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On the systems intelligence of a learning organization: Introducing a new measure

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Abstract

We introduce and validate the Organizational Systems Intelligence (OSI) scale, a measurement tool for learning organization, and propose the scale as a useful tool for human resource development (HRD) at the individual level. The scale complements the operationalization of Senge's "Five Disciplines" of the learning organization. OSI provides a new perspective that links employees' perceptions of various seemingly mundane everyday practices with the organizationally desirable effects of a learning organization. The model suggests developmental perspectives that highlight micro-level behavioral, informal, interactional, and accessible-to-all aspects of the learning organization as a route to improvement. Operating in the vernacular and focusing on human experience in organizations, the OSI perspective points to improvement possibilities in and among people in contrast to structural manager-level constructs. It contributes to HRD literature that explores developmental outcomes and theoretical understanding from human experience in contrast to rank, status, structure, or hierarchy. With its bottom-up logic as an operationalization of the Sengean learning organization as a form of applied systems thinking, the model introduces an employee-level perspective of systems thinking in action into the field of HRD. It is

demonstrated that with respect to perceived performance, the OSI scale performs equally well as the widely used Dimensions of the Learning Organization Questionnaire.

KEYWORDS
competencies/competency, human resource capacity building, learning organization, organizational change and development, organizational performance

1 | INTRODUCTION

Peter Senge's *The Fifth Discipline: The Art and Science of the Learning Organization* (1990), with its lucid prose, concrete examples, and 2 million copies sold, is arguably the most influential presentation of applied systems thinking in the context of leading, developing, and managing organizations. Defining the learning organization as "organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspirations are set free, and where people are continually learning to see the whole together" (1990, p. 3), Senge stressed learning as an essential goal on the way to success.

In the vast literature following Senge's groundbreaking volume, the academic focus has been around the concept of learning as a value in itself, often at the expense of questions of how systems thinking might evolve within organizations, how learning would emerge from the behaviors of people, and how the learning within the organization is linked to performance. In their recent overview of the literature from the point of view of human resource development (HRD) implications, Watkins and Kim (2018) agree that more work is indeed needed "to begin to link specific learning organization strategies to enhanced organizational outcomes" (p. 25).

We propose a new measurement tool that contributes to the understanding of the learning organization by going back to Senge's original vision. Our guiding idea is to enrich the discourse of the learning organization by providing an employee-focused perspective of the learning organization as an intelligent system that successfully finds ways to adapt to its changing environment.

Along with Senge, we approach learning as a phenomenon that serves a purpose rather than as a goal per se. Importantly, we work toward the understanding of the learning organization as a platform for development by using concepts that do not explicitly refer to learning. We thus strongly depart from research that seeks to uncover the "learning organization" by referring to constructs that allude to "learning." The focus will thus not be on structural organizational entities but on the individual, interpersonal and "felt" cultural dimensions of the everyday that employees perceive and influence. In so doing, we shall not focus upon the various constructs that might relate to learning processes, such as leadership guidance and support for learning, discussed for instance by Edmondson et al. (2019), but rather highlight especially Senge's "Personal Mastery," one of the five disciplines and famously emphasized by Senge himself as primary, as foundational to our tool.

While building on Senge, we also pick up motivation for our undertaking from the early empirically grounded book-length works of Watkins and Marsick where they emphasized the role and significance of "informal and incidental learning" (Marsick & Watkins, 1990; Watkins & Marsick, 1993). This is a theme often by-passed in subsequent research on learning organization that has recently picked up the interest of scholars (Decius et al., 2019); see also Nurmala (2014). Furthermore, we seek to address the challenge of Watkins and Dirani (2013) when they called upon researchers to prescribe simple steps to becoming learning organizations and to accumulate evidence of what works. We believe our people-centered, bottom-up suggestions, expressed in a vernacular vocabulary and with an emphasis on the everyday, will "accumulate evidence of what works to create organizations with an enhanced capacity to

learn" (Watkins & Kim, 2018, p. 18). We will focus on the mundane reality of people as a route to illuminate potential HRD practices that seek to help employees self-improve and contribute for the benefit of a learning organization.

We shall first seek to articulate the people-centric, bottom-up view of the learning organization by bringing the concept of Systems Intelligence to bear on the theme and develop a new scale for the learning organization that is based on that concept of Hämäläinen and Saarinen (Hämäläinen & Saarinen, 2006; Saarinen & Hämäläinen, 2004). We then take the most commonly used, researched, validated, and practice-informed operationalization of the learning organization, the Dimensions of the Learning Organization Questionnaire (DLOQ) scale of Watkins and Marsick (1993), compare it with a new measure for the learning organization, and demonstrate with empirical evidence that the two scales are closely correlated and work equally well when measured against the parameter of perceived performance. A theoretical and practical discussion of the merits of the proposed OSI scale as a framework for HRD will then follow.

2 | STATEMENT OF THE PROBLEM

The literature on the learning organization is "fraught with conceptual and definitional confusion" (Watkins & Kim, 2018). A host of definitions and operationalizations to "the learning organization" has been presented (S. C. Goh, 2019). While the core construct remains "elusive" (Friedman et al., 2005), it is actively in use as well as promising in its practical and theoretical implications (Hoe, 2019). For HRD, as Chalofsky put in his introduction to the *Handbook of Human Resource Development*, "research and development around the concepts of the learning organization and organizational learning" is a focal point (Chalofsky, 2014).

In their extensive meta-analysis of DLOQ-based research, Song et al. (2013) note that more than 80% of the research studies they reviewed positioned the DLOQ as an input factor. As a result, "there are clear research opportunities to consider alternate positions of the DLOQ. In other words, understanding what factors cause or promote learning cultures would seem equally valuable." They call out for more theoretical justification prior to the empirical research using DLOQ (Song et al., 2013, p. 226).

One such source, Song et al. note, could be Senge's groundbreaking original work in *The Fifth Discipline*. "Senge's (1990) perspective would inform us that systems thinking, personal mastery, mental models, building shared vision, and team learning are the building blocks of any learning organization. It is less clear how any of these elements are most successfully practiced, and more importantly what brings them all together in a systematic way." We believe a return to the roots is indeed in order, particularly for researchers and practitioners of the learning organization with an HRD leaning.

Many of the items presented in the DLOQ use complex managerial language, and often can be challenging to answer for employees on lower levels of the organization. Hasson et al. (2013) have noted that when DLOQ is applied in HRD, managers' perceptions do not necessarily correspond with subordinates' perceptions and suggest that closing this perceptual gap could have a positive effect on employee performance and health. When it comes to the series of questions that consider the knowledge and financial performance of the organization, Marsick and Watkins themselves also note that "often, only middle- and higher-level managers are comfortable answering the performance questions" (Marsick & Watkins, 2003, p. 138).

