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A Validity Study of DLOQ for Analyzing Determinants of Learning Organizations in High and Low-Achieving Schools

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Problem Statement

▶ Schools continue to experience organizational uncertainty through constant changes in policies, politics, and leadership.

▶ The overwhelming magnitude of added tasks and, at times, the contradicting nature of new initiatives have led teachers and principals to perceive the reform initiatives as "job creeps" or "policy fats." (Baer, & Freese, 2003).

▶ Accountability measures for effective implementation for reform initiatives further increased the tensions among field level practitioners by threatening their livelihoods, thus, making them feel unsafe in schools (Baer & Frese, 2003).

Problem Statement (Cont.)

▶ To successfully respond to uncertain environments and diverse expectations, schools need to function as learning organizations.

▶ A **learning organization** is defined as "an organization which continuously learns, adapts, and transforms itself **(Watkins, & Marsick, 2004).**

▶ Research about schools being learning organizations is limited. Research particularly is scarce on the determinants of schools as learning organizations.

▶ Also, there is not a commonly known instrument by which to measure the level of a learning organization within in a school.
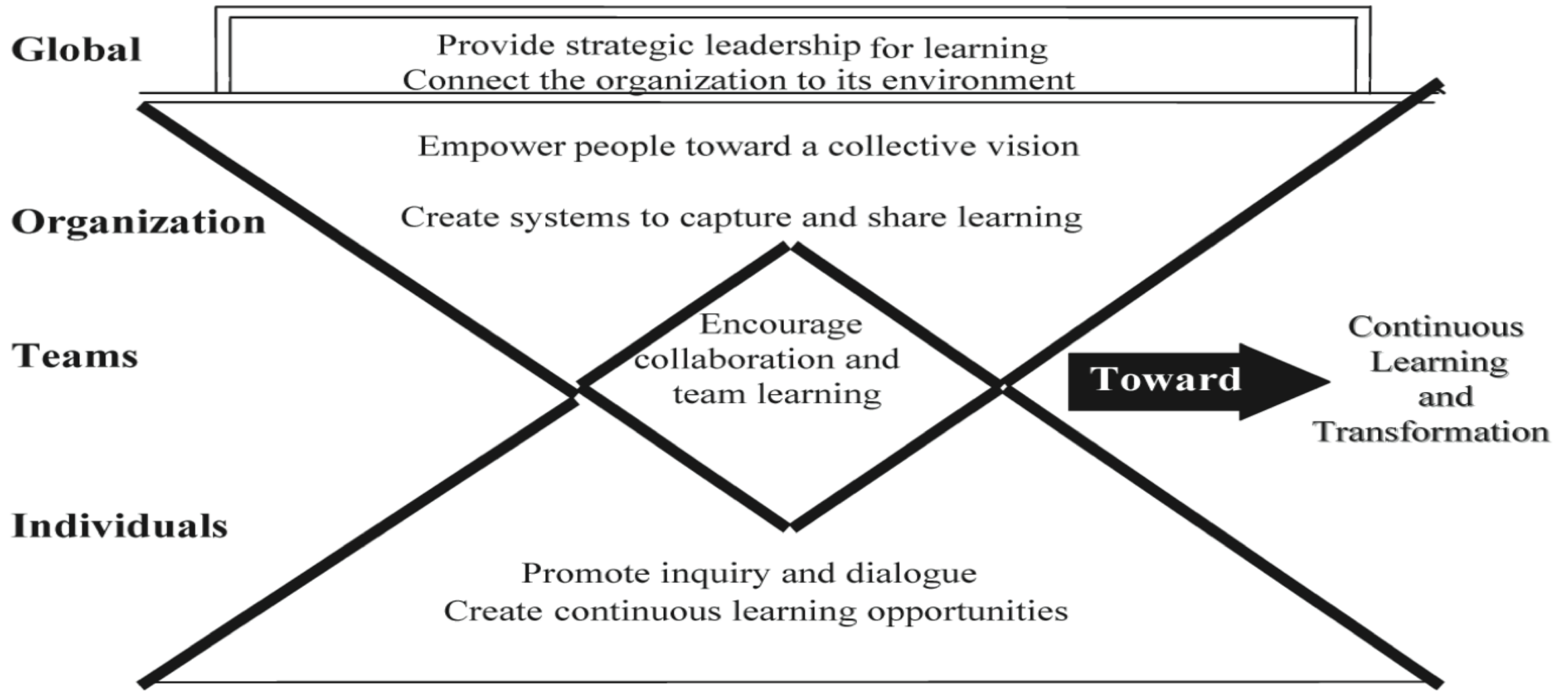
Purpose of the Study

