Development of a Standard-Based Instrument for Assessing Principal Leadership

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Abstract

The purpose of this study is to develop and validate a scale of instrument, the Principal Leadership Index (PLI), to assess principal leadership practices within the framework of ELCC (2011) standards adopted by the Council for the Accreditation of Educator Preparation. Items of the PLI were initially developed by the researcher followed by expert reviews in the field of school leadership and a pilot test. The instrument was used to collect the empirical data from 73 principals, which were investigated with exploratory factor analyses, reliability tests, and multilevel analyses. Results reveal four unique constructs for the leadership dimensions, showing robust psychometric properties with high levels of reliability and validity. The proposed scale can be used for both assessment and professional development to promote principal standard-based leadership behaviors.

Keywords: principal leadership, assessment, standard-based instrument, index development

Introduction

Principal leadership is a vital component of school management and improvement. Principal leadership has the core functions of providing direction for school success and exercising influence on teachers and students for school improvement. Previous research offers increasing levels of support for the assertion that principal leadership has essential effects in the quality of schooling, school development, and student learning (e.g., Hallinger & Heck, 2010, Lambert, 2003; Leithwood & Jantzi, 2008). The total of direct and indirect effects of leadership on student learning account for about a quarter of total school effects (Wahlstrom, Louis, Leithwood, & Anderson, 2010). Effective school leaders develop visions that embody the best thinking about teaching and learning, enable the school to function as a professional learning community to support and sustain the performance of teachers and students, and respond productively to challenges and opportunities created by the accountability-oriented policy context (Leithwood & Riehl, 2003).

It is highly advocated that the role of the principal be balanced in being the leading learner, a system player, and an agent of change. The principal's role should change

in order to meet the needs of challenging the status quo and fulfilling the commitment of continuous improvement (Fullen, 2014). In order to improve and maintain standards of excellence, school leadership programs that produce future school leaders must be continually reviewed and evaluated. Based upon the results of previous studies and research, the Education Leadership Constituent Council (ELCC, 2011) in the United States developed and re-developed school leadership program standards, which are adopted by the Council for the Accreditation of Educator Preparation (CAEP). The ELCC educational leadership program standards encapsulate principal leadership into six paradigms: school vision, school instruction, school organization, collaborative partnerships, moral perspective, and larger-context politics. These dimensions are used in school leadership programs and also as the foundation for professional development in established administrators. The standards also work as guidelines for the CAEP, which accredits the advanced programs of educational leadership in the US.

The important role of principal leadership in school improvement signifies the critical functions of principal leadership assessment and development in the era of educational accountability. Principal performance assessment and feedback have received national attention in recent years. The National Association of Secondary School Principals (NASSP) and the National Association of Elementary School Principals (NAESP) (2012) developed a framework for principal evaluation that can guide the improvement of professional practice leading to increased student learning.

Aligned with the changing role of principal leadership, evaluation of principals should also follow the trend of school improvement and reflect the changes. It is time to rethink assessing principals and assistant principals as a process in building individual leadership capacity and school effectiveness (Clifford & Ross, 2013). However, measuring principal leadership remains a challenge and high-quality assessments of principal performance are lacking (Elliott & Clifford, 2014). NAESP and NASSP (2012) recommend that principal performance evaluation systems foster principal learning and performance, reflect the program standards, and be valid and reliable. There is a strong need for developing measurement of principal leadership based upon leadership program standards as well as empirical validations of the measurement.

The purpose of this study was to develop a scale of instrument, the Principal Leadership Index (PLI), to assess principal leadership practices within the framework of the ELCC (2011) building level educational leadership program standards, adopted by the Council for the Accreditation of Educator Preparation. The PLI was validated by empirically examining the perceptions of Chinese school principals on the importance of the PLI items. Using the technique of psychometrics, the aim of this study was to gauge the validity and reliability of the PLI that can be confidently used in measuring a principal's leadership in the building level.