We pick up from these well-perceived challenges, gaps in research and identified possibilities in order to present a Sengean scale for the learning organization as based on the concept of Systems Intelligence.

3 | SYSTEMS INTELLIGENCE

While Senge's *Fifth Discipline* has been hailed as "almost synonymous with the idea of learning organization" (A. Örtenblad, 2018), the research literature on the learning organization typically builds only on some selected aspects of Senge's vision.

Marsick and Watkins do list "Team Learning," one of Senge's five disciplines, among the seven core "dimensions" of the learning organization, along with "Dialogue and Inquiry" (discussed by Senge and associates in *The Fifth Discipline Fieldbook* [1994]). Senge's constructs "Personal Mastery, "Mental Models," and "Systems Thinking," three out of five, are not addressed as cornerstones of a learning organization, nor is the interplay of the five disciplines. The extant literature of the seven dimensions of the DLOQ (Continuous Learning, Inquiry and Dialogue, Team Learning, Embedded Systems, Empowerment, System Connections, and Leadership) is rich and enlightening, yet remains aloof from Senge's five disciplines. Our key idea is to bridge this gap through the key concept of Systems Intelligence, which integrates Senge's five disciplines.

Systems Intelligence (SI) as a framework draws from Senge's *Fifth Discipline* and the systems sciences (Hämäläinen & Saarinen, 2006; Saarinen & Hämäläinen, 2004). It has been applied to a number of domains including organizational development (Hämäläinen & Saarinen, 2006, 2008; Luoma et al., 2008, 2011), knowledge management (Sasaki, 2017), personal growth (Hämäläinen et al., 2014; Saarinen & Lehti, 2014; Saarinen 2015), therapy discourse (Martela & Saarinen, 2013), engineering education (Hämäläinen et al., 2018; Lappalainen, 2017; Lappalainen et al., 2020), and design thinking (Harviainen et al., 2021; Jumisko-Pyykkö et al., 2021). An approach for the improvement of organizational behavior by an agent-based simulator that uses ideas from SI and positive organizational theory has been suggested by Tiinanen et al. (2016), while Hämäläinen et al. (2020) discuss practical results from using SI-based design games as a way to support teams in early childhood education organizations.

Intuitively, the idea of Systems Intelligence is to capture the phenomenon of succeeding within evolving wholes (conceptualized as "systems"). As a construct intended to do justice to the human endowment for acting and growing from within systems, powerfully witnessed already in infants (Beebe & Lachmann, 2002), SI was originally defined by Saarinen and Hämäläinen (2004, p. 3) as:

> *[…] intelligent behavior in the context of complex systems involving interaction and feedback. A subject acting with Systems Intelligence engages successfully and productively with the holistic feedback mechanisms of her environment. She perceives herself as a part of a whole, the influence of the whole upon herself as well as her own influence upon the whole. By observing her own interdependence in the feedback intensive environment, she is able to act intelligently*.

SI has been operationalized on the individual level, validating the Systems Intelligence Inventory as a self-assessment tool (Törmänen et al., 2016). Taking that earlier work as a point of departure, we believe that the Systems Intelligence perspective, when brought to bear *on one's organization*, yields fresh insight into the functioning of the learning organization. Implicit here is the assumption that whatever a learning organization might ultimately be, we assume that at least a learning organization would have to be an entity that succeeds within wholes that are emergent, in the process of becoming and not yet fixed. Measuring such an entity from within and while operating on the level of an individual is the aim of our Organizational Systems Intelligence (OSI) scale.

4 | OSI SCALE

4.1 | Development of the scale inventory

The original Systems Intelligence Inventory was introduced and validated by Törmänen et al. (2016). The inventory, developed using a combination of exploratory and confirmatory factor analysis, consists of 32 items describing systems intelligent behavior of an individual. The eight factors that emerged were later proposed both shorter and longer definitions (Hämäläinen et al., 2014, p. 19, 2018).

The OSI scale that we here introduce has been created by rephrasing the 32 items of the original Systems Intelligence Inventory to address the organization of the individual by inserting the phrase "In my organization" to the

wording of each item. Two pilot studies were used to test the wordings and make small adjustments to their legibility. The final version of the 32-item OSI scale inventory is shown in Table A1. Some examples of the items are:

- "In my organization, people approach each other with warmth and acceptance."
- "In my organization, people like to play with new ideas."
- "In my organization, people are willing to take advice."
- "In my organization, when things don't work, people take action to fix them."

Notice that while introducing the phrase "In my organization," the inventory consciously sticks to what Marsick and Watkins call "individual level," as opposed to what they call "team or group" and "organization" levels. With OSI, the respondent does not evaluate how "my team" or "my organization" operates as a separate entity, but only addresses by vernacular language what takes place "in my organization" among people. There is a very strong mundane, everyday focus to the items of measurement that essentially draws from the experience of the people and from their perceptions of their organization. The organization is evaluated without reference to semi-theoretical constructs or structural entities, the evaluation of which would call for in-depth knowledge about the management processes of the organization. To further highlight the difference between the measurement tools, Table 1 presents the eight factors of Systems Intelligence as described by Hämäläinen et al. (2014), and Table 2 the seven Dimensions of the Learning Organization as described by Marsick and Watkins (2003). The factors clearly refer to different levels of organizational structure and experience.

In the questionnaire used for the empirical part of this study, the OSI scale and the 43-item 7-dimension DLOQ scale (Marsick & Watkins, 2003) were combined and the order of items randomized. Altogether, the combined inventory consisted of 75 questions. All of the items were evaluated on a six-point Likert scale from "Almost never" to "Almost always," following the convention of previous DLOQ questionnaires.

In order to secure an additional point of evaluation for the benefit of comparing the OSI and DLOQ scales, we asked the participants to evaluate how successful they feel their organization is in its field. We chose to ask this with a direct question, evaluated on a 11-point scale, using the wording: "On a scale from 0 to 10, how successful is your organization in its field?" with answer 0 labeled as "Very bad," 5 as "Average," and 10 as "Excellent." This question was asked with a 11-point scale, compared to the six-point scale for DLOQ and OSI, as its answers were used directly in the analysis, instead of as part of a weighted average, and we believed it best to retain more detail in the answer distribution.

