Leadership Development Assessment Center: A Review on Advantages and Disadvantages for Developing Leadership Behavioral Competencies

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ABSTRACT

This study aims to introduce Leadership Development Assessment Center (LDAC) as a systematic approach for training and developing leadership behavioral competencies of organizational leaders. The four crucial elements of LDAC including needs assessment, design, implementation, and evaluating the effectiveness are presented and discussed. A literature review was performed to identify, define, and classify the theoretical concepts and implementation processes of LDAC. Three databases of Science Direct, PubMed, and Google Scholar were used to collect data over the past two decades. LDAC flexibly explores the real needs of leaders in their current position, contributes to the content of training programs based on the needs, and provides tractable and visible measures to assess and develop the leadership behavioral competencies in leaders. Although LDAC is a costly and time-consuming model that requires more studies to justify its wide application, the advantages of LDAC can urge organizational developers to apply it. As an advantage, LDAC provides the main foundation to assess and develop leadership behavioral competencies through applying a more feasible and systematic procedure that fosters behaviorally competent leaders.

The most efficient and dynamic organizations benefit from competent leaders (Amagoh, 2009; Cacioppe, 1998; Erker et al., 2017; Yawson, 2012). Competent leaders inspire employees to

deal with organizational challenges and make constructive changes more efficiently (Bass & Bass, 2008; Englefield et al., 2019; Genovese, 2014; Noe, 2008; Thornton, Johnson, & Church, 2017). Studies show that competent leaders can articulate challenging goals and promote employees' performance through creating positive motivation, team cohesion, and building alliances between and within organizations (Dunst et al., 2018; Muyia & Kacirek, 2009; Reynolds et al., 2018; Vardiman et al., 2006; Yawson, 2012). Because of these advantages, modern organizations tend to train and develop leaders, as a strategic priority, to compete with their competitors (Clarke & Higgs, 2016; Mesterova et al., 2015; Pashiardis et al., 2011; Richey & Waite, 2019; Xu et al., 2019). Accordingly, organizations competitively are investing huge budgets on the continuous development of behavioral competencies of their leaders (Baldwin et al., 2007; Day et al., 2009; Ho, 2016; McCall et al., 1988; O'Leonard, 2014; Radi Afsouran et al., 2018; Reddy & Srinivasan, 2015; Vicere & Fulmer, 1998). For instance, in 2009, the U.S organizations spent about 12.5 billion dollars to develop leadership competencies, which is almost a quarter of the 50 billion dollars of their learning and development programs (O'Leonard, 2010). According to Carter et al. (2005), some organizations whose average investment in the development of leadership competencies was 500 thousand dollars obtained an average return of 1 million dollars on this investment.

Each leadership competency includes knowledge, skills, and abilities that enable leaders to act efficiently in the workplace (Boyatzis et al., 2009; Day, 2001; McClelland, 1994; O'Toole, 2001; Spenser & Spencer, 1993). According to literature, leadership competencies include positive vision, inspiring core values, emotional intelligence, communication skills, courage and motivating, inclusiveness and collective, transformation, team building, strategic thinking, integrity, risk-taking, charisma-inspiration, charisma-visionary, honesty, social judgment, and influencing others (DeRue & Myers, 2014; Dunst et al., 2018; Englefield et al., 2019; Javidan et al., 2006; Naquin & Holton, 2006; Rosen et al., 2000; Thach & Thompson, 2007; Thorn, 2012; Thornton, Johnson, & Church, 2017; Tian et al., 2009). These competencies can be used in leadership development centers to promote the work-related behaviors of leaders. To develop the competencies, researchers have suggested various methods that can be used in these centers. According to Van Velsor et al. (2010), five basic categories of methods are used to train and develop leadership competencies including developmental relations (i.e., mentors, peer learning partners, social identity networks, and communities of practice), developmental assignments (i.e., job moves, job rotations, and expanded work responsibilities), feedback processes (i.e., assessment centers, performance appraisal, and 360-degree feedback), formal programs (i.e., university programs and personal growth programs), and self-development activities (i.e., reading references, speakers and colloquia, and professional conferences). This variety of methods reveals that developing leadership competencies is a sensitive and complex process that requires well-developed training programs.

In this study, we introduce the Leadership Development Assessment Center (LDAC) as a systematic approach containing a set of integrated processes that can develop the behavioral competencies of leaders. LDAC is considered an inspiration of a basic form of the assessment centers (Radi Afsouran, 2018; Radi Afsouran et al., 2019; Radi Afsouran & Thornton, 2019). An assessment center consists of a standardized evaluation of behavior based on multiple inputs that can be applied for multiple purposes such as high stakes (to select or promote personnel where the main outcome is an overall recommendation about future success), diagnosis (to

identify strengths and needs for improvement, where the main outcome is the profile of needs and recommendations for follow-up training), and development (to train personnel where the desired outcome is the changes in behavior) (International Taskforce on Assessment Center Guidelines, 2015; Thornton et al., 2015; Thornton & Rupp, 2006). A collection of various workplace simulation exercises is used in LDAC that provide individuals with practice, immediate feedback, and coaching on a set of developable behavioral competencies found to be crucial for professional success in a given organization (Ballantyne & Povah, 2004; Thornton et al., 2015; Thornton & Rupp, 2003; Thornton & Rupp, 2006). The systematic and integrated set of processes represents LDAC for both *assessing* and *developing* leadership behavioral competencies. In LDAC, competency-based assessment is applied in which the real needs of the target job position are analyzed to prepare a behavioral-based development that covers all crucial elements a leader requires to efficiently act in the position. Accordingly, the two aspects of *assessing* and *developing* provide multiple opportunities for leaders to practice leadership behaviors in simulation exercises and receive immediate feedback. Also, assessors have multiple opportunities to observe behavior, analyze it, provide feedback, and track the progress of developing a behavioral competency over time (Radi Afsouran, 2018; Radi Afsouran et al., 2019).

