VALIDITY AND RELIABILITY OF THE TEACHER LEADERSHIP INVENTORY IN MALAYSIAN EDUCATIONAL CONTEXT

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ABSTRACT

The aim of this article is to report the validity and reliability of Teacher Leadership Inventory (TLI). The sample of the study consists of 244-trained teachers who are chosen using random sampling technique from 19 secondary schools in Perak. The content validity, criterion validity and construct validity analyses have been carried out by using this set of data. The findings of this study using exploratory factor analysis through orthogonal rotation with varimax method has formed three factors, consisted of 15 items of TLI with factor loadings range from .54 - .84. The reliability Cronbach Alpha coefficient for the overall item is .85, meanwhile for each factors developed ranged from .66 to .91. As the conclusion, these analyses have generated a new pool of TLI item to measure the construct of Teacher Leadership elements in Malaysian Educational context.

KEYWORDS

Teacher Leadership, Factor Analysis, Validity and Reliability

1. INTRODUCTION

Teaching is creative, complex and requires high skills. Hence, teachers must constantly deepen their knowledge, skills and value to be effective leader throughout their careers. In recent studies, teacher leadership has been defined as it is centered on a vision of a teacher who is able to build influence and interaction, rather than power and authority (Poekert, 2012). According to Fairman and Mackenzie (2012), teacher leadership emerged within many different contexts, such as individual and collective efforts; informal and formal actions; narrowly focused and broader school-wide improvement efforts; a school climate of isolation and mistrust or one of collegiality, shared vision and trust. Whereas, Hunzicker (2012) reported that, teacher leadership roles and responsibilities are closely related to student-focused concerns. However, their self-efficacy increase when the teacher actively pursued leadership skills and positively influence their self-conceptions of teacher leadership.

Meanwhile, according to Danielson (2006), the leadership of teacher is the activities carried out by individuals who have knowledge and skills to influence other individuals inside and outside the organization. This in line with A. Ghani, Mohd Rashid, Marzuki, and Faisol (2011) and Fairman and Mackenzie (2014), where teacher leadership concept refers to teachers who make a difference whether within or outside the organization through knowledge and skill and style that affects colleagues. Therefore, it is shown that teachers use the knowledge, skills and value to influence colleagues in adopting best practices in school. There are at least three major elements need to be considered in enhancing teacher leadership, which is knowledge, skill (Fairman & Mackenzie, 2012; Katzenmeyer & Moller, 2009; Phelps, 2008; York-Barr & Duke, 2004) and value (MOE, 2009), of the teacher, which are going to discussed further.

1.1 Knowledge

According to Green (2005), knowledge is what teachers know in order to promote the success of all students. Furthermore, with adequate knowledge; they can identify an appropriate and acceptable process for the schools' success. Knowledge in this study refers to teachers' understanding on teacher leadership concept, where teachers tend to use their content knowledge on teachers' leadership and apply it in the school and community in order to strive for schools' excellence. Therefore, according to Tamuri, Mahmud, and Bari, (2005), teachers require extensive knowledge about students' physical, psychological, the theory of pedagogy and andragogy to facilitate knowledge to be pass on students more effectively.

Leadership knowledge also can be enhanced through practicing teachers` professional learning for continuous improvement (Fairman & Mackenzie, 2014). In this context, teachers will be able to voice their opinions to achieve the shared vision and mission of the school improvement. Meanwhile, novice teachers who are still lack of knowledge about the school systems and teacher leadership skills (Muijs, Chapman, & Armstrong, 2013) can use this platform to enhance their knowledge. According to Lead (2013), teacher leadership also provides spaces for teachers to share knowledge across borders. This can be done through the involvement of teachers in teacher leadership programs at the ministry level, where teachers have been given opportunity to express their views in policy making and share their best practices. In conclusion, teachers should be exposed with leadership skills since at early stage at teacher`s training colleges so that they can face the challenges in the process of improving the teaching and learning (Moller & Katzenmeyer, 1996).

