

Evaluation and Program Planning

Assessment of the Implementation and Outcomes of a Physician Leadership Program: Continuous Feedback Loop Design --Manuscript Draft--

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Corresponding Author:	Huey Chen Mercer University 3001 Mercer University Dr., GA United States
First Author:	Gregg M. Gascon, Ph.D.
Order of Authors:	Gregg M. Gascon, Ph.D. Huey Chen Liliana Morosanu, M.P.H. Victor H. Chen, M.S. Phil Cass, Ph.D. Robert Falcone, M.D.
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Suggested Reviewers:	
Opposed Reviewers:	

Highlights

- Physicians assume leadership roles without proper training, therefore they fully engage in training opportunities
- Blending leadership seminars, mindfulness meditation, and executive coaching improved physicians' confidence to impact their healthcare system and communities
- M&E systems and theory-driven evaluation with built-in feedback loops better serve stakeholders's needs for accountability and continuous program improvement

Assessment of the Implementation and Outcomes of a Physician Leadership Program: Continuous Feedback Loop Design

Gregg M. Gascon¹, Ph.D., C.H.D.A.

*Huey T. Chen², Ph.D.

Liliana Morosanu², M.P.H.

Victor H. Chen³

Phil Cass⁴, Ph.D.

Robert Falcone⁵, M.D.

¹ College of Medicine, The Ohio State University, 2088 Scottingham Drive, Dublin, Ohio, 43016, USA

² Department of Public Health and Center for Evaluation and Applied Research, Mercer University, 3001 Mercer University Drive, Atlanta, GA, 30341, USA, chen_h@mercer.edu; morosanu_l@mercer.edu

³ Department of Management, University of North Texas, University of North Texas, 1155 Union Circle #305429, Denton, TX, 76203, USA

⁴ Physicians Leadership Academy, 4938 Thornhill Lane, Dublin, Ohio, 43017, USA

⁵ Physician Leadership Academy, 4938 1390 Dublin Rd, Columbus, Ohio, 43215

*Corresponding author: chen_h@mercer.edu

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Abstract

Physicians assume leadership roles in their healthcare organizations and everyday practices, often without proper training. These implied responsibilities affect their wellbeing and cause stress and burnout. The Physician Leadership Academy integrated leadership seminars, mindfulness training, and executive coaching into a 10-month curriculum to provide this much needed training to practicing physicians. Evaluators responded to stakeholders' request of feedback for accountability and continuous program improvement by developing a continuous feedback loop evaluation design incorporating a M&E system and a the theory-driven component. Data were regularly sent to stakeholders for consideration. Findings indicate that the cohort was highly engaged, despite the emergence and rise of the 2019 coronavirus pandemic. The cohort of physicians demonstrated significant learning across the curriculum, improved mindfulness, personal and professional growth, high levels of emotional and social intelligence, and improved perceived abilities to impact their health care system and communities. Implications of the findings for future evaluations of program developments are discussed.

Introduction

Physicians across the United States and other countries have faced challenges of high workload and increasing performance demands. As a consequence, many suffer from stress, depression, and burnout (Dzau et al., 2018; West et al., 2018). Additionally, physicians are often expected to take on a leadership role within the organization, without, however, having received adequate training in advance. These expectations further increase their stress load and limit physicians' contributions to their hospital and community (Sklar, 2018). The literature indicates that mindfulness programs are effective in helping physicians to cope with stress and burnout (Goyal et al., 2014; Regehr et al., 2014; Shapiro et al., 2005). Since mindfulness training on attention, emotion, and self-regulation might also support physicians' leadership capacity (Ludwig & Kabat-Zinn, 2008; Reb & Atkins, 2015), advocate organizations have proposed to integrate mindfulness training and practice into the physician leadership program. There is little empirical support for the value of mindfulness-awareness practice on the leadership skills of healthcare practitioners (Wasyliw et al., 2015). The contribution of this study is to evaluate the implementation and outcomes of the Physician Leadership Academy (PLA) which integrated mindfulness and leadership training. The program was developed and implemented by a medical association in a north-central state, following a year-long needs assessment.

This is a common interest well illustrated in the literature, as healthcare decision-makers have shown increasing attention to continuous quality improvement (Zamboni et al., 2020). Coincidentally, recent evaluation literature also showed progress in developing evaluation approaches for addressing continuous improvement issues in healthcare training programs due to the pace of change in the field (Schwartz et al., 2019; Trombetta et al., 2020). This evaluation will contribute to this development by illustrating the use of the continuous feedback loop design

to achieve the same ends.

This paper will introduce the program, describe the continuous feedback loop design and related methodological issues, describe the findings, and discuss the implications of this evaluation for program and evaluation methodology development.

