

The evidence for the effectiveness of action learning

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For the past 50 years, organizations and individuals around the world have reported success in their use of action learning programs to solve problems, develop leaders, build teams and transform their corporate cultures. However, very little rigorous research has been conducted to determine the effectiveness of action learning. The authors reviewed 21 refereed articles, theses and dissertations that quantitatively and/or qualitatively measured the impact of action learning and to determine the success factors in action learning programs. The evidence elicited from these studies support the following: (1) action learning develops broad executive and managerial leadership skills, particularly collaborative leadership and coaching skills; (2) action learning improves the ability of managers to develop integrative, win/win solutions to conflict situations; (3) governing variables that were consistently identified as critical to the success of action learning include questioning, taking action, learning from group members, listening, group diversity, feelings of confidence and well-being, safe environment, and the presence of a coach; and (4) significant factors for conducting successful action learning programs involved: (1) *team-level processes* of skilled coaching, diversity, self-directed team processes, effective team presentations and review of team processes; as well as (2) *organization-level processes* of ensuring implementation of solutions, alignment and importance of the problem, support of top decision makers and the leveraging of organizational resources.

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Introduction

Even since Reg Revans first introduced action learning in the mid-twentieth century, hundreds of organizations and individuals have proclaimed that action learning has been successful in problem-solving, team-building, leadership development and organizational transformation (Boshyk 2002; Boshyk and Dilworth 2010; Dilworth and Willis 2003; Dotlich and Noel 1998; McNulty and Cauty 1995; O'Neil and Marsick 2007). However, almost all of the evidence relative to the effectiveness of action learning is based on anecdotal data or research that does not meet rigorous research standards. Cho and Egan (2009) noted in their analysis of over 353 articles on action learning that only 17 met the criteria for quality research and less than half of these were studies of balanced action learning, i.e., action learning that has both action (problem-solved, goal attained through efforts of group members) and learning (specific reflection time devoted to developing individual leadership skills, team skills and application to organization).

As a result of the limited amount and quality of rigorous action learning research, the academic community regards action learning as an unproven methodology that is based more on passion than on evidence. Furthermore, organizational executives and HR professionals tend

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to be reluctant to incorporate action learning into their leadership and organizational change efforts unless and until there is greater certitude relative to its effectiveness (Marquardt et al. 2009). Therefore, it behooves proponents of action learning to possess greater evidence as to whether action learning does indeed work and, if so, how and why. In this article, the authors describe evidence-based research and then examine 21 articles that meet the standards of evidence-based research.

Evidence-based practice

Over the past decade, there has been considerable interest in establishing principles that ensure that the practices in clinical fields such as medicine, nursing, social work, clinical psychology and psychotherapy are based upon empirical evidence for the efficacy of the various procedures and treatments used (Carr and McNulty 2006; Freeman and Power 2007; Sackett 1996). The basic principle applied in evidence-based practice (EBP) is that some evidence is better than other – i.e., evidence obtained from properly designed studies employing randomization of subject assignment, using control groups and placebos and double-blind measurement of results and employing properly applied statistical analyses provide better evidence for effective practice than evidence from subjective testimonials or even expert opinion.

The US Preventative Task Force (Harris et al. 2001) uses the following classification of evidence:

- Level I: evidence obtained from at least one properly designed, randomized, and controlled trial;
- Level II-1: evidence obtained from well-designed and controlled trials without randomization;
- Level II-2: evidence obtained from well-designed cohort or case-controlled analytic studies, preferably from more than one center or research group;
- Level II-3: evidence obtained from multiple time series with or without intervention (e.g., longitudinal analysis for establishing causal relationships and forecasting). Dramatic results in uncontrolled trials might also be regarded as this type of evidence; and
- Level III: opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees.

Level I studies, randomized clinical (or controlled) trials, are often considered the 'gold standard' in establishing cause and effect relationships and, thus, the impact or power of an intervention (Norcross, Beutler, and Levant 2006). The vast majority of applied research studies do not reach this aspirational goal. It is no surprise, therefore, that most of the evidence for the effectiveness of action learning would be classified as Levels II-2, II-3 or III. The real life, *in situ*, nature of action learning practice makes it difficult to carefully control or manipulate independent variables; to randomly assign subjects to treatment groups or to create comparable control groups; or to develop double-blind dependent variable measurement procedures. In most cases, the only feasible research designs are quasi-experimental (Campbell and Stanley 1966), limiting the ability to draw strong inferential conclusions from the results.