4.2 | Data

As our interest was to validate the OSI scale as a tool that is widely accessible and applicable in various contexts, we wanted to approach a wide population of people in work life for our data collection. Accordingly, we decided to

TABLE 1 Descriptions of the factors of Systems Intelligence (Hämäläinen et al., 2014)

1. *Systemic Perception* Our ability to see the systems around us	2. *Attunement* The capability we have to feel and tune into systems
3. *Attitude* Our overall approach to life in systems	4. *Spirited Discovery* Passionate engagement with new ideas
5. *Reflection* Our capacity to reflect on our thoughts and think about our thinking	6. *Wise Action* Our ability to behave with understanding and a long time horizon
7. *Positive Engagement* The character of our communicative interactions	8. *Effective Responsiveness* Our talent at taking timely, appropriate actions

TABLE 2 Descriptions of the Dimensions of the Learning Organization Questionnaire (Marsick & Watkins, 2003)

1. *Create continuous learning opportunities* Learning is designed into work so that people can learn on the job; opportunities are provided for ongoing education and growth	2. *Promote inquiry and dialogue* People gain productive reasoning skills to express their views and the capacity to listen and inquire into the views of others; the culture is changed to support questioning, feedback, and experimentation
3. *Encourage collaboration and team learning* Work is designed to use groups to access different modes of thinking; groups are expected to learn together and work together; collaboration is valued by the culture and rewarded	4. *Create systems to capture and share learning* Both high- and low-technology systems to share learning are created and integrated with work; access is provided; systems are maintained
5. *Empower people toward a collective vision* People are involved in setting, owning, and implementing a joint vision; responsibility is distributed close to decision making so that people are motivated to learn toward what they are held accountable to do	6. *Connect the organization to its environment* People are helped to see the effect of their work on the entire enterprise; people scan the environment and use information to adjust work practices; the organization is linked to its communities
7. *Provide strategic leadership for learning* Leaders model, champion, and support learning; leadership uses learning strategically for business results	

perform the validation of the OSI scale with a large crowdsourced data set, rather than limit the analysis to a sample of only a limited number of organizations. We gathered answers with the Prolific.ac platform from people residing in the United Kingdom or the United States, and who were employed full-time and at last 25 years of age. The participants were compensated for filling out the questionnaire with a 2.00 £ reward. Participants failing to correctly answer two attention check questions requiring the selection of a specific answer, and participants who had spent less than 2 min answering the questionnaire, were removed from the data set. Missing answers were only allowed for background questions.

The resulting data set consists of the answers of 470 people. Statistics for the data are shown in Table 3. The data gathering strategy produced a balanced distribution of males and females, and in addition the data set has close to equal number of residents from the United Kingdom and United States.

5 | RESULTS

5.1 | Model validation

The OSI items are rephrasings of the original SI inventory items. To enable easy use of the OSI scale and the original individual-level inventory together, we thought it would be useful for the OSI to share the factor structure with the SI inventory; this would, for example, allow discussing both the Wise Action of each individual assessing themselves (SI inventory), and the Wise Action of the people in the organization in general (OSI scale inventory). Thus, we decided to use the exact same 8-factor, 4-items-per-factor structure for the OSI items, rather than using exploratory methods to identify a new factor structure. Assuming that the model performs well based on conventional confirmatory factor analysis fit statistics, such as those suggested by Hu and Bentler (1999), the SI factor structure can be retained for the OSI scale.

We applied a first-order model with 32 items loadings on eight OSI factors to the OSI data using structural equation modeling (Bollen, 1989). The model was estimated with the R programming language "sem" package version

TABLE 3 Data statistics

	N	%
Total	470	
Gender		
Male	236	50
Female	233	50
Country of residence		
United Kingdom	255	54
United States	216	46
Age		
Under 40	341	73
40 or older	129	27
Position		
Senior or middle manager	115	24
Supervisor	79	17
Non-managerial	277	59

TABLE 4 Model fit statistics for various models of Organizational Systems Intelligence (OSI) and Dimensions of the Learning Organization Questionnaire (DLOQ)

Model	$\chi 2$	*df*	$\chi 2/df$	CFI	RMSEA	SRMR	$\Delta\chi 2$	Δdf	*p*-value
1-factor OSI	900.9	464	1.94	0.979	0.045	0.059	114.6	28	<0.001
8-factor OSI	786.3	436	1.80	0.983	0.041	0.055			
1-factor DLOQ (43 items)	1749.3	860	2.03	0.979	0.047	0.061	67,3	21	<0.001
7-factor DLOQ (43 items)	1682.0	839	2,00	0.980	0.046	0.064			
1-factor short DLOQ (21 items)	512.2	189	2,71	0.975	0.060	0.055	84,6	21	<0.001
7-factor short DLOQ (21 items)	427.6	168	2,55	0.980	0.057	0.051			

3.1–11 (Fox et al., 2020) with a generalized least squares fitting function. The fit of the model was evaluated using three commonly used model fit indices: the root mean squared residual (SRMR), the root mean square error of approximation (RMSEA), and the comparative fit index (CFI). We also ran the analysis for the 43-item full DLOQ scale, and the more commonly used 21-item shortened DLOQ scale that is often used in applications of the DLOQ (Marsick & Watkins, 2003; Yang, 2003).

Table 4 includes the $\chi 2$ test statistics, model fit statistics, and $\chi 2$ difference tests for the OSI and DLOQ models, in addition to comparing them with single-factor versions of the same models. Both DLOQ models and the OSI model fit statistics indicated a good model fit using the conventional cut-off ranges suggested by Hu and Bentler (1999). The multi-factor versions of each model performed statistically significantly better than the single-factor models ($p < 0.001$ in each case).

These results indicate that the OSI scale has good construct validity when using the SI inventory factors introduced in Törmänen et al. (2016). OSI can be described by eight separate and correlated OSI factors that give rise to "organizational systems intelligence capability." Our results on the DLOQ are in line with recent DLOQ validation studies (Chai & Dirani, 2018; Kortsch & Kauffeld, 2019).

5.2 | Factor scores

OSI scores for the eight factors were calculated as weighted averages of item responses, using factor loadings from the CFA model. DLOQ factor scores were calculated as simple averages, as given by Marsick and Watkins (2003). Table 5 shows the factor score means and intercorrelations for the OSI factors, and Table 6 the means and intercorrelations for the DLOQ factors, both calculated with the R programming language version 4.0.2 (R Core Team, 2020). Both tables also present the Cronbach alpha reliability estimates for the factors, as calculated by the R "pysch" package version 1.9.12 (Revelle, 2020). The Cronbach alpha values for the DLOQ factors and six of the OSI factors were over 0.8, indicating good reliability. The alpha values for OSI Effective Responsiveness (0.73) and Attitude (0.68) were somewhat lower, indicating that these two factors have somewhat lower reliability.

The correlations were very high and statistically significant ($p < 0.001$), indicating that the factors are closely related to each other and share a significant amount of variation. For factors of DLOQ, this seems to be typical; Yang et al. (2004) reported high DLOQ correlations in their validation of the DLOQ questionnaire, and the DLOQ factor means are close to typical values presented by Marsick and Watkins (2003). The results are also in line with the undergoing discussion about high multicollinearity and possible lack of discriminant validity for the DLOQ, as discussed by Kim et al. (2015).