The Program and its Theoretical Foundation

The mission of the PLA is to reconnect practicing physicians with their original purpose for becoming physicians by helping them grow personally and professionally, and ultimately apply their new strengths to the improvement of their health care system and the community they serve. The program spans over 10 months and generates 35 continuing medical education credits (CME). Additional annual retreats are available to alumni. Fellows are expected to attend each session, practice meditation, engage with their executive coach, and retain and apply the information learned throughout the process. The orientation is held each September, followed by a 3-day retreat in October, seminars, and practice from November to March, a 3-day retreat in April, seminars, and practice in May and June, and a graduation ceremony in June.

Several program aspects make the PLA different from its competitors. First, its definition of leadership is unique and rooted in the idea that awareness and mindfulness are part of a growth-mindset that is required for personal and professional growth. Second, it provides training and practice on how to host and how to participate in impactful meetings as a leader. Lastly, it provides continuous support for the practice of skills, the application of knowledge, and the development of attitudes that allow for personal and professional growth.

The PLA program design has three main components: *leadership seminar* - to build the core competencies of leadership, insight, and communication (about 76 hours), *meditation* - to improve mindfulness, and emotional and social intelligence (about 10 hours), and *personal*

executive coaching - to facilitate the development and practice of leadership (about 10 hours).

Each component is explained in detail next.

The Leadership Seminar

The first foundation of the PLA program, the leadership seminar, provides the backbone for the program content. The content is grounded on Otto Scharmer's Theory U (Scharmer, 2007); learning and management is a five-step journey (presencing) wherein participants connect to the world outside of themselves, connect to their inner world, and bring those inner insights into the world. The connection between these three movements - down the 'U', across the bottom, and up again - is the process of letting go of one's current ego and letting our highest future self-emerge. The term 'presencing' refers to the transformation between our current and best future selves.

Theory U posits that the institutional failures seen in today's world are the result of our blindness to the deeper dimensions of leadership and transformational change, the place from where effective leadership and social action come into being (Scharmer, 2007). In Theory U training, participants are taught to understand that who we are as people (the source) determines how we respond to the world (the process), which determines what we do (the results). To develop as a leader, participants must re-visit who they are by understanding fields of attention beginning with listening. This practice leads participants to understand that these 'structures of attention' determine the path of social emergence. At its root, Theory U focuses participants' attention on the connections between who they are as a person to how they respond to themselves and the world, which opens them up to the possibility of positive change and leadership. According to Scharmer, "...the way we pay attention to a situation, individually and collectively, determines the path the system takes and how it emerges" (Scharmer, 2007, p. 5).

This approach to change management provides the inspiration and connection between all of the content delivered to the 2019-20 Physician Leadership Academy training program. Fellows are expected to develop and/or enhance their leadership skills upon graduation from the program.

Mindfulness Meditation Practice

The second foundation of the PLA program, mindfulness meditation, helps physicians develop emotional and social intelligence. A brief written guide introduces the practice of mindful meditation, and a faculty member in residence (meditation instructor) provides support and facilitates practice throughout the 10-month course.

The form of meditation taught by the PLA is in the tradition of the Mindfulness-Awareness practice of meditation. This practice proceeded from what is referred to in Sanskrit as Shamatha (mindfulness) Vipashana (awareness). It has roots in India, dating to about 2,500 years ago. In this tradition, mindfulness and awareness are considered inseparable aspects of the mind. However, in the practice of teaching this form of mindfulness-awareness meditation, mindfulness is emphasized first, as a stabilizing practice. The practice of mindfulness naturally opens the practitioner to awareness.

Mindfulness and awareness are pre-existing in this context; they are not something that a person achieves, but rather an innate capacity that one tap into through practice. Mindfulness allows a person to focus on something. Through this “presently knowing” awareness, one knows that they are focusing on something. In shamatha-vipashana practice, participants place their attention on an object. The Physicians Leadership Academy training follows the most common object-placement method, in which the object is the breath (or the experience of breathing). Emphasis on the breath allows participants to more easily be reminded of their mindfulness practice as they go about their daily lives—their breath is always with them. Physicians are

encouraged to rest simply in their experience, in their basic nature, and experience what it is to be human.

Jon Kabat-Zinn (Center for Mindfulness in Medicine, Health Care, and Society at the University of Massachusetts Medical School) was the first westerner to introduce this form of meditation into the medical profession, producing a series of studies of its use in healthcare settings designed to reduce anxiety and lower perceived pain. Here, the focus is on instruction, although over time, participants should begin to feel a greater sense of well-being, less agitation, and a greater level of contentment.

Executive Coaching

The third foundation of the PLA program, executive coaching, is designed to guide physicians in taking steps towards achieving their personal and professional goals and further enhance leadership development and performance. The PLA uses three external coaches, trained and certified through the Hudson Institute of Coaching (Santa Barbara, CA) and credentialed through the International Coaching Federation (Lexington, KY). They engage physicians for 10 sessions by following the coaching process presented in Table 1. Fellows have access to coaching outside of the monthly sessions as well, given that the coaching process is by no means linear, as physicians could reformulate goals and strategies as they progress through training. Coaching has been found to have been used successfully to improve well-being (Theeboom et al., 2014).

