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The Dimensions of the Learning Organization Questionnaire (the DLOQ): A Nontechnical Manual

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Abstract

The Problem.
No readily accessible source of information is available to answer questions posed by those who seek to use the DLOQ about its construction, utility, and reliability.

The Solution.
This article traces the development of theoretical constructs that undergird the survey, outlines the steps of survey construction, and responds to frequently asked questions.

The Stakeholders.
Human resource and organization development (HROD) scholars who would use the DLOQ in studies of organizational culture need accurate information about the instrument. HROD practitioners who plan to use the instrument also need information about its utility and reliability to share with stakeholders and to ensure that high quality data will inform their interventions.

Keywords

dimensions of a learning organization questionnaire, validity, technical manual

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We begin by tracing the evolution of the construct of the learning organization by Watkins and Marsick (1993) as it has evolved in their writing and practice as well as the theoretical origins of their ideas. We then discuss the construct validity and reliability of the questionnaire. We conclude with how the instrument has been used to guide HROD research and practice.

Where Did the DLOQ Come From?

In this section, we trace the evolution of our theory of a learning culture and its assessment through the development of a questionnaire.

Theory development. Marsick and Watkins (1990) began their work on this idea by focusing on the notion that most of the learning in organizations occurs spontaneously and organically, evolving from the work itself. They drew from their research to demonstrate the informal and incidental nature of this learning. Specifically, their theory included the ideas of making the tacit explicit (Polanyi, 1966), experiential learning (Dewey, 1938), framing and reflection (Schon, 1983), and on Lewin and Lewin's (1948) field theory emphasizing the social context on learning. Marsick and Watkins (1990) extended the conception of human resource development to include capacity to help individuals, groups, organizations and even the profession itself to create structures and cultures where learning is continuous, ubiquitous, and embedded in the context of the work itself. They emphasized levers for informal and incidental learning—self-direction, proactivity, creativity, and critical reflection.

This vision inspired an extensive review of the literature of organizational learning, the learning organization, self-authoring and self-organizing organizations, and related research over almost fifty years of writing on these and related ideas beginning with Lewin and Lewin (1948). At the same time, they examined organizational examples of promising experiments in creating the capacities that allow the organization to learn. Watkins began a long-term project with Argyris and Schon (1978, 1996) and colleagues (Argyris, Putnam, & Smith, 1985) to develop capacities in implementing action science. Marsick began a similar effort focused on action reflection learning as described by Revans (1980, 1982) and reinterpreted by Lennart Rohlin (1984) and colleagues of the Management Institute of Lund.

As their concept of the nature of organizational learning and its embodiment through learning organizations evolved, Watkins and Marsick's (1993) thinking crystallized in a book entitled *Sculpting the learning organization: Lessons in the art and science of systemic change*. In this book, they described promising experiments to create a learning culture along six action imperatives and concluded with changes needed at four levels of a learning organization [individual, team, organizational, and societal]. Watkins and Marsick noted how the metaphor of sculpting uniquely fit the learning organization—because it describes shaping a creative vision to fit the context, using raw materials at hand. Watkins and Marsick (1993) said

> Our purpose in writing this book is to help you see clearly in your mind's eye the as yet nonexistent sculpture—the learning organization—and to show how

> some forward-looking organizations have begun to transform themselves into learning organizations. Ours is not a book of strategies but rather an analysis of the characteristics, qualities, and efforts of emerging learning organizations that will help you set a course and develop practices to create your own learning organization. (p. xv)

They emphasized six action imperatives as essential building blocks of a culture that transforms

1. Create continuous learning opportunities
2. Promote inquiry and dialogue
3. Encourage collaboration and team learning
4. Establish systems to capture and share learning
5. Empower people toward a collective vision
6. Connect the organization to its environment.