5.3 | Correlation between OSI and DLOQ

Table 7 shows the cross-correlation table for the DLOQ and OSI factors. Many of the correlations are 0.71 or higher, indicating that a linear regression model between the two factors would explain over 50% of the variation (Devore, 2012, p. 510). Thus, it can be assumed that the DLOQ and OSI scales measure, or at least are related to, the same characteristics of the organization. The highest correlations can be found between the individual- and team-level DLOQ factors (Continuous Learning, Inquiry and Dialogue, Team Learning) and OSI factors (Attunement, Positive Engagement, Systemic Perception, Wise Action and Reflection). The correlations were somewhat lower for OSI's attitude and action-oriented factors (Attitude, Spirited Discovery, Effective Responsiveness).

In many cases, the high correlations are as could be expected; for example, the DLOQ dimension of Inquiry and Dialogue and the OSI dimension of Positive Engagement have similarities in content in their item-level formulations. DLOQ explicitly allocates 13 of its 43 items to what it calls "Individual level" and the dimensions not correlating well would signal problems.

We stress the fact that the cross-correlations between DLOQ and OSI are high even if the scales are essentially different. Their theoretical base is different as DLOQ builds on the seven "core dimensions of the learning organization" of Marsick and Watkins, while OSI works from Senge's "five disciplines of the learning organization," as integrated as Systems Intelligence. Even more importantly, the vocabulary that DLOQ and OSI use differ dramatically.

While "Individual level" is present in DLOQ, the main focus of DLOQ (30 out of 43 items) is on teams/groups and the organizational level. With items such as "In my organization teams/groups have the freedom to adopt their goals as needed" (item no. 14), "My organization uses two-way communication on a regular basis, such as suggestion systems, electronic bulletin boards, or town hall/open meetings" (item no. 20), and "In my organization leaders ensure that the organization's actions are consistent with its values" (item no. 43), DLOQ places agency on a team, group, organization or leader. In OSI, in contrast, each of the 32 items evaluates what people are doing "in my organization."

5.4 | Factor scores and perceived organizational performance

HRD seeks to "foster a climate where growth and development of humans in workplaces is addressed holistically and from multiple perspectives" (Werner, 2014, p. 128). This is done for the benefit of performance. Thus "the

TABLE 5 Organizational Systems Intelligence factor means, correlations, and Cronbach alpha values

	Mean	Systemic Perception	Attunement	Attitude	Spirited Discovery	Reflection	Wise Action	Positive Engagement	Effective Responsiveness
Systemic Perception	4.12	(0.81)							
Attunement	4.26	0.81	(0.83)						
Attitude	3.46	0.63	0.65	(0.68)					
Spirited Discovery	3.96	0.72	0.71	0.53	(0.87)				
Reflection	3.98	0.80	0.77	0.61	0.76	(0.82)			
Wise Action	4.13	0.81	0.80	0.67	0.68	0.77	(0.81)		
Positive Engagement	4.12	0.80	0.81	0.61	0.71	0.80	0.79	(0.81)	
Effective Responsiveness	4.19	0.79	0.74	0.61	0.66	0.74	0.75	0.75	(0.73)

Note: All correlation coefficients are statistically significant at level $p < 0.001$.

TABLE 6 Dimensions of the Learning Organization Questionnaire factor means, correlations, and Cronbach alpha values

	Mean	Continuous Learning	Inquiry and Dialogue	Team Learning	Embedded system	Empowerment	System Connection	Provide Leadership
Continuous Learning	3.92	(0.88)						
Inquiry and Dialogue	4.06	0.82	(0.86)					
Team Learning	3.95	0.84	0.88	(0.87)				
Embedded System	3.80	0.78	0.70	0.75	(0.82)			
Empowerment	3.82	0.85	0.81	0.87	0.73	(0.87)		
System Connection	3.98	0.82	0.81	0.83	0.72	0.81	(0.81)	
Provide Leadership	4.01	0.84	0.81	0.84	0.79	0.83	0.81	(0.89)

Note: All correlation coefficients are statistically significant at level $p < 0.001$.

TABLE 7 Organizational Systems Intelligence (OSI) and Dimensions of the Learning Organization Questionnaire (DLOQ) cross-correlations

	Systemic Perception	Attunement	Attitude	Spirited Discovery	Reflection	Wise Action	Positive Engagement	Effective Responsiveness
Continuous Learning	0.79	0.75	0.64	0.77	0.82	0.77	0.80	0.74
Inquiry and Dialogue	0.83	0.86	0.66	0.73	0.82	0.82	0.86	0.76
Team Learning	0.82	0.83	0.69	0.75	0.82	0.80	0.83	0.77
Embedded System	0.73	0.64	0.53	0.65	0.73	0.67	0.70	0.66
Empowerment	0.78	0.77	0.62	0.79	0.81	0.77	0.78	0.73
System Connection	0.80	0.77	0.61	0.70	0.76	0.74	0.78	0.73
Provide Leadership	0.77	0.76	0.63	0.71	0.78	0.74	0.79	0.71

Note: All correlation coefficients are statistically significant at level $p < 0.001$.

learning" of the "learning organization" is not an end in itself. The organization serves a purpose that is intended to benefit from learning. Reflecting this fundamental aspect of organizations, we chose to enrich our analysis of the two scores by asking the respondents also to evaluate their organizations from the point of view of the outcome indicator, "How successful is your organization in its field?"

We studied the relationship between the two instruments by having DLOQ and OSI factors explain perceived organizational success with linear regression models and comparing the share of variation explained by the regression model (based on the coefficient of determination, R^2). Table 8 presents these values for different subsets of the answer data and for three different regression models—one consisting of the seven DLOQ factors, one consisting of the eight OSI factors, and one consisting of the combination of both.

Differences between the two tools were small. DLOQ factor scores had a slightly higher share of explained variation values than OSI, with DLOQ explaining 35% of the variation and OSI 32% of the variation of perceived organizational success. Partial correlations calculated from the combined 15 factor model indicated that only one of the factors, the DLOQ Providing Strategic Leadership for Learning, was statistically significantly distinct from the other factors when taking Bonferroni correction into account. This observation is not surprising, as the factor refers to structural artifacts primarily accessible to managers as opposed to people in the ranks who will not be in a position to influence the items in question.

In our data, people in supervisor roles or non-managerial positions had noticeably higher share of explained variation than people in middle- or senior-level managerial positions. There may be a difference in how organizational success is being perceived depending on the participant. For instance, higher-level managers are likely to be more aware of quantitative metrics of the performance of their organization and are primed to answer with those metrics in mind.