The majority of studies examining the effectiveness of action learning are field studies that report differences or changes in learning or skill demonstration as a result of participation in action learning designs that are part of management or leadership development programs sponsored by private and non-profit organizations. In many cases, the data has been gathered primarily to justify the expense of the program rather than to promote scientific knowledge about action learning (Boshyk 2002; Dotlich and Noel 1998). As a result, compromises in design or procedure are adopted that would not be acceptable in more scholarly research.

The importance and power of studies that fail to meet the stringent standards required for Level I evidence should not, however, be discounted, dismissed or ignored. Despite the limitation and design flaws that result, these studies add to the evidence available to evaluate the effectiveness of action learning. In the aggregate, these studies can be powerful just as the power of the single, relatively slow and weak personal computer is leveraged and greatly amplified when combined with other personal computers in a parallel computing network. Indeed, the enormous computer network used by Google.com to support their sophisticated search process is based on the lowly personal computer connected in parallel with other slow, simple and cheap PC's rather than on more powerful server-grade computers, much less the 'big iron' computers previously preferred in corporate settings.

It is likely that the effectiveness of action learning will only be established when enough data gathered through Level II and III designs have been reported in order to conduct meta-analyses to estimate the effect of action learning upon dependent variables such individual, team and organizational learning and the value of the resultant solutions. The accumulation of evidence gathered in these less-than-ideal circumstances will add to the confidence that practitioners and academics have in the efficacy of action learning.

Conclusion-oriented versus decision-oriented inquiry

Cronbach and Suppes (1969) introduced a useful distinction between traditional scholarly research and program evaluation. In most cases, the purpose of scholarly research is to draw conclusions with respect to research hypotheses. In recent years, exploratory research has increasingly been conducted by researchers attempting to increase scientific knowledge regarding the relationships between independent and dependent variables. In either case, the aim of the research is to identify and ultimately confirm or disconfirm hypotheses. In contrast, the primary aim of program evaluation is to provide evidence that can be used to make decisions about whether the program is worth continuing or what parts of the program work well or need modification. This certainly is the primary aim of most organizations when they conduct program evaluations.

These same programs are also seen as opportunities to test, or at least explore, hypotheses that would be included in a traditional research study. The mixed, and sometimes crossed, purposes of the program evaluation process usually introduce compromises that create weaknesses in any subsequent analyses designed to confirm hypotheses. For instance, organizations seeking to establish the value of a particular program may not see the value or even desire random assignment of participants or see the point in creating a control group. A number of the studies reported here faced these challenges; the evaluation designs reflected the reality that the evaluation process was primarily designed to help the organization make decisions rather than draw conclusions.

Quantitative versus qualitative models for data collection

Traditionally, researchers have insisted upon using quantitative analysis for serious research. Because many of the variables (particularly independent variables) are not directly observable, psychology and the behavioral sciences have developed appropriate methodologies for creating scales to convert continuous as well as discrete variable data into quantitative scales. Many of the studies reported here provide at least some quantitative data. A subset of these studies provide inferential (i.e., *t*-tests) as well as descriptive (i.e., means, standard deviations and Pearson Correlation Coefficients) analysis of the data.

The difficulty in providing or developing quantitative scales for phenomenological data has made qualitative analysis of data more popular. With the advent of better methodology for treating qualitative data (Patton 1990, 2002), a number of studies, even dissertations, rely heavily upon qualitative data analysis. As the qualitative analysis methodology improves and becomes more sophisticated, we expect this trend to continue to increase in the future.

Confirmatory versus exploratory research designs

Confirmatory research designs employ the scientific method to confirm or disconfirm hypotheses about the relationships between independent and dependent variables. When the differences between treatment conditions are large enough, the null hypothesis (that no relationship between variables) exists, can be rejected and the alternative experimental hypothesis can be confirmed. Very powerful tests of inference (e.g., *t*-tests, Analysis of Variance, Chi-Square) have been developed to establish that the chances of differences this large or larger occurring by chance are within acceptable limits (generally, less than 5 times out of 100).

Using confirmatory research designs is the only acceptable method for establishing causality (that is, demonstrating that variations in a particular independent variable reliably cause changes in a particular dependent variable). Although researchers, clearly, would like to design studies that establish causality, the methodological requirements are usually quite high in the behavioral sciences. It generally isn't feasible or practical to design field studies that randomly assign subjects, use double-blind measurement procedures or include control groups. It is often possible, however, to design 'quasi-experimental' research designs (Campbell and Stanley 1966) that yield quantitative data and use inferential statistics but lack one or more requisites for a classic experimental design. These results can be interpreted as implying but not as demonstrating causality. While one carefully designed experimental design can demonstrate causality (Level I in EBP protocol), it may take a number of quasi-experimental studies demonstrating similar directional results to demonstrate that a causal link exists between variables.