TABLE 1 ABOUT HERE

Evaluation Approach and Design

The PLA program was developed in 2013. A formal process evaluation was conducted by The Ohio State University following the first two cohorts. An evaluation was conducted after the fourth cohort using internal resources. The 2019-2020 cohort is the fifth cohort and the focus of this study. Documentation of the intended program evaluation was submitted to The Ohio State University Institutional Review Board in August 2019; the study was determined to be a program evaluation and as such, did not fit the human subject research under 45 CFR 46.102(d).

Program Theory

Evaluation literature (Author, 1990, 2015; Donaldson, 2007) indicates it is essential for evaluators to help stakeholders clarify their program theory (or theory of change), to support communication about the program, and guide the evaluation design. Given that the PLA is a training program, the stakeholders' program theory fitted Kirkpatrick's training evaluation model (Kirkpatrick, 1994) with its four levels of outcomes: *reaction*, *learning*, *behaviors*, and *results*. In the PLA program, *reaction* gauges participants' satisfaction with classes; *learning* measures acquired knowledge and skills from the training, and expected *behaviors* are optimal mindfulness and wellbeing, social and emotional intelligence, and leadership capacity. Stakeholders believe that the program must impact *mindfulness and wellbeing as a mechanism* that enables the achievement of all other outcomes. Finally, *results* examine to what degree physicians apply the newly acquired skills within their organizations and communities.

Kirkpatrick's evaluation model also provided the base for selecting *indicators* for *program monitoring* activities (M&E system) - further discussed in the Methodology section - and allowed establishing *two feedback loops* to support *continuous program improvement* (Figure 1) - the second goal of evaluation stressed by stakeholders.

Evaluation design

Communication with key sponsors indicates that they need an assessment of the program's effects for both accountability and ongoing program improvement purposes. The systems thinking literature illustrates the usefulness of feedback loops for improving the performance of a system (Institute of Medicine, 2001; Trochim et al., 2006). Two feedback loops were proposed to meet the stakeholders' needs:

Feedback Loop 1: The monitoring and evaluation system (M&E) approach (Mrazek et al., 2007) to program evaluation provided a platform for collecting implementation and participants' reaction and learning data, as activities unfolded. These data were communicated to instructors to inform their preparation for the next class.

Feedback Loop 2: The theory-driven evaluation (TDE) approach to program evaluation provided the theoretical basis for assessing the relationships among the intervention, mechanisms, and outcomes (Author). Arguably, novel interventions should produce the results (or outcomes) that stakeholders desire if the theoretical foundation assumptions of the interventions are true, and the proposed mechanisms are conducive to outcomes achievement. TDE was used to assess whether participants progressed towards desired outcomes at mid-course and graduation, by assessing the mechanisms and expected outcomes.

The integration of these two feedback loops for this study is illustrated in Figure 1.

FIGURE 1 ABOUT HERE

Methods

The methods section explains the rationale for the research methods adopted and provides an overview of the methods, measures, and analysis of the data.

Research Design and Data Analysis

Experimental designs were not feasible for this study for several reasons. Enrollment in the program was voluntary, therefore a random assignment of participants was not possible, as is the case with many social betterment programs. Participation had associated costs partially paid through grants and partially paid by participants, rendering a small sample size for the 2019-20 cohort examined in this study (n=19). As such, randomization was not possible. Consequently, two pre-experimental designs were selected: the one-group pretest/posttest, and the one-group posttest (Shadish et al., 2002). Power was calculated using the expected cohort size of the 2019-20 fellows. An a priori power analysis was conducted using G*Power version 3.1.9.4 (Faul et al., 2009) to test the difference between matched pairs using a one-tailed test, a large effect size ($d = 0.70$), and 0.05 alpha (Cumming & Calin-Jageman, 2016). The results demonstrated that the 2019-20 cohort was sufficient to achieve a power of 0.80.

The one-group pretest/posttest design was used to assess the mechanisms of the program (mindfulness and wellbeing) along with personal and professional growth at three points in time: baseline - to gather pretest data, mid-course at 5 months - to assess progress towards desired outcomes, and finally at 10 months - to assess final scores. Data were analyzed through a paired sample t-test. The one group posttest design was used to assess all other outcomes at the end of the program, through a one-group t-test using an acceptable standard value for comparison, agreed upon by stakeholders.

Measures and Data Collection

All measures collected from participants are presented in Table 2.

TABLE 2 ABOUT HERE

Implementation measures were collected monthly through self-administered questionnaires distributed electronically to inform the program via feedback loop 1 (M&E). Outcome measures were collected at the baseline, midpoint, and conclusion of the program through self-administered questionnaires distributed electronically to inform the program via feedback loop 2 (TDE).

