

Teacher Leadership Evaluation Index Framework under the Online Teaching and Learning Environment

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Keywords: Teacher's leadership, evaluation index framework, online teaching and learning environment

Abstract: In response to the covid-19 coronavirus outbreak, large-scale home-office and online teaching programs decreased virus infection and normalized students learning worldwide. Online teaching limits interaction between teachers and students and requires more autonomous work before the class. How do we ensure teachers' teaching efficiency and students' learning efficiency? Teaching and learning will confront unprecedented challenges in the online environment. This study aims to construct the teachers' leadership evaluation index framework under the online teaching and learning environment. Through reviewing relevant literature at home and abroad and analyzing the characteristics of teaching and learning in the online environment. Based on the six-dimension of leadership, sort out the framework under the online teaching and learning environment. Finally, put forward five categories and 14 secondary metrics frameworks.

1. Literature Review

In response to the covid-19 coronavirus outbreak, large-scale home-office and online teaching programs decreased virus infection and normalized students learning worldwide. Moreover, online teaching and learning put forward new challenges to the role of teachers in the traditional classroom. They are ensuring that the combination of universality and individuality and the student's prominent role in learning also become an essential issue. Teachers must adapt to the online teaching mode and multiple tasks caused by the online teaching model. They need to get rapid ascension in all aspects of the teaching process (such as online teaching plan formulation, the organization and of online classes, online student assessment) and information technology skills (such as testing different platforms and using them skillfully, making micro lesson, use different software to assist the evaluation).

Large-scale online teaching limits interaction between teachers and students and requires more autonomous work before the class. What should we do to help students internalize knowledge effectively before class? If not, how to ensure the learning effect? How do we ensure teachers' teaching efficiency and students' learning efficiency?

Teaching and learning will confront unprecedented challenges in the online environment. Best teachers do not manage their students; they lead them (Les Stein,2020). The level of teachers' leadership influences the educational effect and the quality of students' training (Wang, 2019).

Teacher leadership in class is a micro concept that can be performed by teachers' concrete teaching activities and plays a significant role in improving teaching and student development (Li, 2009).

The most recent emphasis on teacher leadership has its roots in the education reform initiatives in the American education reform in the 1980s (York-Barr & Duke, 2004). In recent decades, many European and American countries have taken teacher leadership in primary and secondary schools as a research focus, and the wave of teacher leadership research swept the world" (Li Xiaoyan & Pei Miao, 2017). In order to achieve the above purpose, in the following part, the author will review the concept and connotation of teacher leadership and the dimension of teacher leadership.

1.1 The concept of teacher leadership

Different scholars endow different understandings of "Teacher Leadership," and there is no clear and unified definition of teacher leadership (Fieishman & Harris,2010). There are both overlapping parts and different contents between them. Teacher leadership is teachers' ability to achieve teaching objectives through discipline, knowledge, teaching ability, personality charm, moral emotion, and other aspects in class. In the early literature on teacher leadership, leaders with formal positions are believed to be the leading players in exercising teacher leadership. In nearly a decade of literature, the leading role of division leadership expanded. It belongs to a broader group, including all teaching staff and teachers. The concepts of teacher leadership contain two categories----- "empowerment theory" and "endogenous theory" (Li Xiaoyan & Pei Miao, 2017). "Endogenous theory" regards "teacher leadership" as a kind of teacher's ability that is internal, endogenous, and always in the process of dynamic change.

1.2 The components of teacher leadership

In 2014, the standard of teachers' leadership was jointly promulgated by America National Education Association and America Center for Teaching Quality (CTQ), and America National Board for Professional Teaching Standards (NBPTS). The core competencies listed in the competency standard are some common characteristics of successful teacher leaders, including four dimensions: reflective practice, personal effectiveness, interpersonal communication, communication, continuous learning and education, group process, adult learning, and technical competence. In this paper, since we will focus on teacher leadership in the current online teaching environment, we will start with six of Yang's leadership to get a more comprehensive framework.

Yang Sizhuo (2008) proposes six dimensions of leadership: learning power, decision-making, organizational power, teaching power, execution, and charisma. Teacher's leadership under the online teaching and learning environment.

Teacher leadership refers to a two-way positive and comprehensive influence that contains the following connotation. The teacher in the online teaching and learning environment is the main body for exercising teacher leadership. Moreover, the teacher leadership discussed and studied in this paper is based on innovation and development in the online teaching and learning environment.