1.2 Skill

Teacher leadership skill is closely relate to good teamwork skill. Teachers can lead by engaging, inspiring and motivating others to improve through their actions. They are able to lead by effectively communicate with colleagues and inform them of their goals in ways that can garner support of their vision for the school improvement (Danielson, 2007). However, the teachers can only acquire this leadership skill by practice. According to Katzenmeyer and Moller (2009) teachers who have the leadership skills to influence other teachers or students can act as facilitators, mentors, counselors, curriculum specialists and able to lead the study group. Every teacher should have leadership skills and attributes (Danielson, 2007). According to Danielson (2007), there are some skills and characteristics that can be adopt by individuals as teacher. Effective teachers must be open-minded and respect others' views. They also should show confidence, assertive, flexible and willing to try a different approach if their efforts failed, as well as willing to encounter a variety of risks such as time constraints in their daily job. Meanwhile, Grant, Gardner, Kajee, Moodley and Somaroo (2010), and Elsabe and SG (2011), emphasis that teacher leadership occurs in four setting which is in the classrooms, working with other teacher outside the classrooms, extra-curricular activities, and school development and leadership practices among schools community. However, their study concluded that most of the leadership practices happen in the classroom, during teaching and learning improvement. Therefore, teachers must learn to lead a group, listen, use the data and identify other needs to acquire a strong set of skills to be use in the school daily routines (Katzenmeyer dan Moller, 2009).

Research done by Angelle, Nixon, Norton and Niles (2011), showed that teacher leadership skills imposed high impact on school development through shared responsibility among teachers. This can be achieve through collaborative relationship and school culture based on trust. To achieve collaborative relationship and trusted culture, Jackson, Burrus, Basset and Roberts (2010) suggested teachers should learn in groups. According to, Roberts and Pruitt, (2009), group learning refers to the learning process that takes place among teachers to discuss on important issues in schools in identifying students' learning. This professional learning community and collaboration has led to changes in pedagogy through shared goals, relationships and trust as well as support continuous learning give a positive impact on student achievement, improve teacher effectiveness (Harris & Jones, 2010; Sharratt & Fullan, 2009; Rovere 2013) and as an effort to help other colleagues (A. Ghani, & Crow, 2013).

Therefore, Teacher Leadership Exploratory Consortium, (2011) suggests that teachers need to understand the family, culture, and society as they give a big impact to the educational process and student learning. Teacher needs to work with colleagues to establish a good continuous relationship with families, communities, and other stakeholders to improve the education system and student learning opportunities. Finally, teachers also can play a vital role as a reference leader to guide students, lead and guide himself or

herself and their colleagues to the shared purposive goals without being autocratic (Idris & Hamzah, 2012). In conclusion, these studies clearly shown that a teacher who has leadership skills can be the role model and referral leader to students, colleagues, parents and the community. Indirectly, it showed that leadership skills can be applied in each and every teacher as individual.

1.3 Value

The value is defined as beliefs about what is the right and wrong way for people to behave and it is also known as moral principles (MOE, 2009). The term value in this study has been defined as a set of beliefs that teachers have towards the school and community and could give a great impact in schools transformation process. Teachers have an important responsibility to nurture students who will constantly practice good values in their daily lives. Teachers also need to instill professionalism of teaching practices in them, while being a guidance and role model to the students. According to MOE (2009), the practice of the professionalism will be a platform for teachers to develop good characters to fulfill the function of the school as a place of national establishment to develop human capital. This in line with the Malaysian National Education Philosophy and Philosophy of Teacher Education aspirations. The practice of professionalism in teaching is an initiative to develop a teacher who has a towering personality in becoming an excellent teacher (MOE, 2009).