The seeds of the DLOQ are embodied in the action imperatives. Watkins and Marsick (1993) noted that "to begin to build a learning organization, one must first audit the organization's present capacity to learn and to change" (p. 262) at four levels:

1. Change in individual's behavior, knowledge, motivation and capacity to learn
2. Change in a group's capacity to innovate and generate new knowledge
3. Change in organizational capacity for innovation and new knowledge production
4. Change in overall capacity of community and society through quality of work life and other means.

Watkins and Marsick (1993) concluded with seven attributes or seven C's of a learning organization: Continuous, collaborative, creative, captured and codified, connected, collective, and capacity-building. These attributes would foster organic growth of learning organizations ". . . out of the drive in the people themselves to learn and grow . . . . While changes explode around the organization, the learning organization is created by implosion" (p. 279).

Next, the American Society for Training and Development (ASTD) asked Watkins and Marsick to solicit case studies of this kind of learning from over 8,500 individuals. Seventy individuals responded and thirty-two submitted cases. Nineteen case examples were selected of promising experiments across the above action imperatives, along with three integrated systemic approaches featuring organization-wide activities that made cultural shifts essential to creating a learning organization. *In action: Creating the learning organization* (Watkins & Marsick, 1996) showcases the selected cases. Watkins and Marsick concluded with their lessons learned. "The learning organization is not a destination, but a journey; it is not a formula, but it does involve some key principles that can be used to tailor a flexible structure to one's unique needs. A learning organization must do the following:

- Embed a learning infrastructure—not a training department, but a widespread means of creating, capturing and disseminating knowledge . . .
- Cultivate a learning habit in people and in the culture so that a spirit of inquiry, initiative, and experimental thinking predominates
- Regularly audit the knowledge capital in the organization and progress toward eliminating barriers to learning (Watkins & Marsick, 1996, pp. 282-283)

The theory was almost complete. In 1999, Marsick and Watkins collaborated on another book, *Facilitating learning organizations: Making learning count*. Figure 1.1, (p. 11) of this book depicts the final model and includes the seventh and last action imperative: Provide strategic leadership for learning. The authors wanted to better operationalize their definition of a learning organization, "one that is characterized by continuous learning for continuous improvement and by the capacity to transform itself" (p. 10). The 1999 book, then, embodies their theory—seven action imperatives that create conditions at four systemic levels to produce valued outcomes: "(1) systems-level, continuous learning; (2) that is created in order to create and manage knowledge outcomes; (3) which lead to improvement in the organization's performance, and ultimately its value, as measured through both financial assets and non-financial intellectual capital" (pp. 10-11).

The 1999 book focused on strategies to create a learning organization and introduced the DLOQ in Chapter 4: Charting the Journey (Marsick & Watkins, 1999). This chapter briefly described early use of the questionnaire in research and consultation. As Senge (1990) also concluded, Marsick and Watkins (1999) saw that leaders emerged as primary gatekeepers of change and those who must transform themselves to model a learning process. They stated

> The first step towards becoming a learning organization seems to be changing leaders' roles. Even though leadership for learning is often distributed, it is also true that people cannot step out and change the way things are done unless they are supported from the top. Leaders must provide a safe space in which people can take on new behaviors and realize that it is expected that they challenge the status quo. The ideal situation is one in which leaders themselves model learning. (p. 159)

The authors studied managers as facilitators of learning in learning organizations and found different outcomes with different patterns and levels of personal transformation of leaders' practice. The essential role of leaders and managers was affirmed as Marsick and Watkins looked across the book as a whole. They examined each of the case studies in the book and noted

> In each case, there has been one or more individuals driving the vision, believing that learning can make a difference. A sidekick, a person with knowledge of the change process, has helped to bring the vision to life and to move people and

> systems without harming them. There has not always been a clear diagnosis of how things are or a map of where the organization is headed. Sometimes, the map changed mid-stream. Leaders were able to admit that they were wrong and to redirect the change effort. They did this in conversation with their employees. They listened, they talked, they persisted. They saw a future that they could hardly describe but worked creatively and collaboratively to tease that future out of the stubborn marble of the organization as it was. And most of all, they realized that becoming a learning organization is in the details of daily life—how they interact with their people. (Marsick & Watkins, 1999, p. 204)

Though the authors continued to conduct research on the learning organization and to explore ways to create a learning culture, the essential model as presented in this book has not changed and established the substantive component needed for construct validation (Benson, 1998). Work with Yang (Yang, Watkins, &Marsick, 2004) established structural and external construct validity of the model.