► To validate the *Dimensions of a Learning Organization Questionnaire (DLOQ)* as an instrument within the school context.

► To examine whether there was any significant relationships between the level of learning organization of schools and their students' achievement levels.

► Also, to explore whether the cultural factors including organizational uncertainty, principals' transformational leadership, and teachers' psychological safety have any significant influence on schools becoming a learning organization.
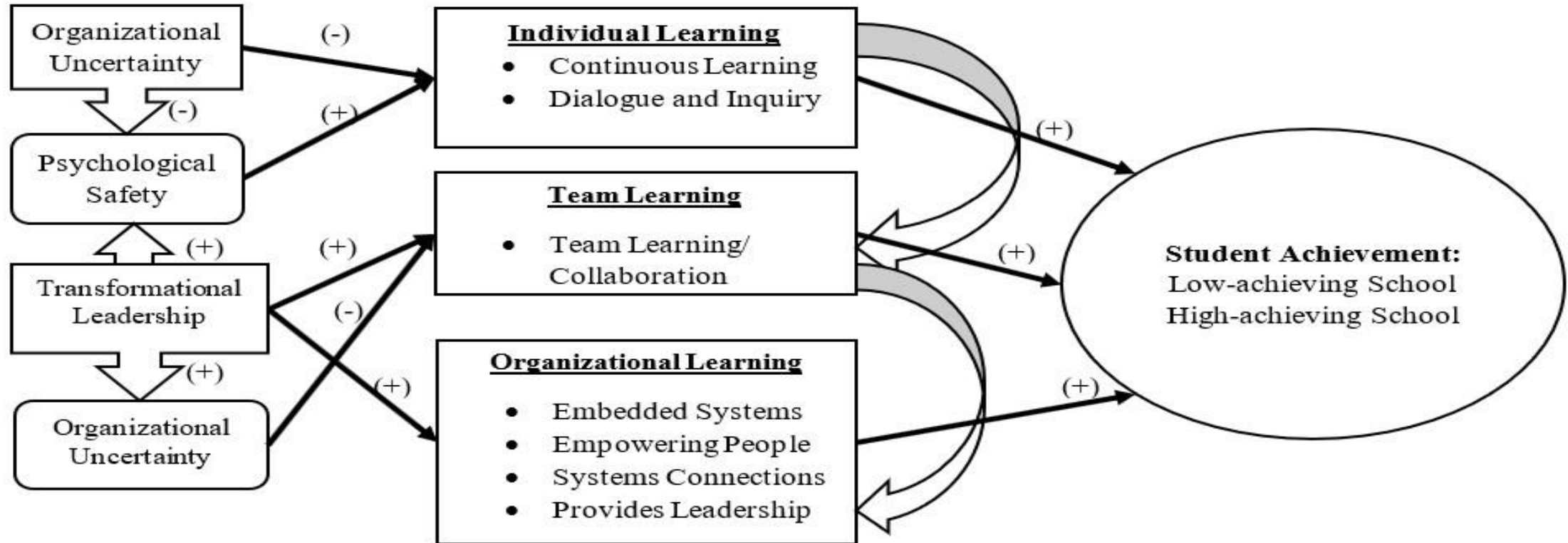
Theoretical Foundations

▶ Watkins & Marsick's (2004) *Learning Organization Model (DLOQ)*

▶ Adopts inclusive systems perspective.