Exploratory research designs, on the other hand, do not develop hypothesis to be tested. Rather, researchers employing an exploratory design, identify the variables that seem to be structurally related in a phenomenon but do not make hypotheses about the relationships between these variables. Instead, researchers search for patterns through graphical, statistical or logical inference to identify hypotheses that can later be tested through confirmatory research designs. Because of the relative lack of prior research, a number of studies examining the governing or independent variables in the action learning process use exploratory research designs.

Classification of research designs

The authors identified a total of 21 refereed articles, theses and dissertations that measured the impact of action learning that incorporates both action and learning (Cho and Egan 2009; Marquardt et al. 2009) and meet the standards of Level II or Level III evidence-based practice. Table I shows the lead author, publication date, design and major findings of each of the articles reviewed.

Quantitative/confirmatory designs

These studies collect quantitative data that are used to test relevant hypotheses. In addition to scholarly research generated by academic researchers and student dissertations, many studies using the Kirkpatrick (1998) outcomes assessment approach are included in this category.

Table 1. Refereed articles measuring the impact of balanced action learning.

Lead author (year)	Design type	Major findings
Acker-Hocevar (2002)	Qualitative/Confirmatory	AL (action learning): (1) helps leaders deal with ambiguity, (2) build community, (3) reinforces managerial, transformational, political and professional aspects of leadership, and (4) promotes application of previous academic learnings to real problems.
Butterfield (1999)	Qualitative/Exploratory	Thought-provoking questioning is most effective in promoting learning; AL has long-term impact on improving questioning skills.
Choi (2005)	Quantitative and Qualitative/ Exploratory	AL improved in all eight coaching skills examined – relationship building, setting and communicating clear expectations, observational skills, analytical skills, listening skills, feedback skills and creating a supportive environment.
Davey (2001)	Quantitative and Qualitative/ Exploratory	AL is an excellent method for developing new ways of interacting and taking action as well as developing business contacts.
de Haan (2006)	Quantitative/Exploratory	AL teams learn more during than after AL sessions and learn primarily by exploring issues in depth and receiving personal feedback.
Hii (2000)	Quantitative/Confirmatory	AL develops increases the increases the preference for integrative, win/win solutions.
Kim (2002)	Quantitative/Exploratory	Learning coaches are an important success factor for AL.
Kim (2007)	Quantitative/Exploratory	Identifies two success factors; team processes and organizational support systems.
Kim, S. (2003)	Quantitative/Confirmatory	Found little consistent evidence that AL develops transformational leadership skills.
Kim, U. (2003)	Quantitative/Confirmatory	Found no over-all increase in transformational leadership behavior but did note increases in follower-centered and visionary leadership.
Kim, Y. (2003)	Quantitative/Exploratory	Support of participant manager is an important success factor for AL.
Knox (2000)	Qualitative/Exploratory	Identified six success factors: (1) set the context, (2) timely organizational sanctioning, (3) involve key decision makers, (4) develop a follow-up plan, (5) conduct periodic team debriefs, and (6) leverage leadership resources.
Kueht (2009)	Qualitative/Exploratory	AL provided transformative learning experiences for middle-aged professionals.
Lee (2005)	Quantitative and Qualitative/ Exploratory	AL is an effective leadership development approach for a broad array of leadership skills including communication, visionary leadership follower-centered leadership, confident leadership.
Marquardt (2003)	Qualitative/Exploratory	AL developed global leadership competencies for Boeing executives.
O'Neil (1999)	Qualitative/Exploratory	AL coaches 'mental models' for learning and changes influence their intentions.
Raudenbush (2003)	Quantitative/Confirmatory	AL improved performance on nine of 10 leadership skills.

(Continued)

Table 1. Continued.

Lead author (year)	Design type	Major findings
Roh (2003)	Qualitative/Exploratory	'Why' questions seen as more useful than 'what' questions; practical action seen as more useful than theoretical proposals; best reflections: (1) objective – emphasizing analytical and logical discussions that test validity of ideas, (2) subjective – providing personal meaning and interpretation of individual differences, and (3) intersubjective – encouraging consideration of issues from different perspectives or frameworks.
Tushman (2007)	Quantitative/Exploratory	AL programs for executive education enhance both individual and organizational outcomes.
Van Schuyver (2004)	Quantitative/Exploratory	AL results better with teams that are unfamiliar with problem; some individuals are more suitable to AL than others; stress, anxiety and frustration can facilitate learning; and breakthrough learning is common and critical to the success of AL.
Waddill (2006)	Qualitative/Confirmatory and Exploratory	Demonstrated that an on-line implementation of AL was feasible. However, this approach did not foster learning communities as expected.