5.5 | OSI and DLOQ in top performing versus lower performing organizations

The participants assessed the performance of their organizations by answering how successful they perceive their organization to be, compared to other organizations in the same field. Using these answers, we can study perceived

TABLE 8 Share of variation explained by different regression models of perceived organizational performance

	N	DLOQ (7 factors) (%)	OSI (8 factors) (%)	Combined (15 factors) (%)
All	471	**35**	32	36
Mid or senior managers	115	**21**	19	23
Supervisors	79	43	**44**	53
Non-managers	277	**40**	36	42
U.K. residents	255	**35**	32	38
U.S. residents	216	**37**	32	39
Retail and sales	52	**45**	37	53
Manufacturing and construction	38	**52**	49	58
Education and research	75	28	**31**	37
Finance, insurance and real estate	35	30	**40**	64
Health care	63	**40**	32	47
Government or public services	37	70	**73**	83
Information technology	56	**36**	15	40
Other services	51	59	**66**	70

Note: Percentages calculated from the coefficient of determination (R^2 value) of the multivariate linear regression model.

organizational performance from the point of view of OSI and DLOQ scores. The hypothesis here is that the stronger an organization is as a learning organization, the stronger is also its success as perceived by its people. For the purposes of our analysis, we singled up organizations that were ranked "top" as compared to "lower performing," according to the evaluation given by the participants in the data. For an organization to qualify as "top" it needed to be rated 10 by the participant. If an organization was scored 0–8, it was classified as "lower performing." In the data, there were 52 organizations that were considered "top" and 340 that were "lower" (79 organizations were rated 9). As described later, the answer distributions of the most successful organizations are overlaid on top of the answer distributions from less successful organizations. Figure 1 shows the distributions for the eight OSI dimensions and Figure 2 for the seven DLOQ dimensions.

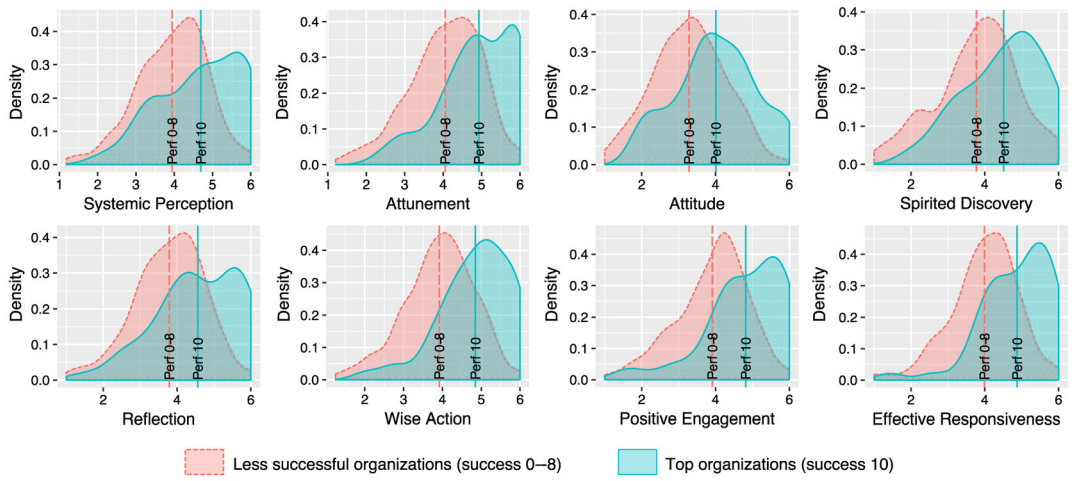

FIGURE 1 Score distributions for the eight Organizational Systems Intelligence factors for top organizations ($N = 52$) and less successful organizations ($N = 340$). Vertical lines indicate averages and areas indicate smoothed answer distributions for both groups

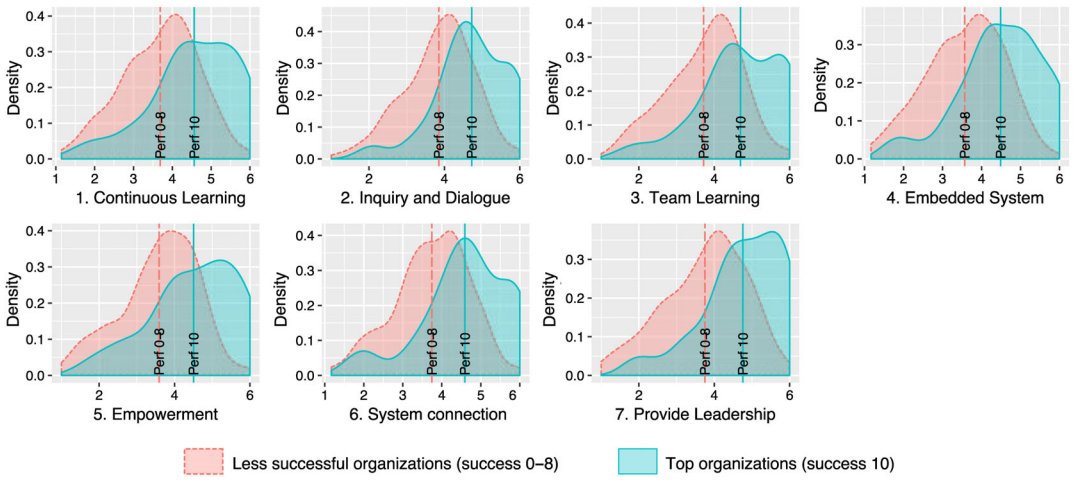

FIGURE 2 Score distributions for the seven Dimensions of the Learning Organization Questionnaire factors for top organizations ($N = 52$) and less successful organizations ($N = 340$). Vertical lines indicate averages and areas indicate smoothed answer distributions for both groups

The data shows that the top organizations score significantly higher in all the factors of both OSI and DLOQ as compared to lower performing organizations. Importantly, the diagrams help to identify points of potential development. To wit, for OSI Systemic Perception and Effective Responsiveness, as well as for DLOQ Provide Strategic Leadership for Learning, the peak of the distribution for high-performing organizations is very close to the maximum score. Having one's organization score in the lower end of the distribution in any of these three factors would signal a clear call for intervention.

6 | DISCUSSION

A pivotal feature of the OSI scale is that it focuses on individuals and only talks about "people" "in my organization." In particular, OSI does not allude to "learning" or organizational structures that might involve "learning." Importantly, the OSI items do not talk about the agency or the functioning of structures only managers could credibly evaluate or influence. We view this as a major advantage of the "serviceability" (Burke, 1984) of our proposal and a key reason for the benefits of the proposed scale for HRD. The communicative applicability of the OSI scale with its generally accessible language suggests broad possibilities for improving performance in an organization from the bottom up. Our perspective joins in the "Copernican turn" described by Rigby and Ryan (2018), where the focus of developing human resources is shifted from institutions to individuals. With this "unprecedented shift of power from institutions to individuals," workplace dynamics are perceived through people and their experience instead of external contingencies and from-without structures.

This shift toward individuals is paramount for HRD professionals that "endeavor to provide learning opportunities that nurture human experience in organizations" (Shuck et al., 2014). Some of the most intriguing issues for scholars and practitioners of HRD concern the gap between the offerings of an organization and the employees' perception of those offering.