▶ Pays close attention to the organizational structures, dynamics of organizational behaviors, and relationships with the external environment.

▶ Consists of 4 domains and 7 dimensions.

Watkins & Marsick's *Learning Organization Model*

Figure 1: Watkins and Marsick (1993) model of dimensions of a learning organization

Global — Provide strategic leadership for learning / Connect the organization to its environment

Empower people toward a collective vision

Organization — Create systems to capture and share learning

Teams — Encourage collaboration and team learning

Toward → Continuous Learning and Transformation

Individuals — Promote inquiry and dialogue / Create continuous learning opportunities

Conceptual Framework

Research Questions

1. Does the **DLOQ**, which was designed for business, have (a) convergent validity, (b) discriminant validity, and (c) construct validity in a school context?

2. Do the levels of seven dimensions of a learning organization, as measured by the **DLOQ**, predict if schools are high-achieving schools (grades A, B) or low achieving (grades C, D, F)?

3. Do organizational uncertainty, psychological safety, and transformational leadership have any significant influence on (a) dimensions of a learning organization and (b) overall learning organization for the (i) overall sample, (ii) low-achieving schools, and (iii) high-achieving schools?

Research Design

Research Question	Research Design	Variables
1. Does the DLOQ, which was designed for business, have (a) convergent validity (b) discriminant validity, and (c) construct validity in a school context?	Validation	DLOQ
2. Do the levels of seven dimensions of a learning organization, as measured by the DLOQ, predict if schools are high achieving schools (grades A, B) or needing improvement (grades C, D, F)?	Correlational	DLOQ and school achievement
3. Holding control variable of school achievement level constant, do the organizational culture components of organizational uncertainty, psychological safety, and transformational leadership have any influence on (a) dimensions of a learning organization and (b) overall learning organization for the (i) overall sample, (ii) low achieving schools, and (iii) high achieving schools?	Correlational & Causal-comparative	Organizational uncertainty, psychological safety, and transformational leadership by achievement levels and DLOQ

*Participants: Teachers in a southern state in the U.S.

School Type	School by Achievement		Total Schools	Total Teachers
	Low	High		
Elementary				
Low SES	11	5	16	66
High SES	0	4	4	14
Secondary				
Low SES	10	5	15	55
High SES	2	5	7	27
Total	23	19	42	162

*The unit of analysis was the school, teacher data was aggregated.

Instrumentation: Used four (4) previously developed and validated scales.

Scales	Validity / Reliability
DLOQ Short Version- Watkins and Marsick (1997; 2004)	Goodness of Fit (GFI) index of .92 for measurement of learning constructs using exploratory samples, and .87 GFI when analyzing confirmatory samples (Yang, Watkins, & Marsick, 2004); Coefficient Alpha ranged from .64 to .79 (Yang, Watkins, & Marsick, 2004)
Psychological Safety Garvin et al. (2008) **Transformational Leadership** Garvin et al. (2008)	Psychological safety has a composite reliability of 0.83 (Higgins et al., 2012). Reliability for the transformational leadership subscale has a reality composite of 0.95
Organizational Uncertainty Ellis and Shpielberg (2003)	The **two factors** of organizational uncertainty are complexity of organizational uncertainty and perceptions of changeability have an alpha reliability coefficient of .56 and .66, respectively (Ellis & Shpielberg, 2003).