Teachers also must have a high cognitive skills and a good personality. According to Mohd. Kassim (2008), teachers who have values and high self-esteem should be aware that the dignity of the teaching profession lies in their hands and teachers also should highlight the positive values in them because the students often refer them as the role models. In line with the philosophy of Malaysian Teacher Education, teachers must be honorable, have a progressive and scientific vision, ready to uphold the aspirations of the country, ensuring the development of individuals as well as preserve the unity, democratic, and progressive community (Mok, 2010). In order to meet the current education challenges, teachers should have a strong values and self-esteem in them. According to Mat Som (2009), the main aspects to be address in promoting the teaching profession is a teacher's own personality. This is because the personal quality of the teacher is a source of knowledge and able to emulate the formation of good character (Abas, 2007). In other words, the teacher is acting as `value developer` (MacBeath, Pedder & Swaffield, 2007). Therefore, teachers need to show good personal values to the students, schools and communities. These good personal qualities can guide and educate students to develop their personal character. In conclusion, the core values that a teacher must have are honest, discipline, responsibility, timeliness and a commitment to work (MOE, 2009).

Thus, according to the literature, teacher leadership can be classifed into three dimensions as suggested by Katzenmeyer and Moller (2009), Phelps (2008), Fairman and Mackenzie (2012; 2014) and MOE (2009): knowledge, skills and values in practice, which are used in our model. However, currently, there are still not many suitable instruments to measure secondary school teachers` perception toward teacher leadership. Most of the previous studies have been carried in Western countries, such as Teacher Leadership Self-Assessment (TLSA) developed by Katzenmeyer dan Moller (2009) and the measurement is not really suitable with Malaysian context as well as less has been reviewed by previous researcher. Secondly, is the use of suitable statistical procedure in developing and validating items. The exploratory factor analysis has been well suggested by experts if there are less research have been carried out regarding the observe factor structure (Bandalos & Finney, 2010). Given these various constraints and limitations of existing instrument reviewed, it was therefore necessary to develop an empirically validated TLI specifically in measuring perceptions, for Malaysian secondary school teachers. The use of EFA, criterion validity and, content validity as well as internal consistency are more suitable in developing and validating items.

2. METHOD

This section will discuss about questionnaire design sampling procedure, factor analyses, validity and reliability.

2.1 Questionnaire Design

The questionnaire is composed of three parts, 15 items including: knowledge, skill and value. The instrument used has been adopted from Niche-Research Grant Scheme (NRGS) 2014 Project 4: Teacher Leadership. The questionnaire items were answered using a four-point scale anchoring at 1, 2, 3, and 4 (strongly disagree, disagree, agree, strongly agree). The comparative analysis of teacher leadership models such as Katzenmeyer and Moller (2009), Phelps (2008), York-Barr and Duke (2004), Fairman and Mackenzie (2012; 2014), Malaysian Education Development Plan, Malaysian National Policy of Education, Malaysian Teacher Standard (2009) as well as through key informants and survey of lecturers and teachers from schools and higher learning institutions in Malaysia has been done to develop these items.

2.2 Sampling Procedure

The data used in this research was obtained from 19 regular secondary schools in Batang Padang district in Perak. This set of data was used in preliminary study as to perform exploratory factor analysis. 15 sets of questionnaires were distributed to each of these 19 regular secondary schools. A total of 285 survey forms were circulated, of which 244 surveys were return and valid for analysis.

2.3 Factor Analysis, Validity and Reliability

The Cronbach Alpha coefficient is used to measure the internal consistency of these scales (Nunnally & Bernstein, 1994). In this study, the constructs which had Cronbach Alpha coefficients greater than .70 have been retained for further analysis (Hair, Black, Babin, Anderson &Tatham, 2010). Furthermore, measures with item-to-total correlation larger than .3 are considered to have criterion validity (Hair et al, 2010). The item-to-total correlation of each measure was more than .3, therefore we consider the criterion validity of each scale to be satisfactory. The items are reviewed by a panel of Sultan Idris Education University lecturers to ensure the translation of meaning and terminology met the theoretical background as the technique. The panel consists of an assessment and measurement expert, a human resource development expert and an educational leadership expert.