Since the groundbreaking work by scholars such as Lee and Bruvold (2003), notions like "perceived investment in employee development" have been recognized as fundamental for HRD, but the employee experience and perception is a slippery slope on which systems are hard to build. In their important study of employee engagement, turnover intentions, and HRD practices, Shuck et al. (2014) bring to focus the generic theme that "for some employees, they can feel unsupported at times or perceive there is little investment from organization for their participation in HRD-related practices" (p. 214). There is need for ways to capture the perception of employees as the entry point for insights into HRD-relevant learning organization processes and constructs.

In the current context of the learning organization, the focus on individuals is theoretically justified in view of Senge's discipline of Personal Mastery, strongly stressed in his original discussion but by-passed in subsequent literature. Senge systematically stresses Personal Mastery as the most important of the five disciplines (Reese, 2020), while also acknowledging its neglect in practice. Personal Mastery applies to everyone in an organization irrespective of her position. If a scale for the learning organization is supposed to work in real life, and if we assume Personal Mastery is one cornerstone of the learning organization, then surely it would be beneficial if a scale for the construct talked about generic human phenomena that anyone can perceive and improve upon. When the relevant developmental possibilities are identified with a vocabulary that does not refer to organizational policies, strategies, or other high-level constructs but maintains the focus on what people themselves can experience, implementation is likely to be more forthcoming. The proposed OSI scale does seem to fill this important criterion for a bottom-up development and increased self-regulation for the benefit of the whole.

There is one intriguing level on which our Sengean perspective strikes a chord with one important original observation of Marsick and Watkins: "Our views of organizational learning began with a mutual observation that significant learning, even transformative learning, was usually *the least structured*." (Marsick & Watkins, 2003, p. 134, italics added). Perhaps organizational structure has less to say than sometimes is assumed in the literature on learning organizations? As Watkins and Kim (2018) put it in envisioning "emerging areas of research," "the role of informal

learning in creating a learning culture" looms large (p. 21). We suggest the informal, incidental, and inter-relational human features of people in an organization, as identified by our OSI scale, point to the micro-level cells and molecules from which the organisms of "learning" emerge.

From the point of HRD, the significance of informal learning, along with on-the-job learning, generally acknowledged as highly contributive for the organizational performance, points to what Chalofsky labeled the "humanistic perspective" inherent in HRD that "emphasizes inner growth that is realized through interaction of self, context, and life experiences" and "a holistic approach to human development … [that] recognizes the need to develop the whole person" (Chalofsky, 2014, p. xlv). As Dirkx and Deems put it, what is called for is "an ecological approach to work" that integrates the psychological and the organizational, and views "the 'inner life' as intimately and deeply connected to and embedded within an outer life" (Dirkx & Deems, 1996, p. 276). We suggest that our OSI score strikes new ground to these important effects, with a potential to enrich the discussion that pertains on such deeply human issues as the "incivility" of people (Reio & Ghosh, 2009) that point to cultural factors beyond the structural and managerial while emphasizing what Senge called a key characteristic of the learning organization: "an intense appreciation of interrelationships" (Senge, 1993, p. 5).

7 | IMPLICATIONS FOR THEORY

In his recent comprehensive meta-article of the scores previous to OSI, Goh points out that "the identified dimensions are very similar" in DLOQ and in the other leading scales such as OLS of Goh and Richards (1997), LOM of Sinkula et al. (1997), and OLC of Jerez-Gómez et al. (2005). In the light of the results reported here, the conclusion of the "diminishing returns in the development of new scales to measure the LO construct" is clearly premature.

Instead of being conceptualized as the function of organizational structures, the OSI scale depicts the learning organization as emerging from behaviors and aspirations of people in the everyday of their work, in a way that can be perceived by people themselves. Rather than focusing on abstract processes or structures, the bottom-up perspective of the OSI presents "learning as an activity of interdependent people," using the apt phrase of Ralph Stacey (2003), suggesting theoretically that the contrast between relationality-focused approaches such as Stacey's "complex responses processes" and the "systems" approach such as Senge's is not as sharp as sometimes has been suggested (see also Luoma et al., 2011). Given that no structures of formal learning are alluded to by the items of the OSI, the phenomenon measured seems to fulfill Eraut's criterion for informal learning as something that "takes place in a much wider variety of settings than formal education or training" (Eraut, 2004). We also recall Senge's often bypassed distaste for formal learning to be in line with the current emphasis. As Senge blatantly puts it, "learning is learning, and it has nothing to do with school" (Reese, 2020, p. 9). Theoretically, to the extent the OSI scale does capture an important aggregate phenomenon on the level of the organization, it opens the door for the possibility that employees are more perceptive in their everyday of crucial organizational phenomena than typically is assumed in top-bottom excel-based evaluations of the functioning of the complex whole.

In effect, our OSI perspective tries to deal with important organizational phenomena as emergent, and as reflected on the employee perception level—from within and from bottom-up, as opposed to from without and top-to-bottom. This suggests the theoretical question as to how far essential HRD phenomena can be described without reference to abstract, managerial structures, as opposed to variables that build from the more subjective side of the human experience and intentionality. Minimally, such a perspective is needed as an integral part of the HRD systems story. We are reminded of the question by the grand old man of the systems thinking movement R.L Ackoff, who blatantly asked, with some frustration and characteristic clarity, "Why few organizations adopt systems thinking?" (Ackoff, 2006). Ackoff was struck by the fact that in actual reality, systems discourse has not led to the kind of improvements it should have. To describe a system is one thing, setting it to work with actual people another, as any HRD professional will testify. The people issue needs more focus, and OSI is one attempt in that direction.

Indeed, as a theoretical perspective, Systems Intelligence was designed to overcome the problem that Ackoff identified. It is vital to appreciate the contrast between "truth informers" and "improvement makers" (Hämäläinen & Saarinen, 2008). It is clear that HRD needs from Systems Thinking, not only models of systems, but help with the "feeling of a system" (Hämäläinen & Saarinen, 2008). HRD needs Systems Intelligence where action is primary and drive toward "being better better" (Hämäläinen et al., 2014) the core of the very undertaking. Building from that conceptually perplexing vision that points beyond the dualistic and objectivity-overemphasizing tone is a fundamental aspiration of the Systems Intelligence approach and one that parallels that of HRD.

8 | IMPLICATIONS FOR RESEARCH

The line of thought offered in this paper suggests that holistic perspectives can work in sync with highly contextual and deeply human parameters. "The system" can and should be approached from within and with due respect to the evasive aspects of the human experience especially in its inter-relational functioning. The eight factors of the OSI—Systemic Perception, Attunement, Attitude, Spirited Discovery, Reflection, Wise Action, Positive Engagement, and Effective Responsiveness—could be analyzed in more detail with an eye for cross-fertilization from research in other areas of human interaction.

