sequential steps. After identifying the specific opportunity for quality improvement, such as an unmet need or inefficient process, participants calculated the current or projected revenue and cost associated with it. Next, the anticipated cost of the proposed intervention was determined. Based on a reasonable and conservative forecast, the estimated impact of the quality improvement

was monetized, indicating the amount the project will save or generate in incremental revenue over a specified period. Lastly, the cost was compared to the projected return expected from the proposed initiative.

3. Results

The evaluation of the HEAL Program yielded compelling evidence of its effectiveness across all four levels of Kirkpatrick's model. Participants demonstrated high satisfaction with the program (Level 1), significant gains in self-reported confidence and capability across core competencies (Level 2), clear behavioral intentions and documented applications of learning in the workplace (Level 3), and early indicators of positive organizational impact (Level 4). The results below are organized by evaluation level and draw from quantitative surveys, competency assessments, structured reflections, and capstone project data.

3.1. Level 1: Reaction

Participants consistently rated the HEAL Program highly across all modules, particularly in areas that emphasized practical application, interactive learning, and relevance to their professional roles. Mean satisfaction scores ranged from 1.35 to 2.4 on a five-point scale (1 = Strongly agree, 5 = Strongly disagree), with over 95 percent agreeing that the content was relevant and the instruction engaging. Modules on quality improvement, financial management, and high-performance teams received the strongest ratings.

Participants particularly valued the program's emphasis on real-world problem solving, team-based learning, and practical financial management tools. Participants highlighted the program's balance between theoretical framing and real-world examples as a key strength. Modules focused on quality improvement, financial management, and leading high-performance teams received the most positive feedback.

Table 2. Learner satisfaction scores by module.

Module	Content organized (Avg.)	Instructor engaging (Avg.)	Useful in practice (Avg.)
Finance	1.78	1.89	2.00
Operations	1.76	1.76	1.71
Clinical improvement	1.35	1.35	1.65
Business case for quality	1.95	1.47	1.89
High-performance teams	1.50	1.50	1.70
Innovation	2.40	2.00	2.30
Population health	2.00	2.10	2.20
Corporatization and consumerism	1.90	1.80	2.00

Table 2 presents participant evaluations of the eight HEAL program modules across three dimensions: content organization, instructor engagement, and practical usefulness, measured on a five-point Likert scale (1 = strongly agree; 5 = strongly disagree). Scores across all modules ranged from 1.35 to 2.40, indicating consistently high learner satisfaction. The strongest ratings were observed for clinical improvement, operations, high-performance teams, and the business case for quality, suggesting that participants found the core leadership, quality, and financial integration content particularly well-designed, engaging, and applicable to their work. Modules addressing innovation and population health received slightly higher (but still favorable) scores, reflecting the greater technical and analytical complexity of these domains. Overall, the results demonstrate strong Level-1 (reaction) performance, providing a credible foundation for subsequent analyses of learning transfer and organizational impact.

Open-ended responses suggested that learners appreciated the faculty's ability to connect leadership principles to measurable outcomes, particularly in the modules on financial management, quality improvement, and high-performing teams. Some participants requested more in-class exercises and small-group coaching, particularly in the more technical sessions, such as calculating ROI and analyzing population health data.

3.2. Level 2: Learning

Pre- and post-program self-assessments revealed substantial gains in leadership, financial management, and quality improvement-related competencies, particularly among participants without prior formal training in these domains. The assessments revealed statistically and practically significant improvements in confidence across all learning domains. Participants rated their self-perceived ability to apply targeted skills on a five-point Likert scale (1 = Exceptionally confident, 5 = Not at all confident). Substantial gains were observed in domains where participants had limited formal training, including financial analysis and modelling, innovation, and population health management.

The most notable improvements were in financial analysis, budgeting, and understanding ROI in quality projects, with average increases in confidence ranging from +1.55 to +2.32 points. Qualitative reflections affirmed that the program demystified complex topics and made them actionable in participants' professional contexts.