Positive means that teacher leadership can form a positive influence or effect on their relevant community and its members. Teacher leadership is a two-way positive comprehensive influence that includes the teacher's comprehensive ability of learning power, decision-making, organizational power, teaching power, execution, and personal charisma, and two-way means that teachers promote the development of others and the school through their influence. At the same time, they constantly get feedback and self-motivation in the process, thus promoting the development of their specialization.

Besides, teacher leadership represents teacher growth and professional development. Teachers should be aware and able to adapt to the changes in the teaching environment and consciously put

their knowledge and ability into the online class. They further their influence and affect the other colleagues and the school.

2. Theoretical framework

2.1 The concept of six dimensions of leadership

Professor Yang Sizhuo, deputy director of the leadership research center of Peking University and a famous Chinese leadership expert, put forward six dimensions of leadership. He transformed leadership into a decomposable combination of six elements: learning, decision-making, organization, teaching, executive, and charisma (Yang, 2008).

2.2 The Model Structure of Six-Dimension Leadership

As a discipline, leadership has a rich connotation and extension. Professor Yang Sizhuo has thoroughly studied and integrated the internal logic of leadership and finally developed a six-dimensional leadership model, as shown in figures 2-1.

2.3 The characteristics of the six dimensions

The characteristic of six-dimensional leadership mainly refers to the logical relationship among the six abilities. Only by accurately understanding and dealing with the relationship between the six abilities can we deeply understand and grasp the real connotation of leadership. According to the six-dimensional leadership model diagram, it can be seen that six abilities form three diagonals, and the two abilities on the diagonals complement and restrict each other. Together, they constitute six aspects of leadership and form three characteristic structures of the model:

2.3.1. Input and output

In the six-dimensional leadership model diagram, the relationship between learning and teaching forces echoes and complements each other, located at both ends of a diagonal line. Learning power is concerned with the ability to acquire, absorb and transform knowledge. It is a problem of “input” knowledge. Teaching power focuses on how to “output” the existing knowledge and apply the acquired knowledge and skills.

These two abilities are the most basic and core professional abilities a teacher should possess. If he lacks the learning ability, awareness, and ability to learn, he cannot be called a competent and qualified teacher. On the one hand, he cannot set an excellent example for the students; on the other hand, he cannot fulfill the mission and responsibility of teaching and educating. The learning force is the energy for implementing the teaching force, while the teaching force is the understanding and extension of the learning force.

2.3.2. Think and Action

Decision-making and execution are a set of capabilities located at opposite ends of the other diagonal. Decision-making ability manifests in thinking and proposing feasible plans for specific problems and situations. Moreover, the executive force manifested in action, that is, to promote the implementation of a specific program. These two abilities constitute a complementary relationship between thinking and action. The premise of execution requires a clear decision. Furthermore, on the contrary, the execution can be carried out effectively under the premise of making the right decision. One cannot succeed by acting blindly without making the right decisions or by making

decisions without taking action.

2.3.3. Integrate and Corelative

The last group of abilities on the three diagonals is organization and charisma. Organizational power mainly lies in integrating resources and hardware resources such as organization, system, and process. Moreover, it indicates that the enterprise will use organizational means, business processes, and organizational systems to manage employees and integrate them into an organic team. The system, process, and organization alone cannot make the team have strong cohesion; instead, the leader's charisma, personal quality, and charm can accomplish this.

The two dimensions in the diagonal complement each other, and so do the others. A defect in a weak force can be made up by strengthening other forces. For example, if one lacks decision-making power, one can supplement it by strengthening other forces. The six-dimensional leadership quality model theory is similar to the bucket principle. As long as there is a short board, the water capacity of the whole bucket can be restricted, and the strength of a short board will also affect the overall leadership performance.

3. Methodology

This paper adopts the revised Delphi method. The steps are summarized as follows:

- 3.1 Select 9 experts to participate in the research and form an expert team;
- 3.2 Through the analysis and summary of relevant literature, summarize the contents.
- 3.3 Finish the first draft of the evaluation index and invite experts to discuss and modify the contents of the questionnaire in the way of review;
- 3.4 Send out the first questionnaire to the experts for the reply.
- 3.5 Collect and analysis the first questionnaire.
- 3.6 Collect and analyze the overall means to reflect a stable consensus. If the reflection is not satisfied, revise the evaluation index and repeat steps 3.3 to 3.6 again.

The experts are all the teachers who have experienced online teaching and learning, hopeful that the first round of written opinion surveys can get consensus opinions. If not, the second round of surveys has to be carried out, finally achieving the research purpose. They will use the Likert five-point scale to express the importance of each index item, and the score is set as 1

(Very unimportant)- 5(very important) and ask the experts to judge and rate their suitability.