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Method

Item Development

The researcher developed the initial PLI items based upon the literature review of principal leadership and the careful review the ELCC (2011) building level educational leadership program standards. A total of 42 initial items of the PLI were derived directly from the ELCC building level standards that were used as content criteria for the development of the PLI. The initial items provided a representative sampling of the content knowledge and leadership skills deemed necessary for principals in each of the six standards of leadership in school vision, school instruction, school organization, collaborative partnerships, moral perspective and larger-context politics within the framework of ELCC.

The PLI used a five-point Likert scale for principals to rate the importance of the principal leadership skills based upon the school leadership standards by indicating their level of assessment on each of the PLI items with 1 representing “no or little important”, 2 representing “somewhat important”, 3 representing “moderate important”, 4 representing “important”, and 5 representing “very important”. The PLI was also composed of questions designed to collect demographic information such as principals’ gender, age, and years of leadership experiences, school level and school location.

The initial items as well as the demographic questions were then translated into Chinese with emphasis placed on being suitable in the context of Chinese school administration. The 42 items were then validated with the content validity assessment. The assessment of content validity typically involves a well-organized review of the survey content to ensure that the items of the instrument include everything it should and does not include anything it should not (Litwin, 2003). In order to have the PLI to be valid on its face (Schutt, 2015) and better reflect the Chinese school administration context, a panel of two Chinese professors and two Chinese principals were asked to review all the items of the translated questionnaire. The professors worked at Guangzhou, the capital city of Guangdong Province, who had enriched expertise and experience in principal leadership. The two principals served in the county where the PLI was administered. Based on their inputs, eight items were reworded to be applicable to principals in a variety of backgrounds and locations leaving the instrument as a 33-item survey. The other items were eliminated because of their lack of importance or use of unconventional language (Fink, 2003). These efforts added values to the existence of face validity and offered the advantages in the assessment of the instrument content validity.

Participants and Data Collection

Participants of this survey study were the principals in a rural-based county from

Guangdong Province which is one of the densely populated provinces and one of the leading provinces in economic development in China. They were serving as principals at different levels of schools including elementary, middle and high schools in the whole county. Therefore, the participants provided a good sample of principals representing different levels of schools.

The PLI was administered to the 83 principals who participated in a curriculum professional development program at the county-level Educational Administration Bureau. The surveys were distributed to different groups of principals by their group leaders at the end of the program. A cover letter was attached to each survey. It briefly explained the purpose of the survey and indicated that participants would take the survey voluntarily and anonymously. Individual survey results would not be disclosed. The principals from different levels of schools were asked to respond to the items regarding its importance in the PLI developed based upon the American school leadership standards (ELCC, 2011). The surveys were returned to the group leaders after the principals completed them.

Data Analysis Techniques

Data collected were stored, screened and analyzed using the PASW/SPSS 18.0 software. In addition to frequency for describing the characteristics of the participants, other descriptive statistics such as means and standard deviations were used to assess the extent of importance of the PLI items indicated by the principals. A principal axis factor analysis was conducted utilizing a varimax rotation to evaluate the construct validity and dimensionality of the PLI. The reliability of the PLI subscales was estimated using Cronbach's alphas (Crocker & Algina, 1986).

Results

Characteristics of the Sample

Of the 75 returned surveys, 73 (97.3%) contained the necessary information to be used in the study (i.e., valid responses, missing no more than 3 survey items), providing a return rate of 88% of all the principal population (83 principals) of the county. The majority of the high school principal respondents were male (92.1%), reflecting the fact that the principals population in the county is predominantly male. There were more principals in the age group of 41 to 50 (52.1%). Respondents with associate degrees were 42.9%, with bachelor's degrees were 47.1%, whereas only 4.3% of the respondents received master's degrees. More than half of the respondents had been holding the principal position for the range of five to fifteen years while 30.6% of the respondents were novice principals (less than 5 years). A majority (73.3%) of the schools that the principals worked for were large-sized (more than 1000 students).