The research questions tend to be more concrete and basic, but they are nonetheless hypotheses to be tested:

- Was the program successful in achieving the learning goals?
- Was new learning translated into improved behavior on the job?
- Did the program have a significant impact on achieving strategic goals?

In some cases, the results are analyzed using statistical tests of inference but in other cases only descriptive statistics are presented as confirmatory evidence. Studies of this sort were considered confirmatory, not because they presented experimental hypotheses to be tested, but rather, because they posed specific questions about the process for participants to evaluate. While studies lacking inferential testing can only provide weak evidence for confirmation of hypotheses, the resulting data can provide support for studies reporting more conclusive results.

Quantitative/exploratory designs

Studies of this type collect data about variables that *a priori* would appear to have some significance for the phenomenon being studied. The variables to be studied are usually suggested by earlier research or the opinions of experts or skilled practitioners. Researchers frequently provide surveys and/or psychological/behavioral inventories for participants and organizational stakeholders to complete regarding the process being studied. Researchers use these data to identify relationships, patterns and associations that can be tested in subsequent research.

Qualitative/confirmatory designs

These studies use non-metric, qualitative data to test hypotheses. Although designs of this sort are conceptually possible, they are difficult to conduct. Hypothesis-testing has some basic requirements that are hard to attain with qualitative data: agreement on the definitions of key independent and dependent variables; reliability of measurement and the validity of key

measures; a limited number of statistical procedures for qualitative data; and the difficulty in developing double-blind data reduction and management. These are formidable obstacles and only a few studies reported here use this data analytic model.

Qualitative/exploratory designs

Most qualitative/exploratory designs are case studies that analyze and organize behavioral data (often verbal transcripts of participant or interviews during and after a program or event), creating themes or categories. The themes or categories that are generated are often compared with theoretical models to develop possible explanations for the observed behavior. In a few cases, quantitative/confirmatory designs report additional qualitative data based on open-ended course comments and evaluations that are used to generate hypotheses and suggestions for future research.

The fact that the majority of the studies are exploratory rather than confirmatory reflects the fact that action learning practice was developed as a result of experimentation derived from preliminary theory and principles was based on observation and reflection on effects and adjustment and modification of practice principles. In this process, theory evolved based more on the observation of cause-and-effect in practice rather than as a result of rigorous testing of principles before modifying practice. As in many practice-based disciplines, we are now trying to understand the governing variables that account for the observed large practice effect.

The research questions

In order to determine what the literature indicated relative to the evidence relative to the effectiveness of action learning, four major research questions were addressed:

- (1) Does action learning increase individual, team and organizational learning and performance?
- (2) What changes in learning and performance are observed as a result of an action learning experience?
- (3) How does action learning work? What are the governing variables that determine how well action learning works?
- (4) What are the significant success factors for conducting successful action learning programs?

The evidence

Question 1 – Does action learning increase learning and performance?

Raudenbush and Marquardt (2008), using a quantitative/confirmatory design, reported improvement in nine out of 10 leadership competencies using a pre-post-assessment design in conjunction with a 12-month action learning program that was part of Leadership Development program for senior managers in a large federal agency. A 360-degree survey instrument was used to measure changes in behavior over the course of the program. Because of a small sample size, no tests of inference were conducted to determine whether these differences reached acceptable levels of significance. The two competencies displaying the largest increases on the 360-degree survey were *conflict management* and *continual learning*.

Jennings (2002) reported that the Simulation model was more successful in developing leadership skills than the Case Study method that, in turn, was more effective than the Project Consultancy method. The results from this study demonstrate that simply putting people into teams and giving them an important problem isn't the most effective way to develop leadership.

Without some structuring process, participants will likely use the leadership skills they already possess, skills that have been reinforced and that are responsible for their current success, rather than take risks to broaden their perspective or leadership behavior repertoire. Simulations and Case Studies are generally structured to challenge current assumptions and ideas and usually include questions that encourage reflection. Engaging people in difficult problems without a learning coach does not provide this structure. Actually, the fact that these problems are not routine and have no known solution often increases participant stress, resulting in more cautious and less risky solutions.