At *baseline*, the participants were asked to identify their age, sex, race, marital status, title, medical specialty, their graduation year, and the extent to which they were acquainted with their fellow cohort members (homophily). To test for the presence of *homophily* (McPherson et al., 2001), fellows were provided with a list of their cohort members at the orientation and asked if they knew them sufficiently to give an informed opinion on their character (see Table 2). These queries were repeated monthly to provide evidence of the development of a community of practitioners.

Participants were also tested for initial levels of well-being (WHO-5) and mindfulness (MAAS) since these were the mechanisms expected to facilitate the achievement of the rest of the outcomes. At mid-term (5 months), participants were tested for mindfulness, wellbeing, personal and professional growth; additional final measures were collected again after the program (Table 3).

TABLE 3 ABOUT HERE

Findings

Among the 2019-20 cohort (n=19), 52.6 % were male, 63.2 % were Caucasian, 15.8 % were African-American, 15.8 % were Asian, and 5.3 % reported multiple races. The mean age was 41.2 years (7.3 years).

Implementation measures

The participants' feedback on reaction and learning measures was positive. Attendance was high throughout the program averaging 97% across ten sessions. Usefulness scores ranged from 4.37 to 4.75, relevancy from 4.42 to 4.81, and *satisfaction* from 4.21 to 4.81 (Figure 2).

FIGURE 2 ABOUT HERE

There were no scores below 4 (agree). Faculty evaluations were distributed, analyzed, and evaluated for accountability purposes, and were not reported for the program evaluation. Figure 3 indicates the scores of topic understanding improved significantly after attending each of the sessions.

FIGURE 3 ABOUT HERE

Participants reported practicing mindfulness meditation 6-12 times per month throughout the program and meeting monthly with their executive coach, thus meeting two of the objectives of the program. On a monthly cadence, this implementation information was shared with program stakeholders through feedback loop 1.

In contrast to the assumption of homophily, few knew each other before the first session: the median number of fellows known before the PLA was a median of 2 and an interquartile range of 3. By the end of the program, PLA cohort members had built meaningful relationships with one another, judging each other uniformly and strongly in positive terms. At the end of the program, PLA fellows characterized their relationships with one another on a 1 – 10 scale with 10 indicating the highest positive rating. Mean scores were 9.61 (.608) for trusting, 9.67 (.594) for honest, 9.72 (.575) for supportive, and 9.78 (.548) for mutually respectful.

Outcome measures

As mechanisms of the program, mindfulness and wellbeing were measured at baseline, and followed with a mid-term, and end-of-program assessment, along with personal and professional growth. Mid-course results measured participants' progress (feedback loop 2) and were sent promptly to program sponsors, administrators, and the ESW as feedback for program development. The other outcomes presented in Table 3 were measured at the end of the program and tested against a standard value, agreed upon by stakeholders.

TABLE 3 ABOUT HERE

The PLA program improved all outcome measures significantly except for wellbeing and

cognitive capacity.

Conclusion and Discussion

This study illustrated the application of the continuous feedback loop approach to evaluating the 2019-2020 cohort of PLA. Attendance averaged 97 percent across all sessions, and the content was rated as useful, relevant, and satisfying. Although the cohort was diverse and each member knew an average of only 2 of the 19 fellows, by the conclusion of the program each member judged colleagues as trusting, honest, supportive, and respectful. The cohort demonstrated a statistically significant increase in understanding of the training content. Participants engaged in the curriculum, reporting the utilization of mindful meditation and executive coaching beyond of each session.

Continuous feedback from M&E indicates the classes went well. Stakeholders were glad that participants were satisfied with the curriculum and found it useful to their profession. At the midpoint of the program, the wellbeing and mindfulness assessment was repeated to observe the extent to which both attributes were being maintained or increased. While wellbeing declined in January 2020, mindfulness increased slightly. However, stakeholders did not consider the wellbeing results of great concern; these outcomes were observed repeatedly after winter season holidays. Another possible explanation is that the WHO-5 instrument might not be an appropriate measure of wellbeing in this study. The instrument elicits a subjective self-appraisal of participants' feelings (cheerful, relaxed, active, fresh, and rested) that only weigh on emotional state. The WHO definition of wellbeing has other dimensions that were not measured. Accordingly, this instrument might not be sensitive enough to capture the changes made by the intervention. Future programs might need to consider an alternative measure or a new construct. For example, stress reduction might better reflect the merit of the program. A pilot study of a

mindfulness leadership program (Wasyliw et al., 2015) reported that the program was effective in reducing stress.

By the end of the program, PLA fellows did not improve their well-being or cognitive capacities by the statistical measures set a priori, but did improve mindfulness, personal and professional growth, leadership capabilities, and social and emotional intelligence by statistically significant margins, with small to large effect sizes. Overall, the program was successful.