In therapy discourse and practice, major insights have emerged as a result of research on the mother-infant dyad as brought to bear on relational adult treatment (for an overview, Seligman, 2017). A key to that progress has been the development of techniques to fine-analyze the mother-infant interaction as bidirectional through time-series mathematics and other rigorous techniques (Beebe, 2014). As a field that connects applied systems thinking, practice, discipline, and the everyday demand to make a difference, infant research and psychotherapy suggests perspectives for HRD. Such possibilities of connecting quantitative, qualitative, and mixed methods for the purposes of research and theory building (cf. Reio, 2010a) call for scrutiny, along with rigorous empirical interaction-focused marriage research. Drawing from ingenious video microanalysis methods that may involve also physiological measures, groundbreaking research on couples' interaction has led to stunning progress in the field of marriage research (Gottman, 2015). With impressive predictive results that draw rigorously from the microanalysis of pairs' interaction, the work carries over to themes such as "Attunement" (Gottman, 2011). It is fair to expect that HRD relevant insights are in offing through research into the experience of employees in the context of their birectional everyday interaction at work. One example to that effect is the empirical work of Losada on high-performing teams (Losada & Heaphy, 2004). If a kind of "anthropology" is taken along with systems thinking as fundamental to HRD (Swanson, 2001), and brought to bear on the micro level, then our discussion raises the question whether the study of people in organizations could follow suit, and the generic human factors brought to focus by our model could be investigated within HRD with equal rigor.

Metatheoretically the Systems Intelligence perspective seems to strengthen the employees' experience-focused, behaviorally and culturally informed, and from-within-the-individual orientation of HRD. It can be seen to work in line with the behavioral turn that is changing the landscape of related fields such as economics in the form of behavioral economics and more recently in operations research in the form of behavioral operational research (Hämäläinen et al., 2013).

On the item level, OSI does not commit to abstractions but names individual improvement and personal growth opportunities in a language accessible to laymen and -women. Viewed as potential changes, each of the 32 items name phenomena people can improve without any structural or macro-level changes. This is in contrast to the DLOQ, which uses considerably more abstract language ("My organization creates systems to measure gaps between current and expected performance" and "My organization builds alignment of visions across different levels and work groups"), and which includes many parameters that are beyond the command and control of most employees of an organization. Senge has repeatedly made it clear that he objects to "a tendency of many writers in the field to 'disembody' organizational learning, to talk about 'organizational routines', practices and

processes… with no explicit consideration of whether or not 'I am prepared to learn and change' myself." (Senge, 2003, p. 48). We submit OSI is the first measure to meet head on the challenge Senge stresses.

Theoretically, the shift in focus provided by OSI brings to the focus issues that managerial practices often bypass because the effects are too indirect or hard to measure objectively. Consider the four items of the Reflection factor:

- In my organization, people view things from many different perspectives.
- In my organization, people pay attention to what drives their behavior.
- In my organization, people think about the consequences of their actions.
- In my organization, people make strong efforts to grow as a person.

A manager might perceive the items as desirable, but too distant from the company objectives, incentive calculations, bonus plans, and objective deliverables. Yet these items together form a factor of the learning organization. Is it time to open the discussion on the logic of what John Kay aptly called "obliquity" in the context of goal-directed organizational behavior (Kay, 2010)? Such a move from a thinking of predictability and linear cause-and-effect models in favor of the holistic systems- and relationships-based thinking would certainly be in line with Senge's original insights. Recall Senge's words in his landmark essay of 1993 regarding "the core competencies of a learning organization": "At the top of any list of basic capabilities should be the capacity to reflect on and articulate personal vision" (Senge, 1993, p. 19). Given that "most adults have lost their ability to envision what matters to them" (ibid), the stage is set for HRD to find ways to provide for what is lacking.

HRD is also judged by economics, given the "three-legged stool" of the psychological, systems theories, and economics of HRD (Reio & Batista, 2014; Swanson, 2001). While ostensibly people focused, the vision offered by OSI points to developmental perspectives and facilitative interventions that aim at bringing about the learning organization from processes that emerge from the grassroots level with economically relevant effects. In so doing, the OSI works in line with the view on economic dynamism as based on "mass flourishing" envisioned by Economics Nobel laureate Edmund Phelps (2013). Indeed, the perspective offered here provides ways of looking into the possibilities of the "grassroots innovation [that] created jobs, challenge, and change" that Phelps envisions as foundational for economic "mass flourishing."

9 | IMPLICATIONS FOR PRACTICE

As is painfully clear to practitioners of HRD, it is one thing to create an HRD program, and another to make people to engage with the program. Employees might not perceive the benefits of a program, nor experience it as an investment in their learning, growth or well-being. The "humanness of our organizations," as Chalofsky (2014) calls it, is a pivotal part of the HRD for which the discussion above suggests the following implications:

1. *Dialogue with senior management*. Given the pressure for HRD to develop informal and incidental learning programs (Marsick et al., 2014) that may lack clear-cut causal deliverables, the OSI framework with its humane systems language can provide a useful legitimating discourse for HRD to convince managers. HRD needs vocabulary to justify its culturally oriented programs especially against what Ghoshal described as the "gloomy vision" of humanity dominant in much of management thinking (Ghoshal, 2005). The Systems Intelligence framework can help HRD in that vital battle to defend humanity against overtly rationalistic forms of thinking.
2. *Dialogue with employees*. For the purposes of coaching, mentoring, and one-to-one-on developmental discourse, the item-level themes of the OSI provide an opportunity to raise questions of human growth in the context of work. With a discourse distanced from managerial categories that depict employees primarily as resources for performance, OSI items may help HRD to enrich the dialogue within an organization for employees on all levels

to become more aware of their outcome-affecting interrelationships and "to reason about their behavior in new and more effective ways," as Argyris put it in an early description of the learning vision (Argyris, 1991, p. 100).