Marquardt (2003) describes the global leadership program at Boeing in which an extensive research was developed by experienced psychologists, researchers and evaluators of the Boeing Leadership Center as well as outside consultants knowledgeable in program evaluation methods. The follow-up research instruments were developed by first linking the carefully worded questions with program objectives. Questions were a combination of qualitative open-ended questions and requests for quantitative responses. Graduates of the Global Development Program were asked if they have used and applied what they had learned and, if so, how. This approach allowed for respondents to convey 'success stories' as well as specifically identify what parts of the program were most useful and what parts of the program could be made even more useful. The follow-up evaluations at the end of each program, as well as the follow-up evaluations conducted three months and one year after graduation, were compiled, analyzed and reported to the Boeing Executive Council. Analysis was conducted by both internal and external Boeing evaluators. Potential bias was minimized through independent data analysis. In addition to the qualitative stories of return on investment attributable to program learning, nearly 50% of all participants can specifically identify behavior change of global competencies as a result of the program. In addition, 90% identify learning from the program and all graduates supported the continuation of the program.

Hii (2000) conducted a quantitative/confirmatory analysis of case study data of 36 Malaysian managers participating in an action learning program. Hii predicted that managers would learn more effective ways to handle conflict as the result of an action learning experience. Although Hii used a quasi-experimental design, he was able to build in a control group into his design. Hii (2000) administered the Rahim (1983) Organizational Conflict Inventory II (ROCI-II) to participants before and after the action learning project. The ROCI-II is modeled after the Thomas-Kilmann Conflict Mode Instrument (1974) and provides a profile of an individual's behavior preferences for managing interpersonal conflict. As predicted, Hii reported that participants demonstrated an increase in the preference for integrative solutions (i.e., win/win solutions that reflect both concern for self-interests and concern for the interests of others). These results are consistent with our proposal that action learning fosters collaboration and shared leadership.

Tushman et al. (2007) conducted a quantitative, exploratory study, which included interviews with 64 participants in executive programs from 32 US-based organizations, concluding that the action learning programs enhanced both individual leadership development as well as organizational success.

Question 2 – What changes in learning and performance are observed as a result of an action learning experience?

Leadership skills

Lee (2005) gathered both quantitative and qualitative data at four data points for 16 participants in four action learning teams (sets) designed to develop leadership skills in managers in a Korean multinational corporation. Lee used a leadership model, Visionary Leadership Theory (VLT)

(Sashkin and Sashkin 2003), that was equivalent to the model used by Kim S. (2003). Lee used the definitions from VLT to develop 10 questions that assessed participant perceptions of improvement on each of the leadership scales. Each participant was asked to complete the VLT questionnaire four times over the course of the action learning program – three times during the six and a half weeks of the action learning program and again three weeks after completion of the action learning project. Of the 16 participants, nine also agreed to be interviewed regarding their experiences in the action learning project three weeks after the completion of the action learning project. The Leadership elements receiving the highest ratings at the end of the action learning project and three weeks later were Communication, Follower-centered, Reward, Confident and Caring.

Raudenbush and Marquardt (2008) found that action learning yielded benefits such as increased empathetic listening, enhanced ability to formulate more informed actions and higher readiness to take responsibility and initiative. Davey et al. (2002) discovered that members of action learning teams were better at listening, accepting criticism and being open with one another. Kueht (2009) conducted a qualitative exploratory study of four action learning sets, which revealed that action learning resulted in transformative learning experiences.

Acker-Hocevar, Pisapia and Coukos-Semmel (2002) provided case data on six action learning projects conducted with 30 doctoral education students. In this qualitative/exploratory design, the authors reviewed learning journals, team process survey reports, evaluations by staff and clients and focus group interviews. The authors reported the following outcomes:

- action learning reinforces the development of basic leadership skills;
- action learning builds basic leadership skills in a safe environment;
- action learning reinforces managerial, transformational, political and professional aspects of leadership; and
- action learning allows participants to understand themselves as developing leaders.

In another Level II-3/III (Harris et al. 2001), qualitative/exploratory design, Weinstein (1997) reports data from 69 individuals who participated in action learning. Results indicated that participants learned how to become better managers – how to build better relationships with staff, how to motivate them, as well as how to delegate. They also improved their consulting, facilitating, communications and networking skills.