Data Analysis

| Research Question	Analysis
1. Does the DLOQ, which was designed for business, have (a) convergent validity (b) discriminant validity, and (c) construct validity in a school context?	**Confirmatory factor analysis (through SEM)** to evaluate the factor structure of the DLOQ in the school environment.
2. Do the levels of seven dimensions of a learning organization, as measured by the DLOQ, predict if schools are high achieving schools (grades A, B) or low achieving (grades C, D, F)?	**Logistic regression** with academic level being the binary dependent variable
3. Holding control variable of school achievement level constant, do the organizational culture components of organizational uncertainty, psychological safety, and transformational leadership have any influence on (a) dimensions of a learning organization and (b) overall learning organization for the (i) overall sample, (ii) low achieving schools, and (iii) high achieving schools?	**Multiple-group Confirmatory Analysis (through SEM)**

Findings

- Organized around each research question.

Q1: Assessing the Validity of the DLOQ in a School Setting

- All seven constructs had construct and convergent validity, however, lacked discriminant validity except for provides leadership dimension
  - Lacking discriminant validity showed that the constructs did not only measure the designed construct.
- **Revised Measurement Model**
  - Individual Learning (Continuous Learning and Dialogue and Inquiry)
  - Organizational Learning (Team Learning, Embedded Systems, Empowerment, and Systems Connections)
  - Provides Leadership
- Revised Model displayed construct validity.
- Conclusion: DLOQ valid within the school context; yet required revision.

Revised Model...
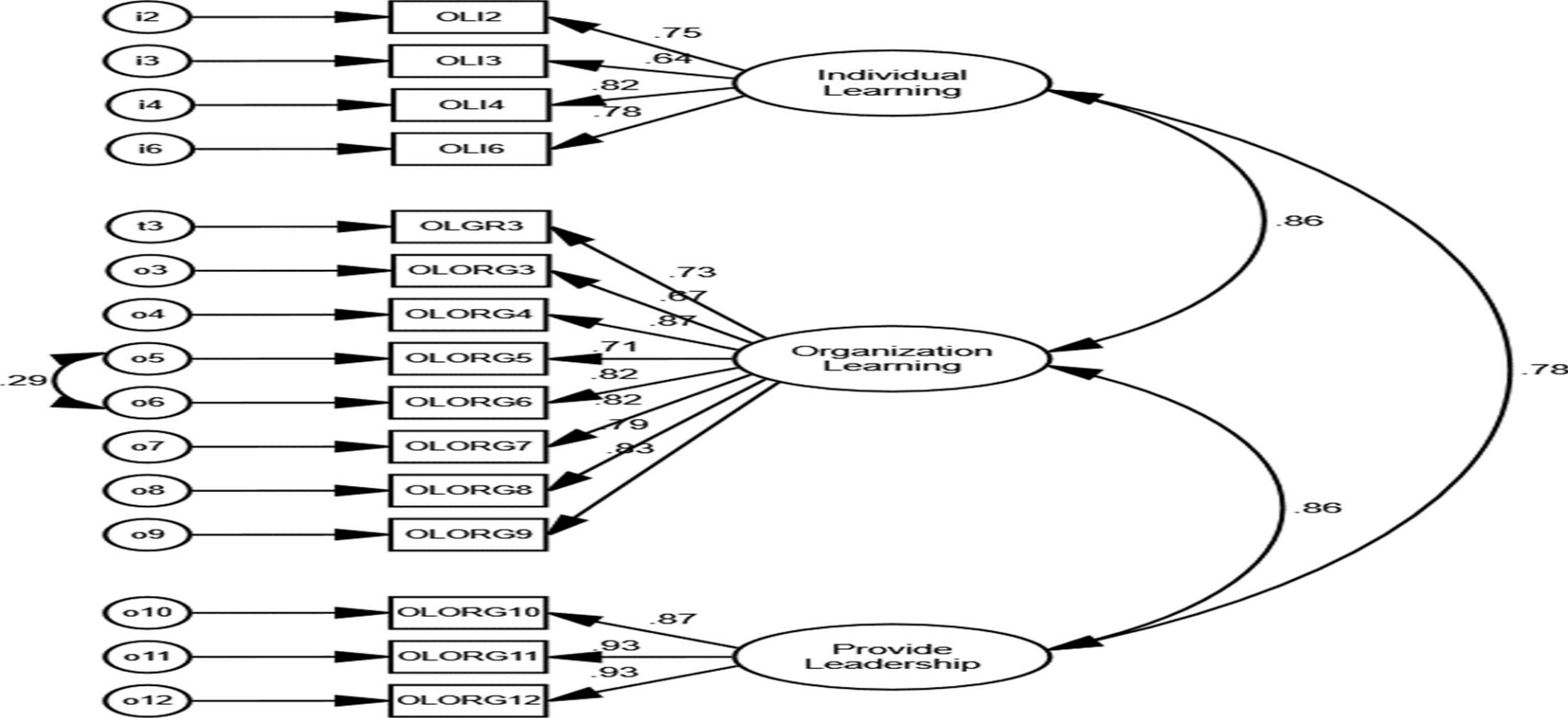
Q2: Testing the Achievement Prediction Model