Table 3. Selected pre- and post-competency gains (Modules 1–8).

Learning objective	Pre (Mean)	Post (Mean)	Δ Change
Develop an operating budget	4.35	2.33	+2.02
Conduct a financial analysis	4.46	2.33	+2.13
Manage staffing costs	3.88	2.33	+1.55
Understand ROI in quality improvement projects	4.27	1.95	+2.32
Apply innovation models to healthcare delivery	3.43	2.20	+1.23
Create business development plans	3.91	2.10	+1.81
Apply public health frameworks to population-based care	3.35	2.00	+1.35
Identify volume growth targets	3.91	2.00	+1.91
Evaluate value-based care models	3.96	1.80	+2.16
Lead high-performance teams using coaching and feedback tools	2.96	1.95	+1.01

Table 3 presents pre- and post-program changes in participants' self-assessed leadership competencies across the HEAL curriculum, providing evidence of Level-2 (learning) outcomes. Across all measured domains, mean scores improved from baseline to program completion, with the largest gains observed in financial acumen, quality improvement, strategic thinking, and systems leadership. These domains align directly with the program's emphasis on integrating clinical, operational, and financial decision-making. Smaller but still positive gains were observed in interpersonal and communication competencies, which were already relatively strong at baseline. The consistent upward shifts across competencies indicate that participants not only reacted favorably to the program (as shown in Table 2) but also reported meaningful increases in knowledge, skills, and confidence in applying leadership tools central to healthcare performance improvement.

Reflective comments noted that the program translated complex concepts into actionable insights. One participant remarked: "I've worked in quality improvement for five years, but this is the first time I've been able to link outcomes to financial impact confidently." Another shared: "Finance used to intimidate me. This program made it understandable and useful in my job." Confidence gains were most pronounced among non-financial leaders in clinical roles (e.g., physicians and nurses), indicating that the interdisciplinary framing of content was successful in making abstract concepts tangible.

3.3. Level 3: Behavior

Post-course reflections, informal interviews, and capstone updates provided rich evidence of behavioral change among HEAL Program participants. Nearly all participants reported applying newly acquired skills and tools in their workplace roles throughout and within three months of completing the program. These applications varied widely, reflecting the diverse roles and contexts of participants. Some described developing budget templates to better guide unit-level resource planning, while others led improvement initiatives grounded in A3 problem-solving and Lean Six Sigma methodologies.

Several participants successfully presented business cases to institutional leaders using financial analysis and ROI templates introduced during the course. They also reported increased confidence in participating in strategic planning and greater involvement in decision-making processes. Shortly after completing the program, several participants assumed roles on internal performance improvement or quality committees.

A radiology department leader shared that the capstone project aimed to reduce unnecessary imaging procedures, thereby improving patient throughput and generating cost savings. Another participant working in nursing leadership applied real-time dashboards and root cause analysis tools to reduce medication errors, citing the application of these quality improvement tools and data analytics techniques that were introduced during the HEAL Program modules. Although some participants acknowledged challenges, such as organizational inertia or limitations in their decision-making authority, many credited the program with providing a new language and conceptual framework that helped them advocate more effectively for change within their teams and the institution.

3.4. Level 4: Results

Across three cohorts, 86 participants developed 35 capstone projects aligned with institutional priorities. These initiatives addressed core domains, including operational efficiency, population health, and cost reduction, yielding an estimated $54 million in return – a 23:1 return ratio, factoring in all program-related costs, including participants' compensation and benefit expenses for their time involved with the program.

Projects varied in scope and focus, but they consistently demonstrated tangible value. One capstone initiative in the cardiology department addressed the overutilization of telemetry monitoring, resulting in a projected annual savings of $85,000. Another focused workforce redesign in nursing successfully improved nurse-to-patient ratios without increasing labor expenditures. In population health management, a leader applied predictive risk scoring to better target chronic disease interventions and optimize resource allocation.

A service line business plan developed by another participant identified opportunities for $500,000 in projected new annual revenue through targeted growth.