Increasingly more decision-makers are interested in continuous program improvement. Evaluators need to develop their capacity to serve clients in that respect. The authors suggest the following strategies for this purpose: (1). Integrate existing evaluation approaches to amplify their feedback functions: This study illustrated how the integration of M&E and TDE served the stakeholders' needs for continuous program improvement. (2) Creatively adapt existing evaluation approaches to better serve feedback functions. A recent study (Authors, et al., 2019) demonstrated that a typical formative evaluation can be transformed into a multi-wave formative evaluation to meet stakeholders' need for rapid cycle improvement. (3). Develop new evaluation approaches with feedback loop functions. The authors hope that this study will inspire evaluators to apply one or more of these strategies to serve stakeholders' needs for continuous program improvement.

References

- Cumming, G., & Calin-Jageman, R. (2016). *Introduction to the New Statistics: Estimation, Open Science, and Beyond*. Routledge.
- Donaldson, S. I. (2007). *Program theory-driven evaluation science: Strategies and applications*. Lawrence Erlbaum.
- Dzau, V. J., Kirch, D. G., & Nasca, T. J. (2018). To care is human—Collectively confronting the clinician-burnout crisis. *N Engl J Med*, *378*(4), 312–314.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Goyal, M., Singh, S., Sibinga, E. M. S., Gould, N. F., Rowland-Seymour, A., Sharma, R., Berger, Z., Sleicher, D., Maron, D. D., Shihab, H. M., Ranasinghe, P. D., Linn, S., Saha, S., Bass, E. B., & Haythornthwaite, J. A. (2014). Meditation Programs for Psychological Stress and Well-being: A Systematic Review and Meta-analysis. *JAMA Internal Medicine*, *174*(3), 357–368. <https://doi.org/10.1001/jamainternmed.2013.13018>
- Kirkpatrick, D. (1994). *Kirkpatrick, DL (1994). Evaluating Training Programs*. San Francisco: Berrett-Koehler Publishers, Inc.
- Ludwig, D. S., & Kabat-Zinn, J. (2008). Mindfulness in medicine. *JAMA*, *300*(11), 1350–1352. <https://doi.org/10.1001/jama.300.11.1350>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a Feather: Homophily in Social Networks. *Annual Review of Sociology*, *27*(1), 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>

- Mrazek, P. B., Biglan, A., & Hawkins, J. D. (2007). *Community-monitoring systems: Tracking and improving the well-being of America's children and adolescents*. Society for Prevention Research.
- Reb, J., & Atkins, P. W. B. (2015). *Mindfulness in Organizations: Foundations, Research, and Applications*. Cambridge University Press.
- Regehr, C., Glancy, D., Pitts, A., & LeBlanc, V. R. (2014). Interventions to Reduce the Consequences of Stress in Physicians: A Review and Meta-Analysis. *The Journal of Nervous and Mental Disease*, 202(5), 353–359.
<https://doi.org/10.1097/NMD.0000000000000130>
- Scharmer, O. (n.d.). C,(2007), Theory U-Leading from the Future as it Emerges. *The Social*.
- Schwartz, A. R., Siegel, M. D., & Lee, A. I. (2019). A novel approach to the program evaluation committee. *BMC Medical Education*, 19(1), 465. <https://doi.org/10.1186/s12909-019-1899-x>
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton Mifflin.
- Shapiro, S. L., Astin, J. A., Bishop, S. R., & Cordova, M. (2005). Mindfulness-Based Stress Reduction for Health Care Professionals: Results From a Randomized Trial. *International Journal of Stress Management*, 12(2), 164–176.
<https://doi.org/10.1037/1072-5245.12.2.164>
- Sklar, D. P. (2018). Leadership in Academic Medicine: Purpose, People, and Programs. *Academic Medicine*, 93(2), 145–148. <https://doi.org/10.1097/ACM.0000000000002048>
- Theeboom, T., Beersma, B., & Vianen, A. E. M. van. (2014). Does coaching work? A meta-analysis on the effects of coaching on individual level outcomes in an organizational

context. *The Journal of Positive Psychology*, 9(1), 1–18.

<https://doi.org/10.1080/17439760.2013.837499>

Trochim, W. M., Cabrera, D. A., Milstein, B., Gallagher, R. S., & Leischow, S. J. (2006).

Practical Challenges of Systems Thinking and Modeling in Public Health. *American Journal of Public Health*, 96(3), 538–546. <https://doi.org/10.2105/AJPH.2005.066001>

Trombetta, C., Capdeville, M., Patel, P. A., Feinman, J. W., AL-Ghofaily, L., Gordon, E. K., &

Augoustides, J. G. T. (2020). The Program Evaluation Committee in the Adult Cardiothoracic Anesthesiology Fellowship – Harnessing Opportunities for Program Improvement. *Journal of Cardiothoracic and Vascular Anesthesia*, 34(3), 797–804.

<https://doi.org/10.1053/j.jvca.2019.08.011>

Wasylikiw, L., Holton, J., Azar, R., & Cook, W. (2015). The impact of mindfulness on leadership

effectiveness in a health care setting: A pilot study. *Journal of Health Organization and Management*, 29(7), 893–911. <https://doi.org/10.1108/JHOM-06-2014-0099>

West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: Contributors,

consequences and solutions. *Journal of Internal Medicine*, 283(6), 516–529.