Coaching skills

Choi (2005) used both quantitative/exploratory and qualitative/exploratory approaches to examine the impact of action learning upon the skills considered critical to effective coaching: relationship building, setting and communicating clear expectations, observational skills, analytical skills, listening skills, questioning skills, feedback skills and creating a supportive environment. The data from this study was collected from surveys and interviews completed with 19 upper-middle-level managers in a Korean financial company. Although no tests of inference were conducted, Choi reported improvement in all eight coaching skills. Skills displaying the highest degree of improvement were: listening, creating a supportive environment, questioning and relationship building. Furthermore, Choi reported that each of the six elements of action learning identified by Marquardt (2004) contributed to improvements these coaching skills.

Question 3 – How does action learning work? What are the governing variables that determine how well action learning works?

Lee (2005, 70) conducted interviews with a subset of the total sample who provided additional qualitative data on the ‘active ingredients’ in the participant learning process. He asked participants to ‘list the aspects or activities of the program that they perceived to have most likely

facilitated changes in leadership.’ These interviews were conducted three weeks after the conclusion of the projects. Participants attribute almost half of the development of leadership capability to the Questioning/Reflection process that is the core of the action learning method. Another 40% of the development of leadership capabilities was attributed to the specific activities the team took (21%) and the ability of the team to work collectively rather than individually (19%). Lee also asked interviewed participants to identify aspects and activities of the action learning program that were ‘ineffective for changing leadership behaviors and characteristics’ (184) Four themes were identified in relation to this question: high workload, time limitations, the makeup of the group and insufficient action learning team coaching skills.

Raudenbush and Marquardt (2008) interviewed participants 12 months after the completion of an action learning program to identify which aspects of the process had been most effective in developing their leadership skills. Participants identified the following action learning processes as contributing the most to improvement in their leadership skills:

- learning from each other;
- taking action;
- asking questions;
- listening;
- observing.

Butterfield (1999), using a qualitative/exploratory design, analyzed documents and interview data from 17 US-based first-line supervisors in a multinational financial services firm who participated in action learning projects for the purposes of leadership development. Butterfield interviewed participants using a critical incidents approach (what were the events/behaviors during the program that lead to personal learning?) four months after the action learning program ended and a year later (only 10 of the 17 were available or agreed to be re-interviewed). The predominant learning modality reported by participants was thought provoking questioning. Of the pool of participants interviewed four months after the program ended, 94% identified questioning as being a primary learning facilitator. A year later, participants had generalized the ability to ask good questions to solve a wide variety of problems in their lives. Half of the participants interviewed a year later believed that they had improved or reinforced their questioning skills. A significant percentage of the participants (71%) indicated that the action learning process also had an important impact on the development of their management style. Participants indicated that as managers they would emphasize the asking of thought provoking questions, collaborating, seeking feedback and seeking the input of stakeholders and peer managers.

Van Schuyver (2004) interviewed 22 master’s students who had participated in action learning programs sponsored jointly by Virginia Commonwealth and Georgia State Universities. In this qualitative/exploratory design, Van Schuyver asked participants what they had learned in the five phases of action learning that he believed were common to all action learning programs: start-up, during action learning sessions, during adjunctive class meetings, during meetings with the project client or sponsors and during the solution presentation and program closing process. Open-ended questions were asked to determine what, if any, learning had occurred in each of the five phases. Van Schuyver reported that all participants learned during the programs (these ratings appeared quite subjective – the definition of learning appears to have been left to each participant to determine for her or himself) and that learning occurred in all five phases of action learning identified. Most participants identified the questioning process as a major source of learning. Participants also reported meta learning (i.e., learning how to learn) as well learning specific to the problem or to the problem-solving process.

Question 4 – What are the significant success factors for conducting successful action learning programs?

Knox (2000), using a qualitative/exploratory design, interviewed 30 participants selected to represent a cross-section sample from 1700 participants enrolled in an executive development program at a Fortune 10 company over a span of three years. Knox used the Kirkpatrick (1998) evaluation model to develop specific questions for these interviews. The author organized the data into six themes representing success factors for conducting successful action learning programs:

- Setting the context: making sure that participants understand how the problem the team is working on is related to strategic organizational goals or challenges;
- Timely sanctioning: making sure that the problem scope and scale described in the team's charter is sanctioned by the organization in a timely manner;
- Involvement of key decision-makers: making sure that the decision-makers/stakeholders relevant to the problem are involved in the action learning process. Without involvement of these decision-makers/stakeholders, even good solutions are unlikely to get implemented;
- Follow-up plan: making sure that an accountability plan for implementing the solution is developed. Individual team members need to accept responsibility for implementation and should be accordingly rewarded for contributing to solution implementation;
- Enrich team presentations: in addition to presenting a solution to the organization, make time for the team to meet and reflect on what happened, what went well and was successful, what could be improved, what follow-on action steps need to be taken; and
- Leverage leadership resources: since teams included members from different businesses and business units, it is important to develop a plan to promote collaboration, communication and knowledge sharing between action learning team leaders to facilitate inter-company partnering across a decentralized and segmented global organization.