Questionnaire development. During the same decade, the authors gave a number of workshops with individuals from numerous organizations. As they interacted with corporate trainers and leaders, a consistent question was how to operationalize their model. What changes must be made to move an organization from where it is to where it would like to be? The idea germinated of a questionnaire that might give individuals a baseline to determine current status vis-à-vis the learning organization action imperatives.

Watkins and Marsick developed and refined numerous iterations of a questionnaire with help from a survey research methodologist [Dr. Tom Valentine, University of Georgia] and a statistician [Dr. Baiyin Yang, then also at the University of Georgia, now Tsinghua University in Beijing]. They created items to capture the indicators they had seen in organizations who would become learning organizations.

The template for the questionnaire included a consistent item format, visual analog responses, and a six point Likert-type scale. The item format is designed to maintain a focus on the organization, each item beginning with "In my organization, . . ." A visual analog response scale was used to give a free range of responses along a continuum with anchors on each end (Clark & Watson, 1995). The authors were influenced by Kelly's (1963) personal construct theory and scaling approach that argued that meaning is personally constructed—and can be discerned by asking individuals to place themselves along a dichotomous continuum of responses. The authors anchored only the two poles of the response scale with "almost never" and "almost always," indicating how often the statement is true for their organization. They used a six-point scale to distribute responses and to avoid a clustering of responses at the mean; and asked respondents to make a choice toward one side of the continuum or the other.

Items were vetted with expert and student panels to ensure the language was simple, straightforward, and at an appropriate reading level for a largely professional audience. The student panel hand-sorted items on index cards to verify the fit of the item

within each dimension. From early pilot tests, a dataset was created and Cronbach's (1951) coefficient alpha reliabilities and factor analyses conducted to identify poorly worded and weak loading items. These items were revised or eliminated.

Through this iterative process, the questionnaire was completed and used in various contexts, including Executive Education at the Columbia Business School. Students at the University of Georgia used the survey in research in family businesses (Selden, 1998), nonprofit organizations (McHargue, 1999), government (Sta Maria, 2000), and South American for-profit corporations (Hernandez, 2000). Students at Teachers College used the survey in Korean businesses (Kim, 2007) and Malaysian banking (Murugiah, 2008). This cumulative work further demonstrated the validity and reliability of different versions of the DLOQ in different contexts and cultures.

Dr. Baiyin Yang worked with Watkins and Marsick to complete the validation of the instrument. Using a cumulative database of responses from multiple studies and organizations ($N = 836$), they conducted reliability analyses, exploratory and confirmatory factor analyses as well as structural equation modeling to test the construct validity of the dimensions and the overarching theory behind the model—that organizational knowledge and financial [and mission in nonprofit organizations] performance are related to the overall health of the organization's learning culture. Reliability results indicated high levels of reliability [.80 to .87; Yang et al., 2004). The authors report the results of this work, using steps described by Benson (1998) verifying the structural dimension of construct validity:

> The present study showed strong evidence of construct validity for the scale measuring dimensions of a learning organization. . . .A nomological network between dimensions of the learning organization and performance outcomes was identified and empirically tested as an additional step toward construct validation. Support for nomological validity was found from the significant relations between dimensions of the learning organization and performance outcomes and the model-data fit. (Yang, Watkins, & Marsick, 2004, p. 50)

The external dimension of construct validity was demonstrated when the model generated showed the relative impact of different dimensions of the learning organization on performance. In these analyses, individual and team level dimensions had indirect significant effects on organizational outcomes, and organizational level variables served as mediators of the relationship between individual and team level dimensions and organizational outcomes. Interestingly, only "provide strategic leadership for learning" had a significant direct effect on financial performance. The other organizational level dimensions, "embedded systems to capture and share learning" and "systemic connections," affected financial performance indirectly through knowledge performance (Yang et al., 2004, p. 49).