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Construct Validity

An exploratory axis factor analysis utilizing a varimax rotation was conducted to determine the underlying constructs of the 30-item PLI. The following criteria were used to determine the appropriate number of constructs to retain: eigenvalue, variance, scree plot, and rotation loadings. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO=.766 (Field, 2013). An initial analysis was conducted to obtain eigenvalues for each factor in the data. Four factors had eigenvalues (1.66-9.77) of Kaiser's criterion of 1 and in combination explained 52.49% of the variance. The scree plot ambiguously showed inflexions that would justify remaining either two or four factors. Four factors were retained because of the fairly large sample size and the convergence of the scree plot as well as the Kaiser's criterion on this value. After rotation, the first construct accounted for 13.77%, the second for 10.78%, the third for 10.70%, and the fourth for 10.38% of the variance. Two survey items with the low factor loadings (<.30) after rotation were excluded from this instrument of PLI. Therefore, the final PLI version for analyses was a 28-item instrument (see Table 1).

Construct Number 1 clustered by six items represents the visionary leadership dimension (ELCC Standard 1, 2011). Construct Number 2 including eight items covered the items in the instructional leadership dimension (ELCC Standard 2). Construct 3 with seven items clustered together to measures the operational leadership dimension (ELCC Standard 3 and 4). Construct 4 including seven items represents the community collaborative leadership dimension (ELCC Standard 5) (see Table 1).

Table 1

Means and Standard Deviations of the PLI Constructs and Individual Items

Item No.	Item	Cronbach's α	M	SD
Visionary Leadership		.74	3.38	0.73
1.	To collaboratively develop a shared vision of learning for school;		4.18	1.03
2.	To identify organizational practices that promote sustainable school improvement;		3.58	1.18

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3. To involve school stakeholders in the visioning process;		3.23	1.14
4. To evaluate school progress for implementing the vision;		3.34	1.04
5. To identify possible problems in vision implementation.		3.21	1.09
6. To create evidence-centered strategies (plans) to achieve school goals;		2.70	1.11
Instructional Leadership	.81	3.69	0.67
7. To use multiple measures in assessing student outcomes for school improvement;		4.02	1.01
8. To evaluate the instructional capacity of the school staff;		3.92	0.92
9. To sustain a culture conducive to student success of learning:		3.85	0.94
10. To collaborate with faculty to improve a coordinated curriculum;		3.65	1.07
11. To design professional growth plans to increase the capacity of school staff;		3.60	1.06
12. To work collaboratively with school staff to improve teaching and learning;		3.56	1.01
13. To use research-based evidences in making instructional decisions.		3.55	0.97
14. To use evaluation evidences to monitor learning programs;		3.35	1.21
Operational Leadership	.70	3.81	0.65
15. To develop strategies supporting safe and secure learning environments;		4.33	0.94
16. To ensure effective management to achieve high quality instruction.		4.30	0.72

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17. To promote an environment for improved student achievement;		3.89	1.03
18. To insure that staff members are treated fairly;		3.66	1.31
19. To assign human resources in ways that promote student achievement;		3.53	1.18
20. To develop school operational policies that promote success for all students;		3.50	1.12
21. To monitor school organizational processes and operations;		3.44	1.20
Community Collaborative Leadership	.77	3.45	0.64
22. To gauge the effectiveness of collaborative relationships with the community;		3.80	0.99
23. To generate approaches with school stakeholders that reflect their concern;		3.62	1.00
24. To develop effective communication plans with the community;		3.55	0.94
25. To measure the effectiveness of outreach to the community.		3.52	0.88
26. To involve community partners in the decision-making processes at the school;		3.47	1.11
27. To develop effective relationships with a variety of community Partners		3.31	1.17
28. To use diverse community resources to improve school programs;		3.11	1.08

Internal Consistency Reliability

Analyses of construct internal consistency reliability were conducted by using Cronbach's alphas on each of the four constructs of the PLI that were revealed by the results of the factor analysis. These four constructs included (a) Visionary Leadership, (b) Instructional Leadership, (c) Operational Leadership, and (d) Community Collaborative Leadership. For reliability analyses, the PLI items were grouped into the four subscales that matched the four constructs based upon the factor analysis.