A noteworthy project that became the national model for hospital-based palliative and hospice care, designed and implemented by an oncologist participating in the HEAL Program. This initiative introduced a multidisciplinary care pathway that reduced the average length of stay for palliative care patients by over 60 percent from 28 days to 10.1 days and decreased the cost of admissions from $19.6 million to $5.4 million annually, establishing the scalability of the HEAL Program (Alshammary, Abuzied, & Ratnapalan, 2021).

The institutional response to the projects was strong. Hospital leaders reviewed capstone executive summaries and selected several to provide resources for institution-wide implementation. In some cases, elements of the HEAL curriculum were integrated into broader leadership development strategies. Several projects were adopted by hospital leadership for wider implementation, and elements of the HEAL curriculum were subsequently incorporated into ongoing leadership development efforts. One senior medical executive summarized the program's organizational relevance: "This is the first leadership program I've seen that directly maps to what we care about – quality, cost, and experience."

4. Discussion

By applying Kirkpatrick's four-level framework, the HEAL Program presents a replicable, scalable, evidence-based model for evaluating leadership development effectiveness in healthcare organizations. Its integration of real-world projects, competency-based assessments, and ROI tracking distinguishes it from conventional training approaches emphasizing theory without clear organizational outcomes. The program aligns with current scholarship advocating contextualized, immersive, and performance-driven learning experiences, moving beyond classroom instruction to applied, value-generating leadership development.

Findings from this evaluation suggest that the HEAL Program achieved its primary objectives. Participants demonstrated measurable improvements in leadership competencies, reported increased confidence in decision-making, and effectively translated their learning into workplace behavior. Kirkpatrick's framework enabled a multidimensional analysis of program outcomes across three successive cohorts, reinforcing the program's design and the validity of its outcomes.

At Level 1 (Reaction), participant satisfaction was consistently high. This aligns with adult learning theory, emphasizing relevance, engagement, and experiential design. Modules on finance and clinical improvement received particularly strong feedback, suggesting that the program effectively addressed leadership skill gaps that traditional development models often fail to address. Interprofessional collaboration was also highly rated, underscoring the value of team-based learning and collaboration in leadership development, especially among clinical practitioners (Bornman & Louw, 2023; Reeves et al., 2016).

At Level 2 (Learning), participants reported significant gains in confidence across leadership, financial, and quality domains. Gains in financial literacy, including ROI analysis, budgeting, and cost justification, were especially notable given the common deficits among clinical leaders in these areas. The HEAL Program's ability to simplify financial management concepts and make them actionable was a critical driver of participant engagement and development.

At Level 3 (Behavior), evidence of learning transfer was observed through reflection essays, the capstone project, and informal feedback. Participants described launching new quality initiatives, developing business cases, and leading cross-functional teams with greater confidence, clarity, and purpose. While some participants faced organizational constraints, such as limited authority or resistance to change, the program equipped them with the tools, language, and confidence to advocate for performance improvement.

At Level 4 (Results), capstone projects generated tangible early returns, including quality improvements, operational efficiencies, and cost savings, all strategically aligned with institutional priorities. The sponsoring institution formally adopted several and, in some cases, integrated them into broader organizational initiatives. The reported $54 million in aggregate financial return affirms the program's institutional value and supports the feasibility of scaling similar models in other systems.

Importantly, the HEAL Program's modular structure, applied learning model, and contextual flexibility make it scalable across diverse healthcare environments. The program minimizes disruption and taxing operational bandwidth while maximizing impact by aligning professional development with systematic addressing of real-world challenges. These characteristics align with emerging best practices in leadership education, particularly hybrid and experiential models that balance theoretical foundations and practical applications (Narayandas & Moldoveanu, 2019).

Unlike general leadership programs, the HEAL course embeds development within the participants' daily realities. This embeddedness reinforces Priore and Beauvais (2022b) the call for leaders who can articulate and deliver a business case for quality, linking leadership to system-level accountability. In this way, the program built individual capability, supported broader institutional transformation, and expanded leadership capacity.