In statistics, the average, median, and mode are usually used to determine the central tendency of the test indicators. The mean values change with the median and median values. Therefore, this paper will use SPSS to get the average, median, and mode to test the importance of each indicator item.

Mitchell (1991) pointed out that the error reduction is not apparent if the number of experts reaches more than 13 in Delphi research so that the interviewer number will be around 15.

4. Discussion of Evaluation Index framework composition

4.1 Learning capability

Learning power refers to teaching enthusiasm, motivational skills, teaching evaluation ability, teaching methods and strategies, digital art expression ability, digital classroom supervision ability, digital classroom support ability, and learning activity design ability.

4.2 Coaching capability

Decision-making ability refers to digital art expression ability, digital classroom supervision ability, digital classroom support capability, teaching support design ability, learning activity design ability, and digital teaching evaluation ability.

4.3 Decision-making capability

Decision-making capabilities include creating a digital learning environment, building a learning community culture, self-cognition, digital resource assessment capability, and self-managing tasks and time ability.

4.4 Executive capability

Executive capability includes communication, listening, and feedback skills, the ability to assist and encourage others, seize opportunities, and solve problems independently.

Inspiring capability

Inspiring capability includes visionary power, professional responsibility, transformation and innovation, digital citizenship literacy awareness, care, and respect for others.

Organizational capability

Organizational capability includes searching and analyzing digital resources, allocation of resources, insight power, teamwork skills, home-school interaction skills, and the ability to resolve conflict.

5. Feedback and Discussion

Based on the feedback form questionnaire, the author summarized the consistent problems into the following categories.

5.1 The Index system classification

“The connotation of the six capacity includes leadership, but it is too general, especially the decision-making capacity and executive capability capacity tend to indicate more for business leadership, suggest changing the classification.”

As a prospective study, this study considers as much as possible the requirements of teacher leadership under the online teaching and learning environment and based on the characteristics of teacher occupation, striving for perfection. Therefore, this model is selected as the theoretical basis, and the evaluation index is classified.

The researcher agrees that some of the dimensions suggested by the experts are more appropriate for business leadership. Therefore, the “executive capability” dimension is deleted and combined with the “organizational capacity” dimension to constitute the “cooperative capacity.” Therefore, the revised evaluation index framework consists of five categories.

5.2 The definition of index dimension

The six dimensions, such as “learning capacity,” should be defined in the questionnaire first; otherwise, experts do not know whether the indicator division can express the whole connotation of learning capacity.

The researcher agrees that adding the definitions of the five dimensions is necessary.

5.3 The index connotation overlaps

The experts point out that “2.4 Teaching support design ability” and “2.5 Learning activity design ability” seem repetitive. The solution is to combine the connotation of the two indexes to “Teaching support design ability” and delete “2.5 Learning activity design ability.”

“3.2 Ability to build a learning community” and “4.1 Communication ability” seem repetitive. The connotation of the two indexes is combined and summarized into “3.2 Construct learning community culture.” Since the “execution” dimension in the field of “communication ability” has been deleted, this index belongs to “cooperative capacity.” “Communication ability” is divided into one level of the “cooperative ability” dimension.

5.4 The question of index attribution domain

“3.1 Ability to create a digital learning” does not seem to belong to the “decision-making capacity” and is close to the “coaching capacity.”

“6.1 Ability to search and analyze digital resources” should be a fundamental skill of teachers’ leadership. In contrast, it has little to do with “organizational capacity.”

The solution to these two problems is to delete 3.1 and add to “coaching capacity,” delete 6.1 and classify into the first-level index “skill” in the dimension of “learning capacity.”

5.5 Proposed new indicators

The experts suggest that the two descriptions of the connotation of “knowledge quality” are not systematic and classified, so it is suggested to redefine them by referring to the research on TPACK.

According to the expert’s opinion, by studying TPACK, the researcher redefines “knowledge quality” and divides the three secondary indexes of “content knowledge,” “technical knowledge,” and “integrated technical subject pedagogical knowledge” to replace the original “knowledge quality.”

Since “knowledge quality,” “content knowledge,” and “integrated technology” are similar, the two connotations of “knowledge quality” are respectively summarized into “content knowledge” and “integrated technology subject pedagogical knowledge” after modification.

6. Conclusion

This study aims to construct the teachers’ leadership evaluation index framework under the online teaching and learning environment. The author reviewed relevant literature at home and abroad and analyzed the characteristics of teaching and learning in the online environment. Based on the six-dimension of leadership, sort out the framework under the online teaching and learning environment. Finally, put forward five categories and 14 secondary metrics frameworks. The expert group of Delphi research conducted just one round of the Delphi questionnaire survey due to the time limit on the proposed indicator system and getting a revised edition. This is the most crucial part of this study. The second round of the questionnaire surveys can be conducted in future research.

