

CONCEPTUALIZING AND ASSESSING AN INTEGRATED HIERARCHICAL LEADERSHIP CONSTRUCT IN EDUCATION CONTEXT

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ABSTRACT

The issues of measurement model misspecification and multicollinearity in leadership literature has provoked the current study to conceptualize and assess an integrated hierarchical Bass's (1985) transformational and transactional leadership construct in education context. This study employed quantitative cross-sectional survey method. Data were collected from 322 teachers who were selected from 20 Malaysian secondary schools. Partial least squares structural equation modeling (PLS-SEM) approach with WarpPLS 5.0 was used to analyze the data. Convergent and discriminant validity of the six reflective first-order constructs were warranted. Results of redundancy analysis, significant weights, and acceptable variance inflation factor values supported the proposed third-order integrated hierarchical leadership construct. Results inform an implication on generating new knowledge regarding a hierarchical perspective of transformational and transactional leadership. Using PLS-SEM approach with new algorithms to assess the integrated hierarchical leadership construct can be a methodological contribution of this study. Limitations, implications, and suggestions for future studies were discussed.

Keywords: *Malaysia, measurement model, partial least squares structural equation modeling (PLS-SEM), transformational leadership, transactional leadership*

INTRODUCTION

Multifactor Leadership Theory, which encompasses transformational leadership and transactional leadership, is the most cited theory of leadership behavior (Bass, 1985; Bass & Avolio, 1990; Judge & Piccolo, 2004; Kidney, 2015; Rowold, 2005; Rowold & Heinitz (2007); Yukl, 1999). Transformational leadership is recognized as a concept to describe how leaders motivate their followers to achieve performance by transforming followers' attitudes, beliefs,

and values (Bass, 1985, 1999; Bass & Riggio, 2006; Northouse, 2013; Yukl, 1999). Transformational leadership is conceptualized to be a function of four underlying dimensions: (1) charismatic leadership, (2) inspirational leadership, (3) intellectual stimulation, and (4) individualized consideration (Bass, 1985; Bass & Riggio, 2006). Transactional leaders cater to their followers' immediate self-interests. Transactional leadership refers to exchanges in which both leaders and followers influence each other reciprocally so that each drives something of value (Bass, 1985, 1999; Yukl, 1981). According to Bass (1985), Transactional leadership has three underlying dimensions: (1) contingent reward, (2) active management-by-exception, and (3) passive management-by-exception. Transactional leadership is based on an exchange of reward for performance whereas transformational leadership is exerting influence over followers to achieve a common goal (Bass & Avolio, 1993; Kidney, 2015).

The emergence of this study is justified by two research gaps. First, both transformational and transactional constructs are considered complex with its multidimensionality with each construct possessing more than one dimension (van Knippenberg & Sitkin, 2013). Berkovich (2016) indicated out that results from previous studies have shown the problem of multicollinearity among the dimensions of transformational leadership. For instance, Hsiao and Chang (2011) found that the construct of transformational leadership have encountered serious multicollinearity with the intercorrelations of above 0.75 among the five dimensions using 330 Taiwanese teacher sample. The problematic multicollinearity issue could be a possible reason to explain the failure to replicate the multidimensional structure of transformational leadership in several previous studies such as Bogler (2001) as well as Nir and Hameiri (2014). In addition, the multicollinearity issue between transformational and transactional leadership is expected as contingent reward, a dimension of transactional leadership was found highly correlated with transformational leadership in the studies conducted by Judge and Piccolo (2004) and Menon (2014). As such, it can be inferred that transformational and transactional leadership could be integrated as a hierarchical construct. With respect to this concern, Hair, Hult, Ringle, and Sarstedt (2017) and Wetzels, Odekerken-Schröder, and Van Oppen (2009) contended that developing a hierarchical construct could reduce the model complexity and multicollinearity issues and solve discriminant validity problems.