We structure this study based on the following sections; First, we describe the research method of the study. Then, we present the theoretical foundations of LDAC. Next, we explain in detail the way LDAC can be practically conducted within an organization discussing more specifically on needs assessment, design, implementation and evaluation of LDAC. In the end, the advantages and disadvantages and the theoretical and practical implications of LDAC are discussed.
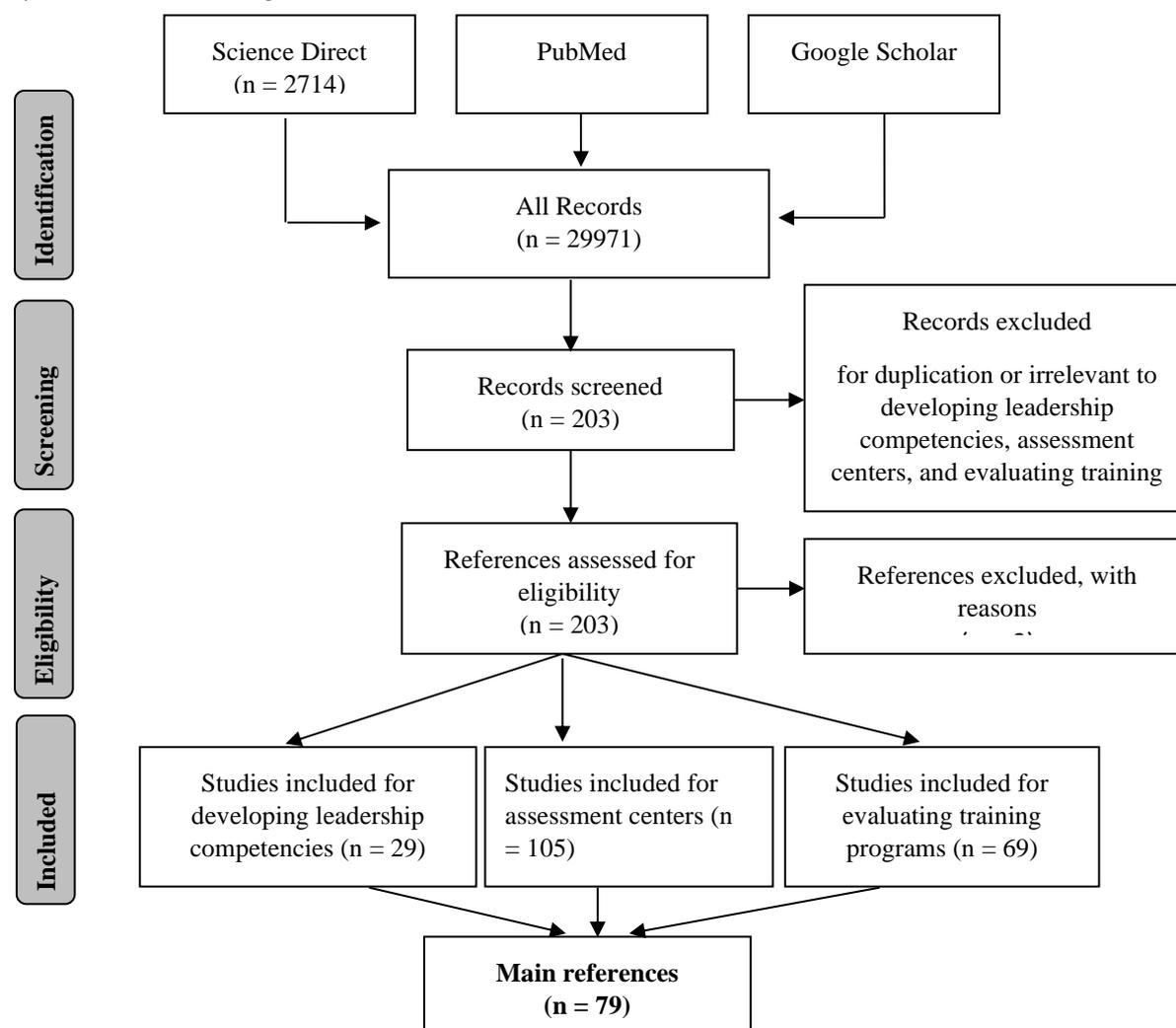
Research Method

We preliminarily carried out a literature review to find and present the theories and models associated with the LDAC over the past two decades. Then, we used a systematic review to search and identify the related references published between 2000 and 2020 years, since most of the empirical and theoretical ideas and models that were released by leading researcher have been conducted during this period. We applied the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist (Moher et al., 2009) to structure this section of the study. PRISMA is an evidence-based minimum set of items for reporting systematic reviews and meta-analyses. PRISMA focuses on reporting reviews evaluating randomized trials but can also be used as a basis for reporting systematic reviews of other types of research, particularly evaluations of interventions (http://www.prisma-statement.org/). We applied three databases of Science Direct, PubMed, and Google Scholar to collect data over the past two decades for two reasons: 1) These three comprehensive databases include almost all research works conducted by researchers of this topic, 2) They have more flexibility (e.g., technical options) to use more specific keywords while we are searching for our target topic/s. In order to run our searches, we used the filters options in these databases. It means that we asked the databases to perform a search based on our inclusion criteria such as: time period, specific keywords, and type of study. Figure 1 shows the structure of our systematic review and inclusion/exclusion criteria. Inclusion criteria were: 1) studies published by the three databases of Science Direct, PubMed, and Google Scholar between 2000 and 2020, 2) studies included