Kim (2007) provides accounts of number of studies conducted in Korea to explore significant success factors for action learning. Kim (2002), using a survey, interview and observation data collection process for 132 new managers who participated action learning, reported the following critical success factors: (1) having participants who are self-directed working in a voluntary learning culture, (2) having a diverse team, (3) having an experienced facilitator, and (4) thoroughly implementing the action learning solution and reflecting on action.

Kim Y. (2003), interviewing 55 participants randomly sampled from action learning programs in a Korean company, added three other success factors: (1) the support of responsible managers, (2) establishing appropriate goals, and (3) having a company culture that supports action learning.

Roh (2003) took a closer look at the team processes by re-analyzing video tapes and interview data for eight managers in two teams in one company:

- Questioning: 'why' questions were reported to be more useful than 'what' questions. It was also perceived to be useful for the coach to ask questions regarding values and beliefs or that encouraged looking at problems and issues from new perspectives.
- Action: practical action was perceived as more useful than theoretical proposals. Also, the team that proposes the solution should be the team that is tasked to implement it.
- Reflection: Roh described three kinds of useful reflections: (1) objective reflections, which emphasize analytical and logical discussions that test the validity of ideas, (2) subjective reflection, which provides personal meaning and interpretation of individual differences, and (3) intersubjective reflections, which encourage considering issues from different perspectives or frameworks.

Park (2004), using three rounds of a Delphi Process with 13 experts on action learning to identify critical success factors, employed the following schema to organize these expert opinions:

- Analysis and facilitating conditions: having the support of top management; establishing clear objectives; gaining consensus on the need for leadership programming; getting the support of the local organizations sending participants;
- Program development: having skilled facilitators; carefully selected participants; aligning the curriculum goals with the program; having a systematic process for selecting topics or problems; having an action learning manual;
- Program management: fostering an environment of continuous learning; maintaining top management involvement; getting support for adopting team solutions in the organization; reviewing activity and work; managing team activity; and
- Evaluation and review: presenting solutions to top management; recognizing top performers as future leaders; aligning training performance with personnel management; building evaluation and feedback processes to improve future programs; assessing the effects of the program.

Kim (2007) provided the most comprehensive and statistically sophisticated study of significant success factors for action learning in Korean companies. Using a quantitative/exploratory design, Kim reported data from 288 participants who completed an on-line survey of their action learning experiences. The 53-items in the survey questionnaire were based upon possible success factors identified through: (1) a literature review that identified conceptual domains, and (2) in-depth, semi-structured interviews with 13 action learning participants nominated by the 17 companies where the action learning programs were conducted. A provisional list of 93 items was reduced to the final 53 items, which were then organized into 16 Success Factor dimensions by an expert panel of four individuals who were skilled and knowledgeable regarding action learning. Through this process, Kim was able to identify success factors perceived by scholars and outside experts as well as by initially naive participants who had directly experienced the action learning process.

The 288 participants who completed this survey were asked to rate their degree of agreement (on a 6-point Likert scale; 6 = strongly agree, 1 = strongly disagree) with items such as 'The learning coach knew when s/he needed to intervene in a team meeting.' Means and rank order of means for the 16 Success Factor Dimensions are given in Table 2.

In addition to the descriptive analysis reported above, Kim also conducted an exploratory factor analysis using the correlation matrix between these 53 items.¹ The resulting factor structure² contained two major clusters of success factors: (1) team processes, and (2) organizational support systems.

In addition to rating the 53 potential success factor items, participants were also asked to provide their perception of impact of the action learning programs along four dimensions: problem-solving, individual learning, team development and organizational change. While both of the success factors described were significantly related to a summed measure of the impact of the action learning programs, the team processes factor had a much larger loading on the impact measure ($\beta = .58, p < .001$) than the organizational support systems factor ($\beta = .27, p < .001$). In addition, both factors together explained nearly 40% of the variability in the impact measure (adjusted $R^2 = .63, p < .001$).