- **Logistic Regression** of achievement levels against DLOQ constructs
  - Factors of revised DLOQ were the independent variables
  - Achievement level of schools (high vs. low achieving) was the Dichotomous dependent variable.

- Revised DLOQ better fit the low achieving schools. (Contrary to the expectations)

- Only **Dialogue and Inquiry** positively predicted the likelihood of a school being classified as achieving [1.91 odds ratio].

Q3: Cultural Determinants of a Learning Organization

▶ Measurement Model

  ▶ Low loading of Organizational Uncertainty ; mean composite created for Organizational Uncertainty

▶ Structural Model

  ▶ Transformational Leadership and Psychological Safety positively predicted the learning organization across all groups (Whole, High, and Low)

  ▶ Organizational Uncertainty did not have a significant effect on the learning organization

Conclusions

- The DLOQ has construct validity and can be used within the school context—three constructs: Individual Learning, Organizational Learning, and Providing Leadership
  - This finding aligns with several studies which have been conducted that examined learning organizations in several contexts:
    - Various countries (Lien, Hung, Yang, & Li, 2006; Song, Joo, & Chermack, 2009),
    - Business settings (Zhang, Zhang, & Yang, 2004),
    - Both profit and non-profit (Ellinger, Ellinger, & Yang, 2002)
- High achieving and low achieving schools scored similarly on the DLOQ. The model fit low performing school better.
  - The research on organization learning indicates factors load similarly across various groups (Ellinger, Ellinger, & Yang, 2002; Yang, Watkins, & Marsick, 2004).

Conclusions (cont.)

- Schools would do well to create opportunities for Dialogue and Inquiry if they desire to experience high levels of student achievement (Professional Learning Communities)

  - Schools must put structures in place that support and promote collaboration in which dialogue and inquiry are a part of the culture and fabric of the school (Leithwood, Leonard, & Sharratt, 1998).

  - Collison et al (2006) propositions six conditions that must be in place for schools and school systems to experience dialogue and inquiry: prioritizing learning for all members, facilitating the dissemination of knowledge, skills, and insights; attending to human relationships; fostering inquiry; enhancing democratic governance; and providing for members' self-fulfillment.

- Leadership Matters…Transformational leadership and Psychological safety positively influence schools being learning organizations, leverage it.

  - Relevant literature points to the fact that effective leadership that is transformational promotes an environment where members feel safe (Edmondson A. C., 1999).

  - This sense of safety creates an environment of certainty in which members of the organization feel empowered to lead change at the organizational level (Harris & Jones, 2018; Popper & Lipshitz, 2000)

Limitations

▶ The number of achieving schools were considerably lower than low achieving schools ($n_A = 31$ versus $n_F = 11$). This created robustness problem of the multivariate techniques employed. Consequently, the comparisons between two samples might be flawed.

▶ Selection of student achievement as a measure of learning.

Thank You!

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