particular keywords of "*developing leadership competencies*", "*assessment centers*", and "*evaluating training programs*," and 3) studies used qualitative and quantitative research design. Exclusion criteria were 1) duplicated articles, 2) irrelevant articles, and 3) abstract papers. The final full references included quantitative and qualitative studies with experimental and non-experimental methodologies on the mentioned keywords (e.g., Khoo et al., 2011; Pautasso, 2013). As shown in Figure 1, in the identification step, we reached 29971 records that most were found in Google Scholar. In the screening step, we discarded 29768 irrelevant and duplication records, and, in the end, 203 studies remained. In the eligibility step, we included only full articles and book chapters as we did not have any other type of article (abstract, etc.). In including step, we separated references based on three categories of developing leadership competencies (*n* = 29), assessment centers (*n* = 105), and evaluating training programs (*n* = 69). Then, we excluded duplications and similar references in these three categories and reached 79 references that were the main references for the three categories. It means that a reference could include keywords of one, or two or even three categories listed above.

Figure 1

Systematic Review Using PRISMA Checklist

Theoretical Foundations of LDAC

LDAC is supported by the propositions of social learning theory (Bandura & Walters, 1963), experiential learning theory (Honey & Mumford, 1992), and self-reflection theory (Reid, 1993). According to these theories, learning happens through a cycle of practicing and receiving feedback. Accordingly, in LDAC, leaders as participants have multiple opportunities to exhibit the leadership competencies in simulation exercises, think about their current work-related behaviors and assess them, receive immediate feedback on these behaviors from trained coaches, and substitute them with new work-related behaviors that more strongly represent leadership competencies. This is followed by repeating the same cycle by leaders, as main actors, until they achieve the level that is tracked over time and is confirmed by assessors. In Table 1, we have summarized the selected literature of the study.

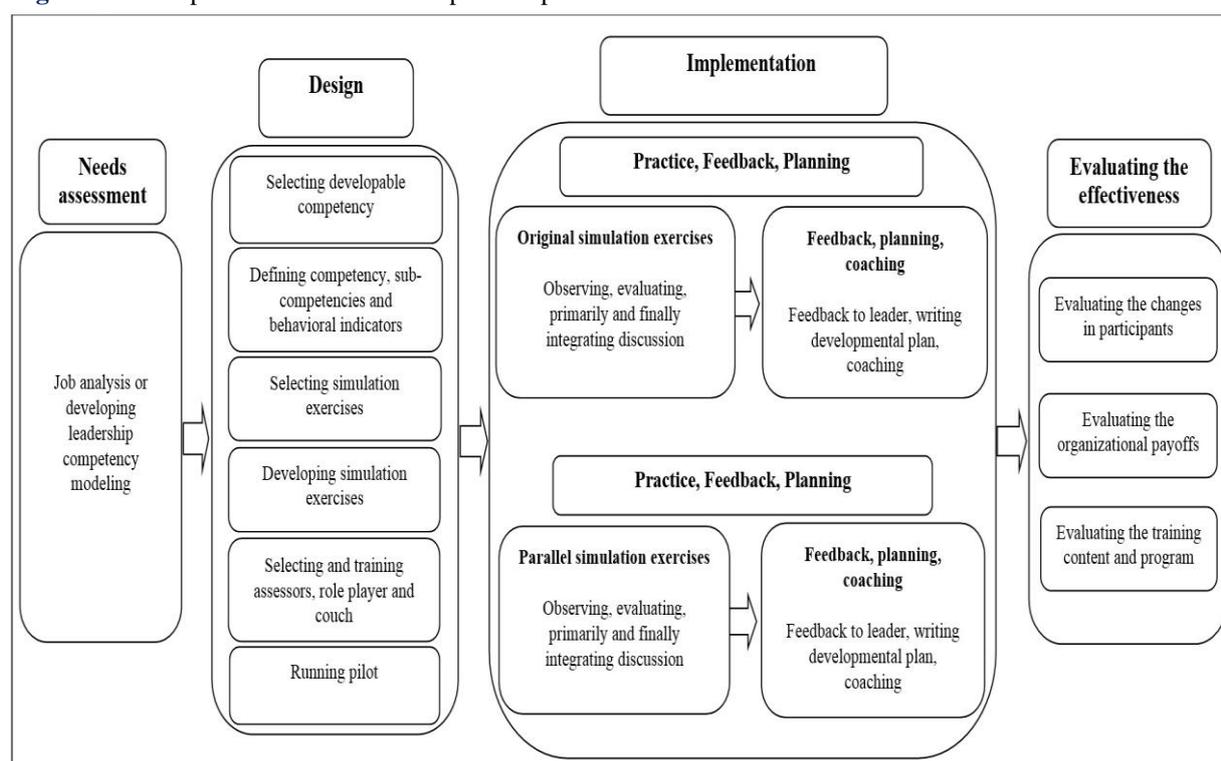**Table 1.** A selected review of literature and activities addressed in this study.