<https://doi.org/10.1111/joim.12752>

Zamboni, K., Baker, U., Tyagi, M., Schellenberg, J., Hill, Z., & Hanson, C. (2020). How and

under what circumstances do quality improvement collaboratives lead to better outcomes? A systematic review. *Implementation Science*, 15, 1–20.

Figure 1: *Feedback Loop Evaluation Design*

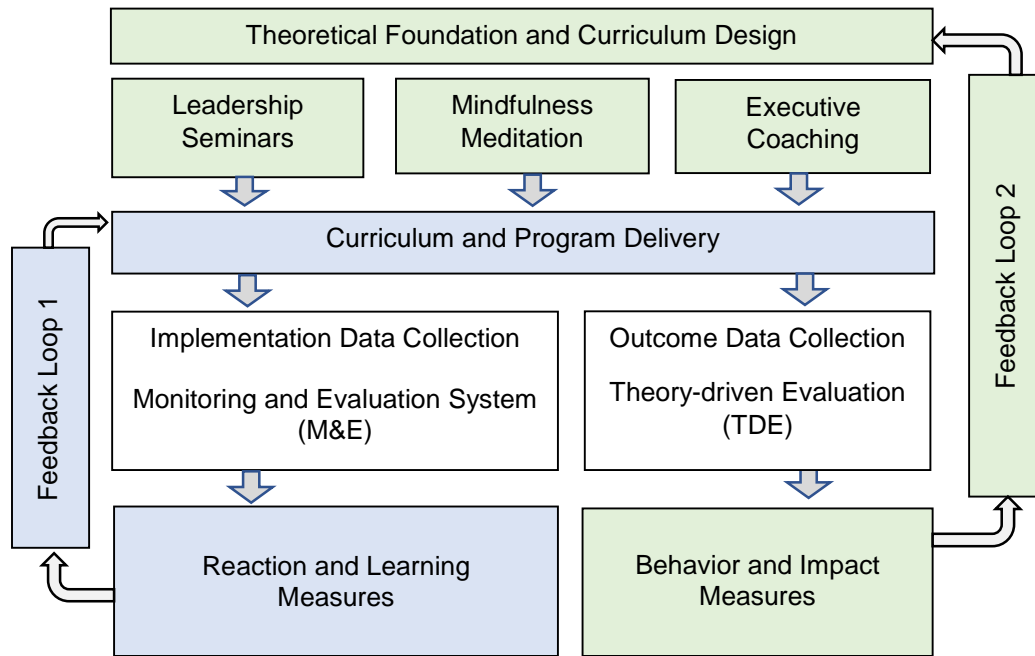


Figure 2: *Physicians Leadership Academy Fellows' Judgement of Curriculum*

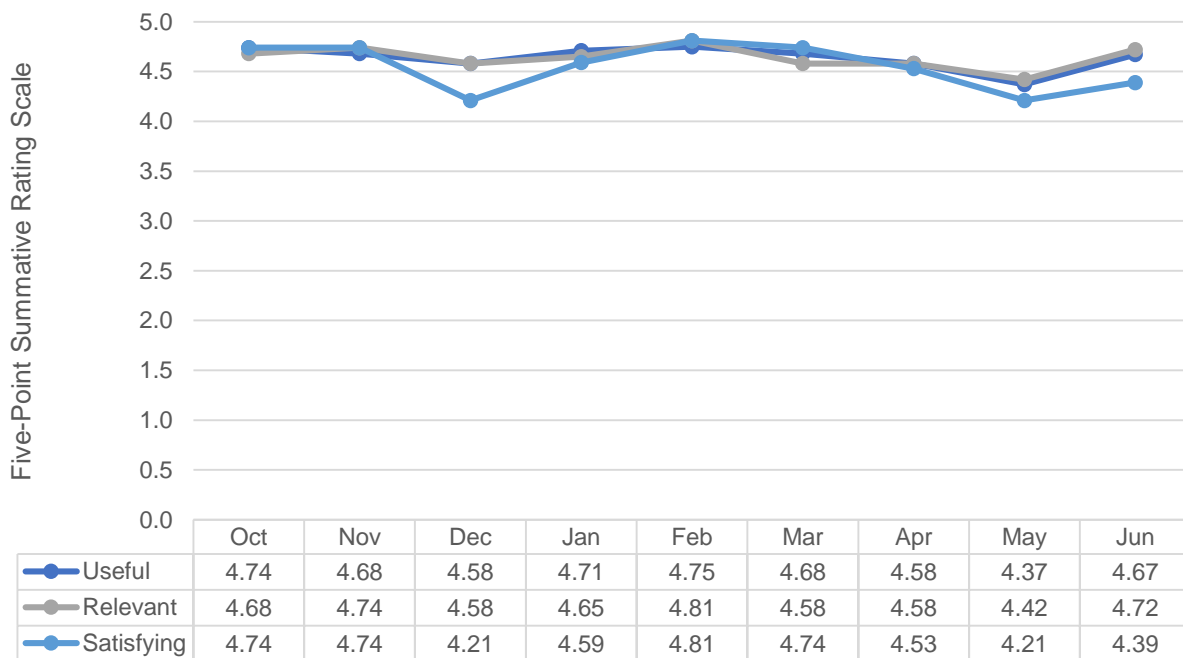


Figure 3: *Physician Leadership Academy Fellows' Understanding of Seminar Topics*