In a special issue of *Advances in Developing Human Resources* (Marsick & Watkins, 2003), studies using the DLOQ in different contexts illustrated its usefulness

and value. The validated questionnaire was included in that issue. Since then, over 70 articles using the DLOQ in many contexts and cultures have been published.

Frequently Asked Questions

As the DLOQ has been used in studies in multiple disciplines, multiple languages and organizational contexts, a number of questions have recurred. Some of these follow.

How do I interpret results?. Watkins and Marsick posit that it is the overall profile or pattern of responses that provides the best picture, and all dimensions are important. It is best to interpret the DLOQ by looking at the average response and the range or variation in response, and by looking for patterns and themes by comparing responses within category. A graph depicts the means for each dimension that can be compared to an overall mean of means from the authors' comparison dataset. The best comparison is internal since organizations vary considerably in their needs and context. By averaging across multiple respondents, users can note which items and dimensions are above and which are below the overall mean in their organization. Thus, areas that are higher provide strategic advantage, and areas that are lower provide strategic leverage. Examining the highest and lowest item means helps to interpret these points of advantage and of leverage.

Can I Adapt The DLOQ For My Organization? The DLOQ is a copyrighted instrument which means that the items, the format, the scoring, and so forth may *not* be used without the express permission of the authors. The authors must approve any adaptation. Simple adaptations such as saying the name of the organization in lieu of "In my organization" are readily approved. Because it affects reliability, any change of language of the items to better fit a context [e.g., public health, government, military, schools, etc.] have generally been codeveloped with the authors to maintain the integrity of the different constructs and to ensure any new language maintains the spirit of the dimensions.

Other changes [e.g., eliminating some items in a dimension] change the reliability of that dimension and are discouraged. Yang developed a 21-item short form of the instrument that has acceptable reliability and thus offers a better alternative to a more random elimination of items. The authors also discourage changing the scoring to a 5-point Likert-type scale from the current 6-point scale because it decreases reliability of the dimensions and causes regression to the mean.

Can I Translate The Questionnaire? Absolutely, as long as you follow standard guidelines for validating your translation, that is, by using back translation, expert review, and Chronbach's (1951) coeffiecient alpha to again ensure that reliability of each dimension is not significantly lower from those obtained in current validation work. Translators are asked to share a copy of the translated DLOQ with the authors for use by future scholars who need it in that language. Currently, the DLOQ has been translated from English into at least 14 languages.

Can I Use Parts Of The DLOQ In Another Questionnaire? Indeed, authors have given permission to use shorter versions of the questionnaire or all of it as part of

larger questionnaires that measure additional variables. As long as the DLOQ is appropriately cited, this is acceptable. Appropriate citation for the instrument is

> Watkins, K., & Marsick, V. (1997). *Dimensions of the learning organization questionnaire*. Warwick, RI: Partners for the Learning Organization. And Marsick, V., & Watkins, K. (2003). Demonstrating the value of an organization's learning culture: The dimensions of the learning organization questionnaire. *Advances in Developing Human Resources, 5*(2), 132-151.