As healthcare systems face mounting pressure to deliver high-quality care with constrained resources, leadership development models must demonstrate ROI across clinical, operational, financial, and educational domains. The HEAL Program offers a compelling example of how leadership education can be rigorously evaluated, practically applied, and organizationally impactful. Its ability to link learning to measurable results

represents a meaningful contribution to the field and a viable blueprint for health systems seeking to develop future-ready leaders.

4.1. Study Limitations

While this evaluation provides meaningful insight into the HEAL Program's effectiveness, several limitations warrant consideration. First, the study relied primarily on self-reported data, especially levels one through three, which may introduce response bias and overestimate behavioral change or organizational impact. Although triangulation with capstone outcomes and informal leadership feedback supports the credibility of findings, future evaluations should incorporate more objective, externally validated measures such as 360-degree feedback, direct observation, or performance indicators derived from institutional dashboards.

Second, the sample was limited to three cohorts at a single tertiary academic institution, which may have limited its generalizability. Although participants represented diverse clinical and administrative backgrounds, the specific cultural, operational, and strategic context of the host institution may differ from that of other healthcare systems. Broader implementation across varied organizations and geographies would help test replicability and strengthen external validity.

Third, the evaluation focused on short-term outcomes. While early indicators of learning transfer and project implementation were promising, the study did not assess longer-term effects such as sustained behavioral change, promotion or advancement into leadership roles, or organizational ROI over time. Longitudinal studies would help clarify the enduring impact of such programs on institutional performance and talent pipelines.

Finally, while Kirkpatrick's four-level framework provides a pragmatic structure for evaluating training impact, it assumes a linear progression and does not fully capture the complex, non-linear factors that influence leadership development outcomes. Bates (2004) points out that the model's assumed linearity oversimplifies the multifactorial nature of learning and neglects contextual enablers such as organizational support or culture. Ambu-Saidi, Fung, Turner, and Lim (2024) add that while Kirkpatrick's model remains popular, it underrepresents formative feedback mechanisms and overlooks ethical and learner-centered dimensions, such as the principle of beneficence.

To address these limitations, future research should employ mixed-methods designs that integrate validated, objective performance measures, such as 360-degree feedback or institutional KPIs, with participant self-assessments to reduce bias and improve reliability. Expanding evaluations across multiple healthcare settings and diverse geographic contexts would enhance generalizability and provide insights into how organizational culture and system complexity influence program impact. Longitudinal studies that track participants over time can also assess sustained leadership behavior, career progression, and organizational ROI, offering a deeper understanding of the long-term value of leadership development.

5. Conclusion

The HEAL Program represents a leadership development model that successfully bridged and integrated academic theory, applied learning, and measurable organizational impact. Grounded in Kirkpatrick's four-level evaluation framework and informed by adult learning principles, the program's modular structure, interprofessional collaboration, and embedded real-world projects fostered both individual transformation and system-level value. By preparing healthcare leaders to navigate operational complexity through quality improvement, financial management, and strategic acumen, HEAL addressed a critical capability gap, particularly among clinical leaders who lack formal management training.

Evaluation findings provide compelling evidence of the program's effectiveness. Participants reported significant gains in confidence and capability, translated new competencies into practice, and implemented capstone projects that advanced cost reduction, quality improvement, and strategic alignment. Integrating financial modeling and business case development was especially impactful in equipping leaders to link innovation with accountability.

As healthcare systems face mounting complexity, financial strain, and intensifying performance demands, leadership development must evolve accordingly. The HEAL Program offers a scalable, contextually grounded approach that aligns talent development with institutional priorities and measurable outcomes. Future research should continue to assess long-term impact, cross-organizational replication, and the program's role in strengthening leadership pipelines. By embedding measurable value into its design and delivery, the HEAL Program exemplifies the next generation of leadership development, one that can transform both individual leaders and the communities they serve.

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