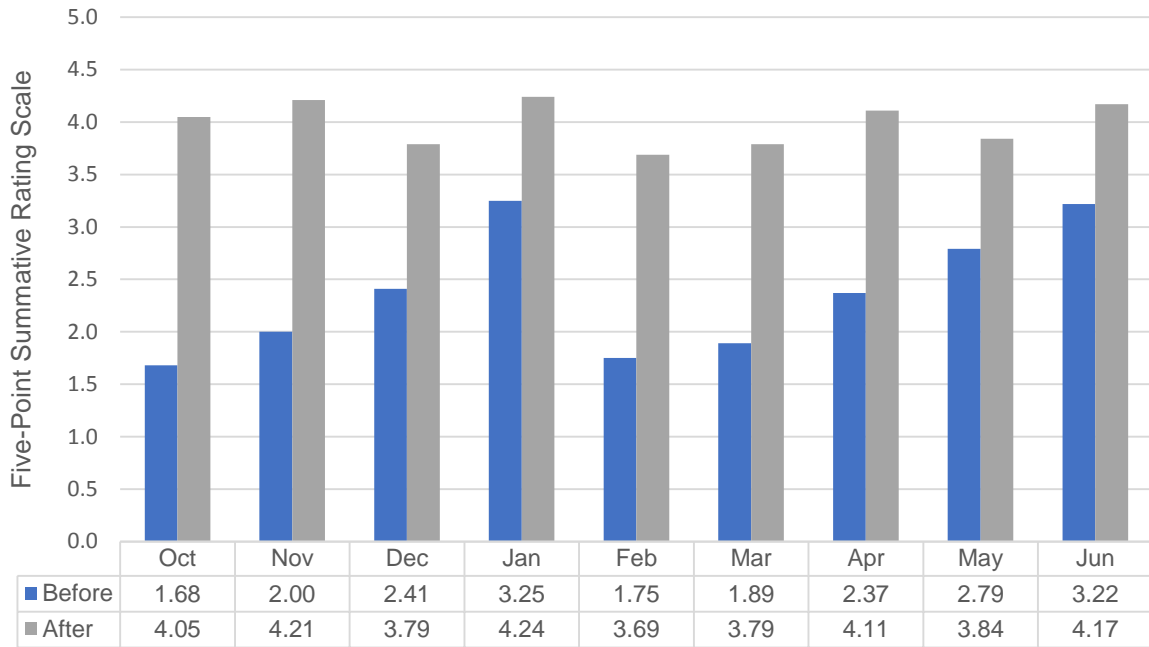


Table 1: *The Executive Coaching Process*

Contracting	Assessment and Feedback	Developmental Action Planning	Implementation and Coaching	Evaluation and Follow-up
Establish the agenda, commitment, expectations, objectives and roles	Develop a balanced view of the current situation	Set the goals, strategies and tactics for development*	Practice, refine, and reinforce new development tools, techniques and/or behaviors	Measure progress and plan for ongoing development

* While this is generally true in the case of the PLA, in almost all cases the circumstances of the moment guide the process of coaching. Often the goals stated by a fellow at the start of the engagement change over time, so the pace and direction of coaching emerge accordingly.

Table 2: *Implementation and Outcome Measures as Viewed through Kirkpatrick's Model*