Author (s)	Year	Review/Activity
Bandura & Walters	1963	emphasizing the importance of observing and modeling the behaviors, attitudes, and emotional reactions of others
Honey & Mumford	1992	learning by doing, learning by putting the learning into practice, by participating in the learning procedure, by watching and contemplating what happened
Reid	1993	a process of reviewing an experience of practice in order to describe, analyze, evaluate and so inform learning about practice
Thornton & Rupp	2006	Assessment centers in human resource management: Strategies for prediction, diagnosis, and development
International Taskforce on Assessment Center Guidelines	2015	Guidelines and Ethical Considerations for Assessment Center Operations
Rupp et al.	2006	Improving problem analysis, leadership, oral communication using Group discussion, role play, inbox
Jorgensen & Els	2013	To recognize effective leadership skills and communication skills using Group exercises, individual exercises To make quick decisions under pressure and see all their decisions through as projected using role play interviews To work cohesively within a group and be able to take part in all group discussions using group discussion
Thornton et al.	2015	Training planning and organizing, delegation, written communication using Inbox Training group leadership, interpersonal sensitivity using leaderless group discussion
Turner & Nichol	2016	Development Assessment Centres: Practice Implications Arising from Exploring the Participant Voice
Thornton, Mueller-Hanson, & Rupp	2017	Improving problem-solving, written communication using a case study
Van Velsor et al.	2010	The center for creative leadership handbook of leadership development
DeRue & Myers	2014	Leadership development: A review and agenda for future research
Lacerenza et al.	2017	Leadership training design, delivery, and implementation: A meta-analysis
Radi Afsouran	2018	Design, implementation, and evaluation of the developmental assessment center for developing leadership competencies and comparing its effectiveness with a structured training program
Reynolds et al.	2018	A critical evaluation of the state of assessment and development for senior leaders
Radi Afsouran et al.	2019	Extracting the crucial elements of experimental intervention developing leadership behavioral competencies: pre-requirements, implementation and evaluation
Radi Afsouran & Thornton	2019	Improving transformation, team-building, strategic thinking using group discussion, role play, oral presentation

According to the literature, feedback is an essential component of LDAC and optimally is provided after the performance is recorded to freeze learning. LDAC involves multiple forms

of feedback from coaches including a set of original simulation exercises in a primary session and then another set of parallel simulation exercises in a secondary session (Radi Afsouran, 2018; Radi Afsouran & Thornton, 2019; Radi Afsouran et al., 2019). This reveals that in LDAC the role of assessors is beyond the observation and evaluation of work-related behaviors. The assessor is asked to provide immediate feedback and follow-up coaching on leaders to ensure that the change of behavior has been sufficiently achieved. Thus, in LDAC, both assessment and development of work-related behaviors are considered essential.

As illustrated in Figure 2, the needs assessment uncovers the required leadership competencies for a target job position. The attention to needs assessment of leadership competencies can facilitate developing training programs and simulation exercises by which a leader can identify the organizational needs and respond to them efficiently. In the implementation phase, the competencies of leaders are assessed through simulation exercises, and they are developed with multiple feedbacks and developmental planning in the first practice-feedback-planning cycle and second practice-feedback-planning cycle. In both cycles, assessors' activities (tasks), purpose, and difficulty level of the simulation exercises are checked to be the same; however, the content of the simulation exercises and their strategies remain different. Being exposed to both original and parallel stimulation exercises, leaders are enabled to expand their learning from the stimulation exercises and use it to make fast and efficient decisions in a wide range of demanding situations. This is particularly important when the learning behavior is related to complex leadership competencies. The more complex leadership competencies are expected to demand more specific training programs. Three main factors that can contribute to the development of such training programs are the effectiveness of the training content, recorded changes in the participants (leaders), and organizational payoffs (Radi Afsouran, 2018; Radi Afsouran et al., 2019). These factors will be further discussed in the next sections.

Figure 2. Conceptual model of leadership developmental assessment Center

Practical Steps of LDAC

The development of leadership behavioral competencies is a multiple-step process. According to Radi Afsouran (2018), and Radi Afsouran et al. (2019), these steps are: First, the organization and the current position of a leader are analyzed to identify target leadership behavioral competencies and amongst them the developable competencies. Second, a set of simulation exercises are made up to provide real-world challenges for the leaders. Third, the leaders are engaged in multiple conditions encompassing real-world challenges in the simulation exercises and are encouraged to overcome them. At the same time, assessors independently identify each leader's correct and problematic performance-related behaviors and discuss them together to reach a list of each leader's developmental needs. Fourth, as a coach, an assessor talks to each leader about their specific developmental needs. According to these needs, the assessor and leader formulate a developmental plan to enrich the correct performance-related behaviors and reduce the problematic behaviors. Fifth, the leaders are asked to follow the developmental plan with the coach and the support of the organization. In the final step, changes in every leader's behavioral competencies are regularly recorded and evaluated by the coach. In the following section, we describe the practical steps of applying LDAC in an organization according to the four crucial elements of a training program (Farr & Tippins, 2017; Martin et al., 2014; Noe & Kodwani, 2018).

First Element: Needs Assessment

A needs assessment is a systematic process for discovering and specifying the needs of the leadership competencies of an organizational position (Brown, 2002; Gupta, 2011). In LDAC, the two methods of job analysis and competency modeling are applied to identify and assess the needs. Job analysis is conducted through multiple traditional research methods (e.g., surveys, interviews, field observation, and analyses of job descriptions). Competency models reveal competencies that may be needed in a given position of an organization in the future but are not currently indicated by the job analysis. For example, the Professional and Managerial Position Questionnaire (PMPQ) (Mitchell & McCormick, 1979; Myers, 2004) and interviews with managers and supervisors represent these methods.