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Crohbach's alpha for each of the four subscales was calculated. The reliability coefficients of Cronbach alphas for the PLI four subscales ranged from .70, to .81 (see Table 2). Using the commonly accepted criteria for alpha: α ≥.90: excellent; α=.80-.89: good; α=.70-79: acceptable, the results of Cronbach's alphas confirm the acceptable or good reliability for all the PLI subscales.

Importance Level of the PLI

Table 2 presents the descriptive statistics of overall mean scores and standard deviations for each of the four leadership constructs in (a) Visionary Leadership, (b) Instructional Leadership, (c) Operational Leadership, and (d) Community Collaborative Leadership. Means and standard deviations of the 28 individual items are also provided in Table 2. The items of each construct were ranked in an order from the highest to the lowest mean for the purpose of understanding the extent of differences of principals' perceptions of the importance on American leadership standards among the individual items.

The overall mean scores revealed that school principals perceived both the individual and construct of the PLI to be either moderately important or important. The highest overall mean score among these four constructs was the leadership dimension of school organizational operation and moral perspective (M = 3.81, SD = 0.65). The importance level of principals' perception in the leadership dimension of school instruction was also relatively high (M = 3.69, SD = 0.67). The overall mean scores of the principals' importance perception in the leadership dimension of community collaborative partnerships were in third place (M = 3.45, SD = 0.64). In comparison to the above three dimensions, the importance of the American leadership standards in school vision (M = 3.38, SD = 0.73) was perceived to be relatively lower level.

Discussion

The results of this study reveal that principal school leadership can be credibly assessed with the instrument of the standard-based PLI, showing robust psychometric properties with acceptable or high levels of validity and reliability. The considerable efforts in the item development procedures provided content-related evidence for the PLI. First, it was ensured that the PLI measures the principal school leadership practices as described by the ELCC (2011) leadership program standards. Second, the expert review on the PLI items was used to refine the instrument, which enhanced the face and content validity to the instrument (Gall, Gall, & Borg, 2015; Litwin, 2003).

Measurement validity involves an overall evaluation of the extent to which theory and empirical evidence support the interpretations of the measurement results implied

by the instrument (McMillan, 2012). The results of the exploratory factor analysis indicate that the PLI measures the following four unique leadership dimensions (a) Visionary Leadership, (b) Instructional Leadership, (c) Operational Leadership, and (d) Community Collaborative Leadership. The results on the evaluation of the eigenvalue, variance, scree plot, and rotation loadings in the principal axis analysis provide solid evidence of construct validity and internal structure (Field, 2013; Fink, 2003; Gall, Gall, & Borg, 2015; Schutt, 2015).

The reliability coefficients for all four PLI subscales (constructs) were greater than .70 indicating that respondents of principals were consistent in their responses to the four constructs of the PLI. These statistics demonstrate that the degree of intercorrelation among items in each subscale is reasonably acceptable (Field, 2013; Yukl, Lepsinger, & Lucia, 1992) and serve as evidence that the different items combined together to measure the same dimension (Fowler, 1995; Litwin, 2003, Schutt, 2015) in principals' school leadership practices.

This study shows that the standards-based PLI is a reliable and valid instrument for measuring principals' leadership practices. The PLI can be used as a practical tool in assessing school principals' leadership practices by school district authorities so that they can better understand the extent of principals' leadership practices. The use of the PLI is valuable in helping policy makers gain a rather complete picture of principals' practices of leadership and also provides evidence for crafting principals' leadership professional development programs. University leaders of school administrator preparation program may find the instrument useful in planning or adjusting their programs for prospective principals in order to

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