	Measure	Definition, Question Items, Instrument	Scale
REACTION	Attendance	Primary measure of participant's engagement collected via sign-in sheets	Count
	Usefulness	<i>The seminar topic is useful to me as a person</i>	1=strongly disagree 5=strongly agree
	Relevancy	<i>The seminar topic is relevant to me as a physician</i>	
	Satisfaction	<i>Overall, I was satisfied with the content presented on the topic</i>	
	Faculty Evaluations	Five items assessing the faculty: 1. knowledgeable about the topic 2. communicate clearly 3. encourage discussion on the topic 4. answered questions appropriately 5. overall satisfied with the manner topic was presented	1=strongly disagree 5=strongly agree
LEARNING	Knowledge/ Understanding	The level of understanding the topic taught during seminars	1=very low 5=very high
	Practice	<i>Over the past 30 days, how many times have you practiced mindfulness meditation?</i>	count
		<i>Over the past 30 days, how many times have you met with your executive coach?</i>	
Homophily	Participants developed a community of practitioners by the end of the program – assessed the extent to which fellows: 1. trusted each other 2. considered each other honest 3. considered each other supportive of colleagues maintained a respectful relationship with each other	1=strongly disagree 5=strongly agree	
BEHAVIORS	Mindfulness (mechanism)	Mindfulness Awareness Attention Scale (MAAS) 15 items	1=almost always 6=rarely
	Well-being (mechanism)	World Health Organization Well-being Index (WHO-5) Subjective measure of five items: feeling cheerful, relaxed, active, fresh, and rested	0=at no time 5=all the time
	Emotional intelligence	Assessment of emotional self-awareness, emotional self-control, adaptability, positive outlook and achievement orientation <i>To what degree do you believe that the program has improved your ability to demonstrate emotional intelligence?</i>	0=not at all 10=significantly
	Social intelligence	Ability to empathize, show compassion, listen to understand, influence, and show inspirational leadership <i>To what degree do you believe that the program has improved your ability to demonstrate social intelligence?</i>	0=not at all 10=significantly
	Cognitive capacity	<i>To what degree do you believe that the program has improved your cognitive capacities?</i>	0=not at all 10=significantly
	Leadership capacity	<i>To what degree do you believe that the PLA has improved your capacity for leadership?</i>	0=not at all 10=significantly
	Personal growth	Six items assessing: 1. greater sense of calmness 2. greater sense of self-confidence 3. more confidence in articulating decisions 4. better work/life balance 5. better physical health 6. better mental health	1=strongly disagree 5=strongly agree
	Professional	Six items assessing	1=strongly disagree

	Measure	Definition, <i>Question Items</i> , Instrument	Scale
	growth	<ol style="list-style-type: none"> 1. <i>patient-centricity</i> 2. <i>listening to patients</i> 3. <i>communicating effectively with patients</i> 4. <i>collaborating effectively with other clinicians in patient treatment</i> 5. <i>presence during the time with patients</i> 6. <i>seeking the advice of other professionals more readily</i> 	5=strongly agree
RESULTS	Healthcare system application	Physicians' ability and capacity to impact the health care system Five items assessing ability to: <ol style="list-style-type: none"> 1. <i>lead meetings that achieve results,</i> 2. <i>be more creative in solving problems,</i> 3. <i>create more sustainable and life-affirming solutions,</i> 4. <i>help create more future-oriented solutions,</i> 5. <i>lead more patient-centric systems of care</i> 	1=strongly disagree 5=strongly agree
	Community application	The extent to which physicians found themselves in a better position to build stronger communities from a health care leadership perspective. Four items assessing: <ol style="list-style-type: none"> 1. <i>enhanced understanding of the community</i> 2. <i>enhanced understanding the health care system, and its patients</i> 3. <i>preparedness to work for a more life-affirming community</i> 4. <i>preparedness to advocate for laws and policies that are more life-affirming.</i> 	1=strongly disagree 5=strongly agree

Table 3: *Results of the Outcome Measures*

Outcome Measure	Baseline or standard value M(SD)	Mid-term M(SD)	Final M(SD)	t-value	p-value	95% CI	Effect size Hedges' g_{av}
Mindfulness* (mechanism)	53.11 (13.78)	54.56 (12.78)	61.42 (11.63)	-4.579	.000	-1.041, -0.272	-0.66
Wellbeing* (mechanism)	16.0 (4.24)	13.44 (3.59)	16.84 (3.66)	-.831	.417	-0.771, -0.338]	-.22
Emotional intelligence	8.0		8.84 (1.12)	3.281	0.004	0.30, 1.38	0.72
Social intelligence	8.0		8.95 (1.08)	3.288	0.001	0.43, 1.47	0.84
Cognitive capacity	8.0		8.16 (1.74)	0.395	0.697	0.30, 1.38	
Leadership capacity	8.0		9.05 (0.97)	4.729	0.000	0.58, 1.52	1.04
Personal growth		24.00 (4.07)	25.42 (3.32)	-2.112	0.050	-0.823, 0.25	-0.40
Professional growth		23.56 (4.33)	25.68 (3.00)	-2.610	0.018	-1.06, -0.06	-.56
Healthcare system application	4.0		21.68 (2.647)	2.774	0.013	0.82, 0.59	-.61
Community application	4.0		17.63 (2.50)	2.846	0.011	0.11, 0.71	-.63

2-Paragraph Biography -- Gregg M. Gascon, Ph.D., C.H.D.A.

As a clinical data scientist, Dr. Gregg M. Gascon is responsible for contributing to the development and coordination of advanced analytics to facilitate process and outcome improvement at OhioHealth. Since 2007, Dr. Gascon has lectured on statistics, research design and methods, health analytics, and program evaluation at The Ohio State University. He holds a courtesy faculty appointment in the Department of Biomedical Informatics in the College of Medicine. Since 2014, he has served on the Cochrane Methodology Review Group under coordinating editor Mike Clarke at Queens University in Belfast, Ireland. He and his wife Tracey have been married 29 years, and have 3 adult children.