Quantitative research methods can be considered in future research to perform statistical analysis, calculate the importance of each sub-item and reorder it. Besides, the connotation of each index needs to add a connotation explanation. Due to the ability defect and limited time, this is only a preliminary framework that needs further exploration and research.

Appendix One

Teacher Leadership Evaluation Index Framework Under the Online Teaching and Learning Environment (First Questionnaire) (Cited from Six Dimensions of Leadership P 116 Yang Sizhuo,2008, Beijing, Peking University Press, China.)

Dear Professor,

This questionnaire of evaluation index framework aims to improve online teaching and learning. The information provided will be only for research purposes. It will be kept strictly confidential.

This research plan adopts the Delphi method to collect the consistent opinions of experts. We sincerely hope you give us some insights. We believe that your wisdom and insights will be helpful for this research. Thank you for your help.

Metric Types	Second-class Metric	Likert scale (1-5 presents the agree degree from strong disagreement to agree strongly)				
		1	2	3	4	5
I Learning capability	1.1 Teaching enthusiasm					
	1.2 Motivational skills					
	1.3 Teaching evaluation ability					
	1.4 Teaching methods and strategies					
	1.5 Digital art expression ability					
	1.6 Digital classroom supervision ability					
	1.7 Digital classroom support ability					
	1.8 Learning activity design ability					
II Coaching capability	2.1 Digital art expression ability					
	2.2 Digital classroom supervision ability					
	2.3 Digital classroom support capability					
	2.4 Teaching support design ability					
	2.5 Learning activity design ability					
	2.6 Digital teaching evaluation ability					
III Decision- making capability	3.1 Ability to create a digital learning environment					
	3.2 Ability to build a learning community culture					
	3.3 Ability of self-cognition digital resource assessment capability;					
	3.4 Self-manage tasks and time ability					
IV Executive capability	4.1 Communication ability					
	4.2 Listening and feedback skills					
	4.3 Ability to assist and encourage others					
	4.4 Ability to seize the opportunity					
	4.5 Ability to solve problem independently					
V Inspiring capability	5.1 Visionary power					
	5.2 Professional Responsibility					
	5.3 Transformation and innovation					
	5.4 Digital citizenship literacy awareness					
	5.5 Ability to care for and respect others					
VI	6.1 Ability to search and analysis of digital					

Organizational capability	resources					
	6.2 Allocation of resources					
	6.3 Insight power					
	6.4 Teamwork skills					
	6.5 Home-school interaction skills ability to resolve conflict					

Other suggestions:

Appendix Two

Teacher Leadership Evaluation Index Framework Under the Online Teaching and Learning Environment (Revised edition)

Metric Types	First-class Metric	Second-class Metric
I Learning capability	1.1 Knowledge	1.1.1 Content Knowledge ● Technical knowledge ● Integrated technology Subject Teaching knowledge low Cutting edge knowledge
		1.1.2 Technical knowledge ● Technical knowledge ● Integrated technology Subject Teaching knowledge low Cutting edge knowledge
		1.1.3 Integrated technology subject Teaching knowledge
		1.1.4 Frontiers knowledge
		1.2.1 Digital art expression ability
	1.2 Skill	1.2.2 Digital classroom supervision ability
		1.2.3 Digital classroom support ability
		1.2.4 Learning activity design ability
		1.2.5 Ability to search and analysis of digital resource
		II Coaching capability
2.1.2 Digital classroom supervision ability		
2.1.3 Digital classroom support capability		
2.2 Digital art expression ability	2.2.1 Teaching support design ability	
	2.2.1 Learning activity design ability	
	2.2.2 Digital teaching evaluation ability	
2.3 Digital classroom supervision ability		
III Decision-making capability	3.1 Ability to create a digital learning environment	
	3.2 Ability to build a	

	learning community culture	
	3.3 Ability of self-cognition	
	3.4 Self-manage tasks and time ability	
IV Cooperation Capability	4.1 Communication ability	4.1.1 Build a learning community culture 4.1.2 Home-school interaction skills
	4.2 Listening and feedback skills	
	4.3 Ability to solve the problem independently	
	4.4 Teamwork ability	
V Organizational Capability	5.1 Visionary power	
	5.2 Professional Responsibility	
	5.3 Transformation and innovation	
	5.4 Digital citizenship literacy awareness	

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