Can I Use The DLOQ In A Study Looking At Individual Behavior? The dilemma here is that the DLOQ does not measure individual behaviors; it assesses individual perceptions of organizational norms and expectations. The authors seek to understand the organization as a unit of analysis, by looking at patterns and differences across organizations and organization units regarding learning culture. A study that then compares the DLOQ scores to an individual construct becomes hard to interpret. For example, it is hard to make sense of results that say, using the DLOQ, that an organization is high in strategic leadership for learning, but a given individual scored low in intrapersonal behavior using an individually scored emotional intelligence scale. What does this really mean? Should we argue that less reflective people perceive that the leaders in their organization are providing excellent leadership for learning? Logical conundrums such as this occur when mixing units of analysis.

DLOQ users can examine learning culture against perceptions or measures of organizational performance. The authors created two measures of perceived organizational knowledge and financial performance; and with McHargue (1999) a third measure of perceived mission performance. Others have used an array of organizational performance measures, both hard and soft, to develop correlations between a given culture and organizational outcomes. This kind of comparison fits with the theory behind the DLOQ of the learning organization as a driver of organizational innovation and performance. It is also consistent with all measures yielding individual perceptions of organizational attributes.

What Are Limitations Of The DLOQ? All instruments are limited in utility. The best use of the DLOQ is to provide a diagnostic of where an organization or a group of organizations falls relative to each other and to others who have taken the DLOQ. It is not a measure of all that a learning organization is, but rather an indicator that suggests that if these characteristics are present, others equally essential to creating a learning culture are probably also present and thus the organization may be understood to have a high or low learning culture.

The instrument is a self-report measure and shares the limitations of all self-report questionnaires. Individuals may not be truthful, answer capriciously or in a socially desirable way; or may lack information to answer accurately. We look at responses in the aggregate, expecting that much of this potential bias will be addressed, and that biases will further be identified statistically, particularly through tests of internal reliability. In reviewing the concerns and limitations of self-report measures, Razavi (2001)

concludes these issues must be taken into account in the design of the questionnaire in regard to its purpose and theoretical considerations. Organizational researchers, taken collectively, also find that individual perceptions of the learning culture are the strongest measure available of an elusive and abstract construct.

Items in the DLOQ are positively worded so a positive response set is possible. On the other hand, we recommend looking at overall profiles, that is, highs and lows rather than overall means. Thus, an individual organization may appear to score much higher than the authors' global mean, yet the general *pattern* of responses is similar to the pattern of high and low dimensions observed across many organizations.

The dimensions are highly intercorrelated. This multicolinearity makes statistical analyses more difficult,[1] yet since the constructs operationalized with this instrument are all dimensions of a learning culture, it is intuitively reasonable for the dimensions to be interrelated. Indeed, the learning culture is conceptualized as a collective result of all seven dimensions. Of more concern might be whether some dimensions of a learning culture have not been captured by this instrument. Future scholars will need to address this question.

What Forms Of The Instrument Are Available? The authors worked with colleagues to develop a number of versions including the original for profit instrument, a non-profit version, higher education and K-12 versions, government, and military versions. An on-line version is available and a self-scoring version is available from the authors. Copies of translated versions may also be available depending on the language requested.

Why Use The DLOQ In Practice? Much has been written about why an organization might strive to become a learning organization based on theory, research, and practice (Marsick & Watkins, 2003; Senge, 1990; Watkins & Marsick, 1993). Since these earlier writings, both researchers and practitioners have been using the DLOQ to attempt to provide more specific examples from practice to make the case that learning in an organization can have a positive impact on organizational outcomes. The following is a look at the areas most examined in order to provide practitioners insight into where they might find available data and ideas for their own exploration.

Organizational performance. Early on in learning organization research, Ellinger, Ellinger, Yang, and Howton (1993) recognized the need to build a business case for the relationship between learning organization dimensions and an organization's performance. They focused on financial performance; subsequent studies continue in that vein. Ellinger et al. (1993) study used four measures of financial performance including return on equity (ROE), return on assets (ROA), Tobin's q, and market value added (MVA). Davis and Daley (2008) added to the data verifying the relationship of the learning culture to financial performance by examining return on investment (ROI), earnings per share (EPS), net income per employee, percentage of sales from new products, as well as ROE. Fuentes (2008) looked at the link between Balanced Scorecard results and the presence of a learning culture in US-based, for-profit corporations. The relationship between learning organization dimensions and financial performance was also examined in Malaysia and Sri Lanka (Kumar, 2005; Weerakkody, 2011).