3. *Boosting the established HRD perspectives with the leverage of the systems discourse*. Much of the groundbreaking research on HRD prevails on connecting humanly relevant constructs like "turnover intention," "work engagement," or "civil behaviors" with HRD programs on the one hand, and with objective organizational outcome categories, on the other. However, even when a correlation can be shown to exist, it can be challenged as a causality. This perpetual dilemma can likely be bypassed with the explicit systems focus of the OSI perspective. By connecting the OSI measure with already existing measures of (say) work engagement, HRD could argue for culturally oriented initiatives on systems ground, a perspective the senior management is held responsible and thus likely to feel compelled to appreciate.
4. *Boosting the holistic positivity inherent in HRD*. Earlier discussions of systems intelligence have emphasized the inbuilt bias toward human growth as a core to the human endowment (Hämäläinen & Saarinen, 2006). Drawing from infant development perspectives, the interrelatedness that is brought to focus is biased to the positive categories of life. Here the perspective points beyond "Systems Archetypes" that stress the patterns where things go wrong ("Tragedy of the Commons," "Fixes that Backfire," "Shifting the Burden," Senge, 1990). While cognitively it is useful to envision complex organizations and their functioning in term such archetypes explored powerfully by Senge et al. (1994), from the HRD point of view it is equally essential to work with insight into "Miracle of the Commons," "Fixes that Fire," and "Sharing Away the Burden." Here the OSI perspective adds an essential interrelational and systemic twist to the humanistic and positive perspective in HRD that "concerns itself with humans' intrinsic motivation to grow" (Reio & Batista, 2014, p. 7). For HRD professionals, it provides a concrete tool to use for the purpose of identifying what particular realms of growth are particularly called for in a given organization.
5. *Identifying industry-specific aspects for improvement*. In some industries, the two measures for learning organization studied here show considerable combined strength. In Finance, Industrial, and Real Estate, the DLOQ and OSI jointly explained 64% of the variation in perceived organizational performance. Thus, the instruments also have potential to complement one another. It remains to be seen what industries in particular benefit from the combined measures.
6. The diagrams presented for the representation of data create a platform on which developmental themes highlighted by the OSI factors can be identified and discussed with personnel irrespective of hierarchy or organizational role. The OSI dimensions address phenomena that concern everyone. Indeed, it is doubtful if people can live in organization without experiencing them. The mundane phenomena the OSI approaches can also be influenced by anybody and arguably will require intrinsic motivation to emerge. Given the increasingly recognized need of HRD to find possibilities for growth and development that come from within people (Rigby & Ryan, 2018), the OSI could be used as an instrument for the benefit of that important cause.

10 | LIMITATIONS OF THE STUDY

The data points for this study have been gathered from individual survey-takers rather than from people in specific organizations. While this allowed validating the OSI scale on the generic level of different organizations, this study did not investigate how the OSI behaves when it is administered to many individuals within a given organization, such as how large a variance the OSI factors would have inside an organization and what the variance would indicate.

Recruiting subjects via online platforms may have an effect on the results. Palan and Schitter (2018) discuss these effects, especially in the context of the Prolific platform used in this study. We believe we were able to successfully avoid the most significant problems described by Palan and Schitter by limiting the effect of "professional

survey-takers" on the results by limiting participation to the United States and United Kingdom and vetting answers based on attention check questions and answer time.

Given that any individual in an organization can answer the OSI items and the items still together aggregate on the whole, the scale offered here yields a tool for HRD in its holistic efforts. It remains beyond the scope of the current research, however, as to what counts as "in my organization," and to what extent is the entity that is being evaluated in fact local.

A natural extension of the research introduced in this article would be to study the OSI scale within a single organization, and to study how greatly do the individuals' views on learning differ from each other, and whether any "gaps" between perceptions indicate problems within the organization, such as how perceptual gaps on the DLOQ have been observed to suggest problems with employee well-being (Hasson et al., 2013).

In order to reduce the effect of common method variance (Reio, 2010b), it is also vital to link the OSI to objective measures of performance and wellbeing. The OSI could also be administered in the organization together with the self-report Systems Intelligence Inventory (Törmänen et al., 2016) and its peer-evaluation version (Törmänen et al., 2021) to produce a multi-layered, multi-directional picture of the organization's systems thinking and Systems Intelligence capabilities.

11 | CONCLUSION

From the managerial and HRD point of view to organizational development, the OSI can be seen as a valid alternative measurement tool for the DLOQ. OSI identifies observable behavioral and aspirational characteristics, which are generic and apply to everybody irrespective of position. Anyone can make a change and also perceive the change.

Prior research has provided ample evidence for the pragmatic and theoretical benefits of the DLOQ. We hope to have shown that OSI, with its theoretical roots in Senge's original vision and in the Systems Intelligence perspective, along with its humanly-tuned emphasis and concrete formulations, can usefully supplement the leading measure, well established in its merits. Thus, interventions to develop the LO capabilities of an organization are likely to benefit from the use of both of instruments. The DLOQ can give suggestions for improving organizational capabilities as well as management practices and organizational structures that support learning. The OSI, in turn, raises individuals from the grassroots back to the center, encouraging managers and practitioners to find approaches that apply to all. The OSI, with its emphasis on the LO through individuals, is also likely to benefit from tools developed for individual-level interventions on phenomena such as compassion, prosocial skills, and collaboration. This relates OSI directly to the practice of human resources development.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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APPENDIX A.

TABLE A1 Organizational Systems Intelligence scale

#	Factor	Direction	Item
1	Systemic Perception	+	In my organization, people form a rich overall picture of situations
2	Systemic Perception	+	In my organization, people easily grasp what is going on
3	Systemic Perception	+	In my organization, people see what is essential in a given situation
4	Systemic Perception	+	In my organization, people keep both the details and the big picture in mind
5	Attunement	+	In my organization, people approach each other with warmth and acceptance
6	Attunement	+	In my organization, people take into account what others think of the situation
7	Attunement	+	In my organization, people are fair and generous with people from all walks of life
8	Attunement	+	In my organization, people let others have a voice
9	Attitude	−	In my organization, people explain away their mistakes
10	Attitude	+	In my organization, people have a positive outlook on the future
11	Attitude	−	In my organization, people easily complain about things
12	Attitude	−	In my organization, people let problems in their surroundings get them down
13	Spirited Discovery	+	In my organization, people like to play with new ideas
14	Spirited Discovery	+	In my organization, people look for new approaches
15	Spirited Discovery	+	In my organization, people like to try out new things
16	Spirited Discovery	+	In my organization, people act creatively
17	Reflection	+	In my organization, people view things from many different perspectives
18	Reflection	+	In my organization, people pay attention to what drives their behavior
19	Reflection	+	In my organization, people think about the consequences of their actions
20	Reflection	+	In my organization, people make strong efforts to grow as a person
21	Wise Action	+	In my organization, people are willing to take advice
22	Wise Action	+	In my organization, people take into account that achieving good results can take time
23	Wise Action	+	In my organization, people are wise in their judgments
24	Wise Action	+	In my organization, people keep their cool even under pressure
25	Positive Engagement	+	In my organization, people actively contribute to the shared atmosphere
26	Positive Engagement	+	In my organization, people praise others for their achievements
27	Positive Engagement	+	In my organization, people are good at alleviating tension in difficult situations
28	Positive Engagement	+	In my organization, people bring out the best in others
29	Effective Responsiveness	+	In my organization, people prepare themselves for situations to make things work
30	Effective Responsiveness	−	In my organization, people easily give up when facing difficult problems
31	Effective Responsiveness	+	In my organization, people put first things first
32	Effective Responsiveness	+	In my organization, when things do not work, people take action to fix them