Second Element: Design

The content of the training program is developed based on a six steps procedure:

1. Selecting developable leadership behavioral competencies. To optimize the learning rate of leadership behavioral competencies, we need to include competencies perceived as developable by both practitioners and leaders. Developability and perceptions of developability can be attained through the following ways. The first way is to review the previous research and studies to identify the competencies suggested to be amenable in leadership training programs (Rupp et al., 2006). Second, the results of job analysis and leadership competency modeling can be illustrated before beginning and during the implementation phase (Rupp et al., 2006). Third, the selected competencies need to be well-described to leaders while providing them with feedback and suggesting that they substitute the new behaviors with previous behaviors. As an example, we can refer to the behaviors associated with transformational leadership competency, which is defined as being charismatic and influential in encouraging employees to do more than what is expected in their job (Avolio et al., 1999; Hayati et al.,

2014). To form this behavior, the leaders can be asked to practice a collective mission, optimistically talk about a future vision, seek differing perspectives, propose new ways of completing their assignments, listen to colleagues' work concerns, and share the extent to which they believe their organizational goals and values.

2. *Defining the competency, sub-competency, and behavioral indicators*. Competency and sub-competency are defined based on job analysis, the organization's competency model, scientific literature, and interviews with the organization's officials. For example, sub-competencies for transformational leadership include idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Hayati et al., 2014). Then, several positive and negative behavioral indicators are written for each sub-competency. This provides a ground for assessors to evaluate the leaders' behaviors and guide them based on a checklist of the available competencies and sub-competencies.

3. *Selecting the types of simulation exercises.* The type of simulation exercise is determined based on the results of surveys and interviews with scholars and experts of human resource development, the literature on the target competency and sub-competencies, LDAC experts' past experiences with various simulation exercises, and the availability of challenging topics in the host organization. The exercises (e.g., a group discussion, oral presentation, and role-play) must provide opportunities to assess and develop the relevant competencies (Thornton & Rupp, 2006; Thornton, Mueller-Hanson, & Rupp, 2017).

4. *Developing the simulation exercises.* Simulation exercises are designed based on real challenges to elicit relevant behaviors to the competencies and sub-competencies in the target position. These exercises are required to be challenging for the leaders (for further information, see Figure 2 in Thornton, Mueller-Hanson, & Rupp, 2017). In LDAC, there are two sets of simulation exercises including the original in the first set and parallel in the second set. They are developed to be used in two different practice-feedback-planning steps in the LDAC. Original and parallel simulation exercises must be identical in purpose, degree of difficulty, and simulated positions, while the strategy and content of exercises are different (Radi Afsouran, 2018; Radi Afsouran et al., 2019).

5. *Selecting and training the assessors, coaches, and role players.* Assessors can be higher-level managers in a target organization, internal experts in human resources development departments, external experts with experience in organizational psychology, educational administration, or management. LDAC experts train assessors to assess and coach the leaders efficiently. During the training, they obtain basic knowledge on the goals and values of the host organization, the guideline for assessment centers and LDAC, processes of observation and evaluation, knowledge of the target leadership competencies, the way to conduct simulation exercises, and the way to evaluate a leader's behavior in simulated situations through observing, recording, classifying, and scaling (Thornton & Rupp, 2006). For a role-play exercise, the role players also are required to be trained. They can play the role of a supervisor, peer, subordinate, or someone outside the organization like a newspaper reporter (Thornton, Mueller-Hanson, & Rupp, 2017; Radi Afsouran, 2018).

6. *Conducting a pilot project*. This step mimics the actual implementation, but it is a trial run. It provides an opportunity to review the materials of the training program, coordinate the assessors and the role players, and finally to implement carefully in the real implementation.

Third Element: Implementation

Organizational managers need to be informed of the importance of the LDAC and its implementation process. Thus, orientation sessions are required to provide further information about the LDAC throughout the host organization (Radi Afsouran, 2018; Thornton et al., 2017). The involvement of managers provides further support before the potential candidates participate in the training program. Moreover, it may provoke the participants to consider the training program more seriously.