Then, the questionnaires have been administered to six trained teachers to identify if there were any confusion regarding the items and record it in the space provided for improvements or been dropped out (Flowers, 2006). The purpose was to improve the items and to ensure it was suitable for Malaysian context. Furthermore, it was important to get feedback on quality of each items, as it was easy to understand and used the appropriate language and terminology. The samples were asked to evaluate about the clarity of each items by using the scale given (Flowers, 2006). A scale of 1 to 10 is used to determine the validity coefficient for each items. According to Tuckman and Waheed (1981) in SidekMohd Noah and Jamaludin Ahmad (2005) if the total of the score obtained from the experts is 70% or above, it means that the item has a high score for the content validity aspect. Otherwise, the item will be dropped from the questionnaires. The results of content validity are presented in Table 1 below.

Table 1. Content validity scores

Panel	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Cum Score
Percentage (%)	92.72	91.51	88.48	82.42	82.42	80.00	86.84

Meanwhile, to ensure the instrument has reasonable construct validity, exploratory factor analysis was used. The exploratory factor analysis (EFA) through orthogonal rotation with varimax method had been used on these 15 items. The EFA applied the following rules as suggested by Hair et al. (2010):

i.   Bartlett's Test of Sphericity had to be significant ($p < .05$);
ii.   Kaiser-Meyer-Olkin measure of sampling index $\geq .5$;
iii. Eigenvalue > 1;
iv.   Items with the factor loading $> .5$ were retained;
v.   Factors building are based on teacher leadership models and previous studies.

The results of exploratory factor analysis are presented in Table 2.

Table 2. Exploratory factor analysis and internal consistency values for the questionnaires

Construct	Number of Factor	Number of item per construct	Factor loading	% of variance	Cum. percentage	Cronbach's α
Teacher Leadership	3	15	.54-84	15.80	67.69	.85
Knowledge		7		46.11		.91
Value		4		12.85		.70
Skill		4		8.73		.66

3. DISCUSSION AND CONCLUSION

The purpose of this study is to develop and validate teacher leadership inventory used to measure secondary teachers` perception in Malaysian setting. This study used statistical approach to identify fifth teen-items in developing new TLI. The Egien values showed that there are three factors which score more than one and the total cumulative percentage is 67.69%. All fifth teen-items have been accepted and pooled to form TLI final version. The factor analysis of 15 items shown that there are three major factors have been formed. The factors are knowledge, skill and value, as suggested by previous literatures mentioned by Katzenmeyer and Moller (2009), Phelps (2008), York-Barr and Duke (2004), Fairman and Mackenzie (2012; 2014), Malaysian Education Development Plan, Malaysian National Policy of Education, and Malaysian Teacher Standard (2009). Results from this study suggested that TLI and its constructs shown the good internal consistency values to measure teachers` perception toward teacher leadership model. The overall internal consistency value is .85, meanwhile the values of factor loading of each constructs range from .54 to .84. Therefore, these items are suitable to use in exploratory research.

This study has a few weakness, such as the comparison of the values of internal consistency among the studies cannot be done extensively because less of reviewed inventory. Secondly, the sample only consisted of secondary schools, therefore the next study should be extended to primary school teachers. Thirdly, the use of confirmatory factor analysis (CFA), is more suitable in developing and validating items. As the CFA can be used as a basis for a final determination regarding an underlying construct, because this analysis is designed to maximize the amount of variance within the current variable set, and subsequent analyses with other data sets may not reproduce the same factor structure. Furthermore, EFA only focus on statistical and not according to the theory in determining the measurement structure scale as well as not enough to measure error. Fourthly, the comparison between research findings cannot be done because this inventory is the newly developed one. Further study also should be explored on the perception of the teachers on the existence of other teacher leadership models. However, hopefully the findings are valuable for the researchers, ministry of education, school-based professional learning developers` and teacher educator references, who are interested more in exploring teacher leadership.

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