Organizational impact. The concept of organizational commitment has long been considered important to the success of organizations (Brewer & Hensher, 1998; Leiriao, 2003). There is renewed interest in understanding what might contribute to engaging employees' commitment based on the differing attitudes of newer employees and the ongoing recession (Bourke, 2009; Solnet& Kralj, 2010). Researchers and practitioners around the globe have looked at the relationship and impact of learning organization dimensions on the various dimensions of organizational commitment, such as job satisfaction, interpersonal trust, and organizational culture (Dirani, 2009; Salehi, 2005; Song, Kim, & Kolb, 2009; Wang, 2005).

"Innovation—the ability to define and develop new products and services and deliver them to market—is the fundamental source of value creation in companies and an important enabler of competitive advantage" (Bordia, Konenberg, & Neely, 2005, p. 1). Many researchers and practitioners agree on the importance of innovation and have looked into the relationship between learning organization dimensions and innovative behavior. Much of the research has been done with companies in Malaysia (Ismail, 2005; Sta Maria, 2000) and China (Xiaojun, 2010) and has examined the relationships in both individual innovative behavior and overall organizational innovation.

A final area of interest to researchers and practitioners is the idea of readiness for organizational change, and what might support and promote it, which has been studied by many (Beckhard & Pritchard, 1992; Burke, 2010). Those interested in learning organization impact have looked at this relationship both in the United States and internationally (Haque, 2008; Mohammad & Gholamreza, 2011; Noubar, Rose, Kumar, & Salleh, 2011).

Employee impact. There has also been research conducted on the connections between learning organization dimensions and employees at various levels in an organization. Marsick and Watkins (1999) emphasized the role of leaders and how they "must transform their work in order to support the learning organization" (p. 159). Researchers have continued to study leaders to better understand how their action or inaction impacts employees vis-a-vis learning organization dimensions (Hawkins, 2005; Lu, 2010; Pimapunsri, 2008).

Another area of research interest has been career development. Historically, an employee's career was developed in relationship with his/her employer. Significant changes, such as globalization and the increased use of temporary and part-time employees, have altered this relationship (Sullivan & Baruch, 2009). Researchers and practitioners have thus examined the effect of a learning organization on the employees' ability to have a self-managed career (Berg & Chyung, 2008; Park, 2009).

This synopsis highlights some key research areas that might be of interest to organizational practitioners. The DLOQ has also been used to investigate the relationship between learning organization dimensions and many other areas, some of which are described in other articles in this special issue. Other research, for example, has focused on knowledge creation (Song, 2008), collaborative capacity (Getha-Taylor, 2008), adoption of evidence-based practices (Bridges, Bierema & Valentine, 2007), and peer relationships (Peroune, 2007).

Conclusion

As the discussion of the development of the DLOQ demonstrates, its origins come from a solid base in both theory and research. The significant work done to establish validity and reliability has enabled the instrument to be used in many organizational studies and research projects throughout the world. The results from these studies provide valuable information to organizations and researchers interested in learning more about the learning organization. And to paraphrase one of our interviewees in *Facilitating learning organizations*, "more will be revealed" as the DLOQ continues to be used.

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Note

1. Naes and Mevik (2001) suggest the use principal component regression (PCR) for handling the multicollinearity problem in regression and discriminant analysis. See also Adnan, Ahmad, and Adnan (2006) who compare the performances of ridge regression (RR), principal component regression (PCR) and partial least squares regression (PLSR) in handling the multicollinearity problem in simulated data sets. Ridge regression produced a more precise result.

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