The implementation of LDAC consists of two different sessions: first practice-feedback-planning and second practice-feedback-planning (Radi Afsouran, 2018; Radi Afsouran et al., 2019). In the first practice-feedback-planning session, assessors observe, record, classify and rate the leader's behaviors while conducting the original simulation exercises to identify the developmental needs in the target leadership competency. Then, assessors share and discuss their evaluations to integrate them using either a consensus meeting or statistical aggregation (Jorgensen & Els, 2013; Thornton & Rupp, 2006). Next, one of the assessors, in the role of a coach, meets with a leader to talk about specific behaviors needed to improve their performance. Then, they lay out a developmental plan to improve the performance-based behaviors in a given leadership competency. In the second practice-feedback-planning, all activities, identical to the first session, are repeated in the form of parallel simulation exercises.
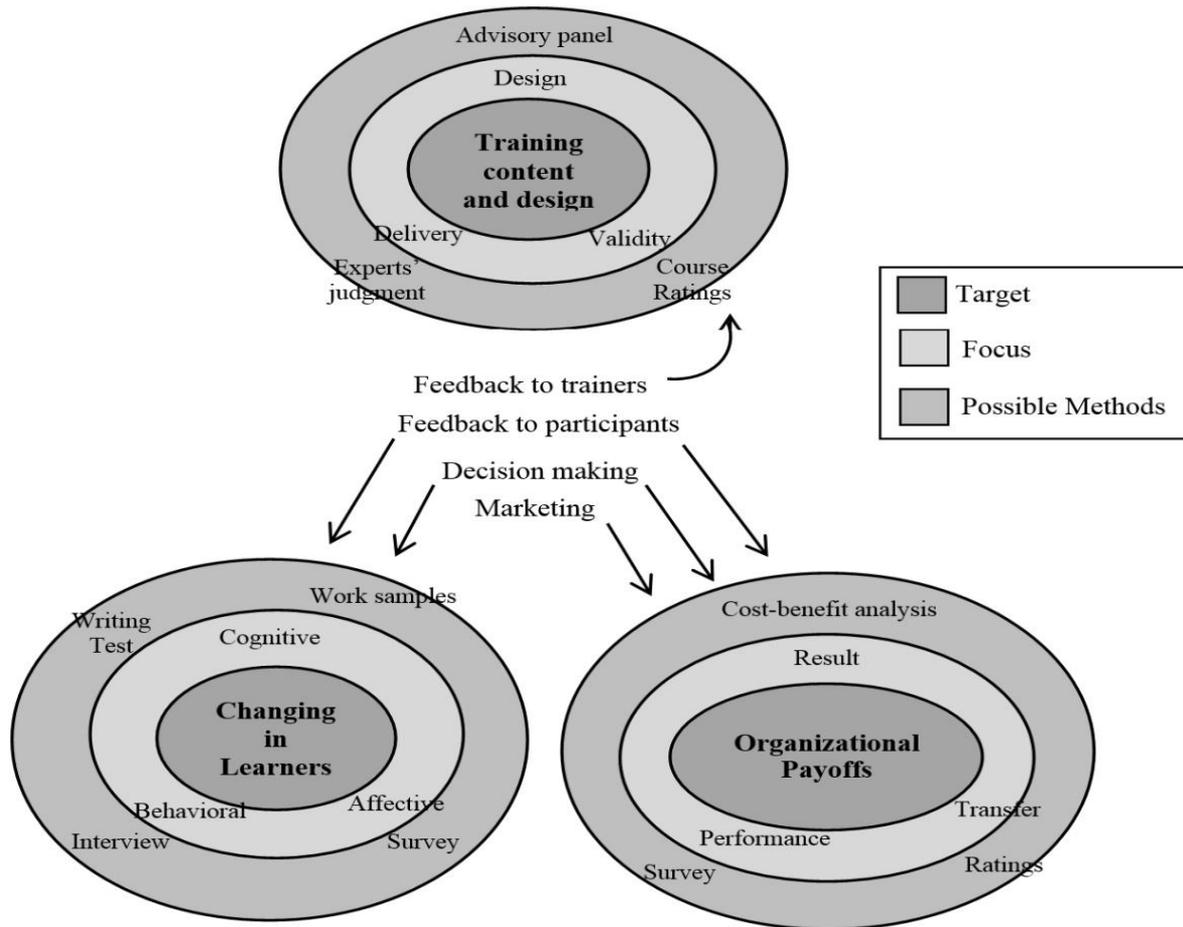
Fourth Element: Evaluation

Carrick and Williams (1999) stated that "the popularity of assessment center for development seems to stem, at least in part, from the demonstrated criterion-related validity of the assessment centers method" (p. 77). Well-designed and carefully-implemented high-stakes assessment centers have been proven useful for assessing various managerial competencies and predicting future performance-based behaviors (e.g., Arthur et al., 2003; Gaugler et al., 1987; Howard, 1997; Schmidt & Hunter, 1998; Thornton et al., 2015). However, LDAC aims to change behavior in leaders; then, it requires different evidence of effectiveness, which can be provided by the evaluation of changes in leaders' performance-based behaviors. Moreover, enriched LDAC content and developmental feedback from the assessors and coaches (Kluger & DeNisi, 1996) can be a promising factor for LDAC's validity.

The dual requirements of *assessing* and *developing* mandate LDAC to be validated from two perspectives: accuracy in assessment and effectiveness in training (Radi Afsouran, 2018). If the assessment is not accurate, then the feedback provided is likely to be of little use in participants' development, and accurate feedback alone is of little use if it does not lead to change. Consequently, a valid LDAC is based on both an accurate assessment (valid in the traditional sense of assessing what it purports to measure) and an effective training program (developing what it purports to develop). The two factors can be investigated using the decision-based evaluation model developed by Kraiger (2002).

As depicted in Figure 3, the decision-based evaluation model includes three main elements of target, focus, and methods. "A target is a construct to be developed; a method is a process for effecting the change. Targets and methods are linked through mediating psychological processes (focal processes). Targets, focal processes, and methods are linked to the purpose of the training programs" (Kraiger, 2002, p. 343). These three elements are combined to guide the

evaluation of three factors of training content, changes in learners, and changes in organizational payoffs.

Figure 3. Decision-based evaluation model (Kraiger, 2002), redrawn by authors

Articulating the three main elements of the target, focus, and method facilitates evaluating the two main objectives of the LDAC (accurate assessment and effective training). Accurate assessment involves validating outcomes of training content and design; effective training involves measuring changes in leaders and payoffs in the organization. We will further discuss the use of the decision-based evaluation model to evaluate multiple levels of effectiveness in LDAC. Thus, this model is anticipated to evaluate the extent to which a training program, through learning processes, is associated with changes in outcomes. It includes the evaluation of content and design of the training program, changes in leaders, and organizational payoffs.