Summary of research findings for action learning

For the purposes of this summary, research questions 1 and 2 (Does action learning increase learning and performance? and What changes in learning and performance are observed as a

Table 2. Rank order and sample items for the 16 success factors identified by Kim (2007).

Rank	Category	Sample item
1	Orientation	Opportunity to ask questions
2	Team meeting	There was regular reflection time to enhance learning
3	Launching the program	The objectives of the program were well aligned with the goals of the organization
4	Problem selection	The problem was very important to the organization
5	Participant competency	Participants felt responsible for the accomplishments of the program
6	Coach role	The coach had abundant experience in action learning
7	Data collection	Collected data were analyzed comprehensively
8	Strategic alignment	The objectives of the program were well aligned with the goals of the organization
9	Other stakeholder help	The sponsor had commitment to provide support for the success of the program
10	Presentation	The solutions were presented to top management
11	Organization's supporting structure	The organization shared its goals with all members
12	Implementation	After sponsor's decision, the solutions were implemented with monitoring processes
12	Evaluation	Measurable evaluation criteria were used in the review process of solutions
14	Program preparation	A guidebook for the ALP was developed for participants
15	Top management involvement	Top management had high expectations of the results of the ALP
16	Program design	Critical design decisions, such as hiring a learning coach, ways of forming teams, program period, separation from job, individual tasks, and so forth, were made according to the objectives of the ALP

result of an action learning experience?) have been consolidated into one research question: What impact does action learning have upon individual, team and organizational learning and performance? While these two questions are different (the first question requires a confirmatory design while the second question often results in an exploratory design) the thrust or focus of the two questions are quite similar – the impact of action learning. Since most end-users of action learning are most interested in the broader impact question, we believe that this consolidation is both justified and results in a simpler summary of the research results.

What impact does action learning have upon individual, team and organizational learning and performance?

While we await more substantial evidence (ideally Level I, Level II-1 or Level II-2 (Harris et al. 2001), the evidence supports the following hypotheses:

- Action learning develops broad executive and managerial leadership skills.
- Action learning is particularly effective in developing collaborative/shared leadership skills.
- Action learning improves the ability of managers to develop integrative, win/win solutions in conflict situations.
- Action learning improves manager coaching skills.

How does action learning work? What are the governing variables that determine how well action learning works?

The following elements or factors were consistently identified as the governing variables or active ingredients in action learning:

- Questioning – this was most commonly identified factor by far;
- Taking action;
- Learning from each other;
- Listening;
- Diversity of team membership;
- Feelings of confidence and well-being;
- Safe environment; and
- Coach.

What are the significant success factors for conducting successful action learning programs?

The distinction between team and organizational-level processes not only makes intuitive sense to us but also provides a useful structure for summarizing the research findings in relation to this question.

Team-level processes

- Skilled coaching;
- Diversity and behavior of team members;
- Self-directed team process;
- Effective team presentations; and
- Review of team process.

Organization-level processes

- Ensuring implementation of solutions;
- Orientation – communicating alignment and importance of problem;
- Problem selection;
- Support of top decision makers; and
- Leveraging resources – communication and collaboration across the organization.

Concluding remarks

While the research reported here provides useful evidence for the hows and whys in relation to action learning, many gaps in our knowledge about action learning still exist, including both: (1) the need for a definitive Level-1 study that is a true experimental design with random assignment of subjects and double-blind assessment of results and should include a control group, and (2) a rigorous analysis of the return on investment (ROI) for several action learning programs to address Level 4 in Kirkpatrick's (1998) assessment of training programs. The aforementioned analysis of action learning research suggests a clear need for longitudinal designs and quantitative approaches to data collection and analysis. Multivariate analysis, structural equation modeling, time series and path analyses could reflect both the complex dynamics underlying action learning and provide better opportunities for exploration of the multilevel factors. As action learning is widely accepted as a methodology for developing individual leaders as well as teams and organizations, conducting multiple levels of analysis is needed. Such rigorous research would go a long way toward establishing the requisite scientific evidence that, we

believe, is necessary to demonstrate that action learning is a very powerful and effective methodology for developing leaders, teams and organizations.

Notes

1. The ratio of variables to sample size just met the minimum level of five subjects/variable (item) recommended by Gorsuch (1983).
2. The initial solution was derived using a non-iterative principal axis factoring process. The final solution was refined through use of a screen test, parallel analysis, percentage of variance and intuitive factor interpretability (Brown, 2006; Thompson, 2004; Yang, 2005). The best fit, simple structure required an oblique rotation since the two resulting factors were moderately correlated ($r = .56$).

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