Second, the issue of measurement model misspecification in leadership literature (e.g., MacCallum & Browne, 1993; Podsakoff, Mackenzie, Podsakoff, & Lee, 2003). Model misspecification could be due to a failure to differentiate the theoretical underpinning between formative and reflective measurement models of a leadership construct (Podsakoff et al., 2003; Thien, Ramayah, & Razak, 2014). To address the second research gap, this study attempts to conceptualize the first- and second-order constructs of transformational and transactional leadership based on the conceptual understanding of reflective and formative measurement model.

Considering these research gaps, this study proposes a third-order hierarchical construct, namely the Integrated Hierarchical Leadership Construct (IHLC), which includes transformational leadership and transactional leadership, in which both transformational leadership and transactional leadership are second-order constructs. These second-order constructs further validates the third-order IHLC. Hence, this study aims to conceptualize and assess IHLC in the context of education by using Partial Least Squares (PLS) path modeling. This study is significant contribute toward theoretical development, measurement of constructs, and techniques used in data analysis in leadership research particularly in educational context.

REFLECTIVE AND FORMATIVE MEASUREMENT MODELS

A latent construct was measured by a number of items, of which these items can be categorized to be the reflective or formative items. The relationship between reflective or formative items and construct with which are termed as a reflective or formative measurement model respectively (Petter, Straub, & Rai, 2007). In this study, the decision whether transformational or transactional construct is reflective or formative were based on three criteria of its measures: (1) direction of causality, (2) interchangeability of the items, and (3) correlation among items (Jarvis, MacKenzie, & Podsakoff, 2003).

Reflective Measurement model assumes that the latent constructs cause the measures (MacKenzie, Podsakoff, & Jarvis, 2005). The direction of causality is indicative as arrows are drawn from the latent constructs to the items. This indicates the conceptualization of the latent construct forms the items (Jarvis et al., 2003). Reflective items should be highly correlated because all items reflect the same underlying construct (Bollen & Lennox, 1991). The high levels of internal consistency reliability should exist in a reflective measurement model (Jarvis et al., 2003). As such, dropping one of two equally reliable items from the measurement model should not alter the meaning of the construct. Consequently, items or measures are interchangeable and share a common theme in a reflective measurement model. Figure 1 illustrate the reflective measurement model.

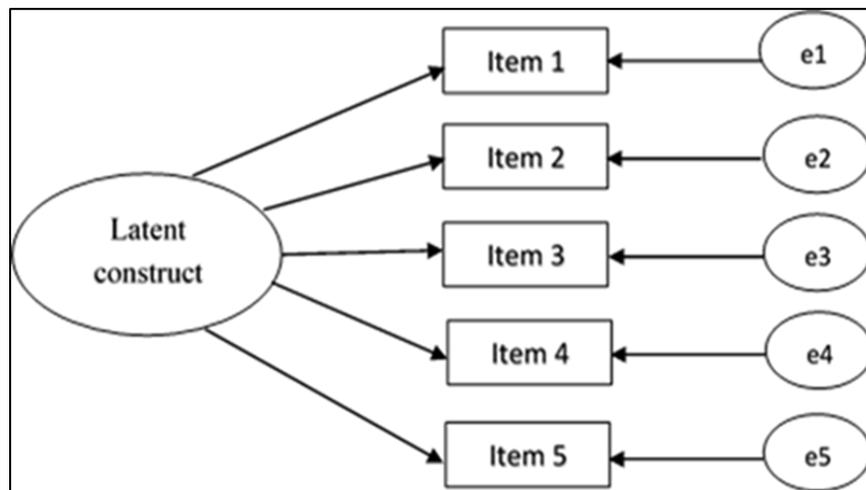


Figure 1. Reflective measurement model

In contrast, formative measurement model assumes that the measures are the cause of the latent construct (Jarvis et al., 2003; MacKenzie et al., 2005). The direction of causality is indicative as arrows flowing from the items to the latent construct. This implies formative measurement model conceives the measures jointly to form the latent construct and the conceptualization of the latent construct is derived from its items. As such, the formative measurement model itself does not assume or require the measures to be correlated (Bollen & Lennox, 1991). Measures are not interchangeable and the internal consistency reliability is not an appropriate standard for evaluating the adequacy of the measures in formative measurement models. As a result, dropping the formative measures may omit a unique part of the conceptual domain and changes the conceptual meaning of the underlying latent construct. Figure 2 illustrates the formative measurement model.