Evaluation of the Content and Design of the Training Program

Valid content and structure of a training program are essential bases for efficient changes in participants and organizational payoffs (Lacerenza et al., 2017; Noe, 2008). In addition, the training program needs to follow a systematic, standard, and concise procedure to provide a suitable and enriched context for these changes (Noe, 2008). As Kraiger (2002) discussed, three aspects of content and design of training program including design, delivery, and validity, are necessary to justify the effectiveness of a training program such as LDAC. Therefore, according to the decision-based evaluation model (Kraiger, 2002), to evaluate the effectiveness of the

design aspect, we propose to use the methods of course rating and advisory panel; to evaluate the effectiveness of the delivery aspect, we use the methods of course rating, effectiveness scale of original and parallel exercises from the perspective of both leaders and assessors; and to evaluate the effectiveness of validity, we apply course rating, the judgment of original and parallel simulation exercises from the perspective of scholars, and rating the quality of assessors and coaches training.

Evaluation of Changes in Leaders

As mentioned earlier, the most important aim of LDAC is to make behavioral changes in leaders (International Taskforce on Assessment Center Guidelines, 2015; Radi Afsouran, 2018; Radi Afsouran et al., 2019). The goal includes different kinds of changes in the leaders. While the ultimate change is leaders' behaviors constituting the leadership competencies, cognitive changes are a prerequisite for behavioral changes (Brodersen & Thornton, 2011). In LDAC, changes in behavioral and cognitive structures related to the leadership competencies are expected to happen through a cycle of practice, feedback, and planning (Radi Afsouran, 2018; Radi Afsouran et al., 2019). Indeed, LDAC can provide a supportive context for leaders to learn new work-related behaviors in a dynamic learning process in the workplace.

According to the decision-based evaluation model (Kraiger, 2002), changes in leaders can be evaluated effectively, cognitively, and behaviorally. Accordingly, to illustrate the practical methods of this evaluation, we can apply the task-specific self-efficacy scale for evaluating a change in focus of effect, propositional knowledge test, acquiring new information test, and self–evaluation test for evaluating the change in cognitive structures. For evaluating behavioral changes in leaders, the interview, 360^0 feedback (supervisor-, self-, and -subordinate ratings), comparing assessors' ratings in the first and second sessions, and a situational judgment test can be used.

The Evaluation of Organizational Payoffs

LDAC can foster competent leaders who move organizations toward growth and positive changes through providing noticeable organizational payoffs (Reynolds et al., 2018; Thornton, Johnson, & Church, 2017). According to the decision-based evaluation model (Kraiger, 2002), organizational payoffs can be assessed by surveys to measure the extent to which the training has been transferred, by cost-benefit analysis for the extent to which the training has been financially effective, and by 360^0 feedback to the extent to which the training has positively changed the performance (at the individual, group, and organizational levels).

Advantages of LDAC

LDAC can provide a solid foundation and a systematically holistic method to foster competent modern-day leaders through bringing leadership-role-related dilemmas from the real world to the simulation exercises and bridging between theory and practice. As the LDAC engages leaders in context-specific challenges which belong to their position in the organization, it provides a context to detect and measure the gaps between correct and problematic performance-based behaviors and reduce them. When leaders practice with the challenges, they have the opportunity to learn from the precise and immediate feedback they receive from their assessors. This helps leaders reduce the gap between a real behavioral reaction made in a

simulation situation and the one made in a real situation. In order words, the leaders learn to remove their cognitive mistakes and make more high-quality decisions leading to more correct performance-based behaviors. The LDAC builds on the premise that assessment and development must be systematically linked together. A medical analogy can better illustrate the premise. A patient is suffering from a disease and visits a doctor. A variety of medical tests are administered to examine body functions. Going through these tests does not heal the problem. Furthermore, the doctor's explanation of results and prescriptions for treatment will not heal the patient if the patient does not take follow-up actions supported by a pharmacist, rehab center, and spouse and boss at home and work. In the process, the treatment given to the patient must be reported in the assessment and diagnosis steps. No medicine is a cure-all. Similarly, assessment and feedback alone will not necessarily lead to behavioral changes. Therefore, training may not be effective if it is not directly linked to carefully assessing each individual's needs to improve specific behaviors for developing specific leadership competencies (Thornton, 2019). This means if assessment programs do not include follow-up actions or if they are not tailor-made to each leader's needs, then they may fail. These two factors can best cover by LDAC.

Disadvantages of LDAC

Although there are many considerable contributions from fostering leadership behavioral competencies using LDAC, there are some challenges before it can be used by organizations and leaders on a broader level. First, this is a money-consuming process that requires an organization to have enough financial resources to support the process in the long term. Well-training assessors and coaches, conducting simulation exercises, and following the developmental plan require sufficient support to meet the LDAC aims. Second, it is a time-consuming process because the purpose is behavioral changes. Therefore, it requires leaders to be enough patients and enthusiastic before they can see the primary positive outcomes of this method last at least six months (Thornton & Rupp, 2006). Also, the organization should have flexible rules to provide opportunities for following the LDAC processes and the developmental plan by leaders. Third, the lack of enough empirical evidence on the application of LDAC within organizations may make some organizations or practitioners unwilling to apply it. More empirical research is needed to demonstrate its positive outcomes in leaders' behavioral performance and its quantitative benefit-cost ratio at the organization level. The positive empirical evidence can encourage organizations and leaders to pay much attention to applying LDAC in their leadership training programs. Another challenge is related to the selection of developable leadership competencies, the development of challenging simulation exercises, and the construction of an effective developmental plan that is crucial for conducting the LDAC.

Discussion

This study introduced LDAC, its advantages, and disadvantages for training and developing leadership behavioral competencies. According to the literature review, a training model needs to include four key elements of needs assessment, design, implementation, and evaluation of the effectiveness (Farr & Tippins, 2017; Martin et al., 2014; Noe & Kodwani, 2018). The consecutive arrangement of these four elements is important to lead to expectable changes in behavioral levels. In addition, it requires a solid and dynamic collaboration between each leader

and assessor in assessing leaders' performance-based behaviors to provide leaders with precise, immediate, and informative feedback that can help them to form or include efficient work-related behaviors into their current behavioral competencies (Radi Afsouran, 2018; Radi Afsouran et al., 2019). One of the current challenges for organizational practitioners or organizational developers is to get the attention and support of the organization executive manager before they can implement it in a given organization. As pointed out earlier, a lack of empirical studies may limit the use of this model in organizations. If organizational managers do not support LDAC-training programs, then it is hard to expect a major or tangible change in the leaders' behavioral aspects of leadership competencies. Organizations need to provide a supportive structure encouraging the leaders to develop their behavioral competencies using LDAC, reinforce the lessons learned during LDAC, and transfer them to the workplace. Another challenge might be related to the personal resources (e.g., time, energy, etc) of participants and the extent to which they are motivated to use them for making behavioral changes in their workplace. Perhaps, a way to deal with this challenge is to ask coaches/assessors to provide participants with a clear sense of purpose of their participation and track their record regularly.

Theoretical Implications

LDAC can be used to detect the gaps between theory and practice in improving leadership behavioral competencies. Using LDAC, researchers and practitioners can observe the gap between the ways an organization undertakes its leadership development programs compared to the way suggested by the LDAC. The clear structure, evaluating elements, and sub-elements of this training program can be used for designing semi-structured cross-cultural studies across countries. The action research nature of the training program will also make it unique to ensure that a leader's behavior has reached the expected level of performance-based behaviors required for various leadership competencies.

All elements of LDAC are grounded in sound theories of learning and measurement, which suggest that adult learners will put enough effort into programs relevant to their working roles (Thornton & Rupp, 2006). As Figure 2 shows, LDAC involves a needs assessment since it extracts needed leadership competencies in the target organization and position. That means LDAC focuses on the real needs of the leaders related to their working roles, encouraging them to participate actively in the program. This potentially creates commitment, yielding a return on investment. Unlike traditional leadership training programs, LDAC focuses on assessing and developing overt and developable behaviors tailored to performance. This is in sharp contrast to the training programs, which entail transmitting knowledge in reading or motivational messages during lectures and presentations. These two main activities of *assessment* and *development* help assessors observe the actual performance-based behaviors of the leaders, evaluate them accurately based on the target leadership competency, and detect their real developmental needs. It also facilitates giving specific feedback and developing a particular developmental plan. Moreover, the trained leader is engaged in self-evaluation and skilled assessors who then serve as coaches. Deficiencies in behavioral performance are the basis of developmental planning for each individual. Therefore, leaders have multiple opportunities to practice and get feedback, then again practice and get feedback. In the end, multiple measures of the effectiveness of LDAC evaluate changes in self-efficacy, cognitive understanding, and

behavioral effectiveness, all of which document both each leader's improvement as well as program effectiveness. Therefore, the evaluation of the effectiveness contributes to judging whether LDAC is a valid and effective method for leader training programs. However, future researches may evaluate LDAC more empirically and also develop questions such as: "What would be the characteristics of both good assessor and good coach?", "Can a single individual be both the assessor and the coach", or "can one group of individuals do the assessment and the other group do coaching?", "How do we confirm what are the "developable" leadership competencies and sub-competencies?" and "Is there a link between attitudinal, conceptual, and behavior changes?".

Practical Implications

LDAC begins with a competency-based assessment approach in which the real needs of each leader are analyzed to prepare appropriate training that facilitates a focus on what is relevant training content for a leader, estimates the effectiveness of the program, and supports the return on investment (Allio, 2005; Lacerenza et al*.,* 2017; Muyia & Kacirek, 2009; Noe, 2008; Radi Afsouran, 2018; Radi Afsouran et al., 2019). We recommend this model to organizational practitioners who would like to educate competent leaders through creating or developing behavioral changes in the long term. LDAC can help leaders improve their leadership behavioral competencies through being aware of the strengths and weaknesses of their current performance-based behaviors in the simulation exercises in the implementation section (Gentry et al*.,* 2014; Torter & Nichol, 2016). In doing so, their performance-based behaviors are assessed during the original and parallel simulation exercises, including real-world dilemmas in their organizational position and the target leadership behavioral competencies. The leader and coaches set a developmental plan together to increase the leader's commitment to the purpose, process and following up LDAC activities. Furthermore, all documents used in the process of conducting LDAC, such as exercises, checklists, developmental needs, developmental plans, and reports of behavioral change, are maintained as a roadmap and information bank for each leader to structure and monitor the leader's progress in the current and future.

Conclusion

This study introduces LDAC as a systematic approach for training and developing leadership behavioral competencies. The crucial components of LDAC were identified from an extensive review of relevant literature on developing leadership competencies, assessment centers, and training evaluation programs. Its complex process is supported by a diverse set of theories in psychometrics, active learning, experimental learning, social learning, and self-reflection. In LDAC, leaders have a dynamic role in the leadership development program that advances learning in a deep and unique form in which the aims and the degree of achievement can be monitored.

Declarations

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