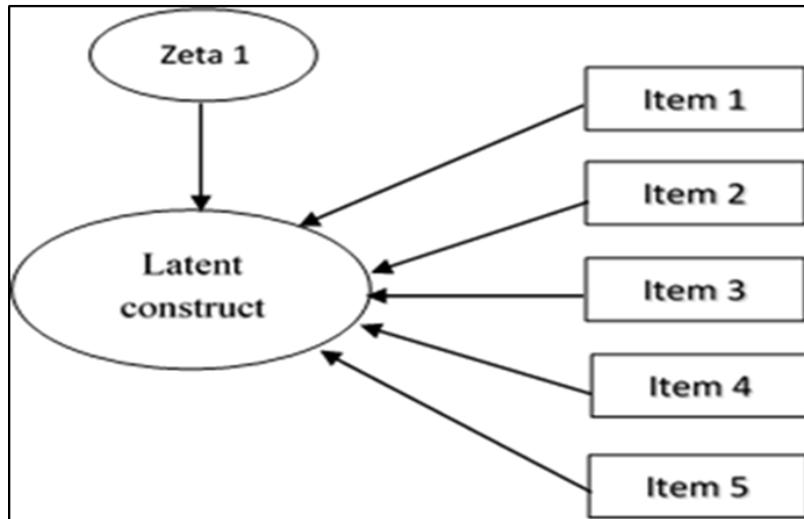


Figure 2. Formative measurement model

CONCEPTUAL GROUNDING

Transformational Leadership

Transformational leadership encompasses four underlying dimensions: (1) charismatic leadership, (2) inspirational motivation, (3) intellectual stimulation, and (4) individualized consideration (Bass, 1985). However, the study conducted by Bass (1985), which was based on 176 army officers' descriptions of their superiors' leadership, found that all three of the items that measure inspirational leadership were highly loaded on charismatic leadership and leaving three dimensions of transformational leadership. The three dimensions were supported by Avolio, Bass, and Jung (1999) whose study was based on the results of confirmatory factor analysis. As such, this study restricted the discussion to the three first-order constructs of transformational leadership.

Bass (1985) describes a charismatic leader exhibits leadership through inspirational appeal and emotional skills to arouse followers' motivations to transcend interest for the good of the team. Leaders have a clear vision, sense of purpose and are willing to take risk. A charismatic leader is adept at handling and sharing responsibility. Charismatic leadership is linked to idealized influence (Bass, 2005), which is operationalized to be the amount of faith, respect, and inspirational engendered by the leader (Bycio, Hackett, & Allen, 1995). Leaders are 'admired, respected, and trusted' (Bass, Avolio, Jung, & Berson, 2003, p. 208). According to Bass's (1985) version, the items that measure charismatic leadership include, 'Makes me feel good to be around him/her' and 'I am ready to trust his capability and judgment to overcome any obstacles'. It seems the items are interchangeable with each other, and eliminating one or more of the items would not alter the conceptual meaning of charismatic leadership. Notably, these items seem correlated with other items because leaders who make their followers feel good to have them around make them as role models to be followed. This implies any item omission would not cause changes to the conceptual meaning of the construct. It would be more appropriate that the direction of causality is drawn from the charismatic leadership to the items. Charismatic leadership could be specified to be a reflective measurement model.

Intellectual stimulation is conceptualized as a leader's behavior that is able to increase followers' interest in and awareness of problems (Bass, 1985). Intellectual stimulation is exhibited when a

leader helps followers to become more innovative and creative by soliciting new ideas in their daily life (Avolio et al., 1999; Bass, 1985). According to Bass (1985), there are three items that measure intellectual stimulation, including 'Have provided me with new ways of looking at things which used to be a puzzle for me' and 'His/her ideas have forced me to rethink some of my own ideas which I had never questioned before'. These items seem to correlate with other items positively. For example, a leader who provides subordinates with new ideas seem likely to stimulate his or her subordinates to rethink about previous problems in new ways. The items share a common theme because of their similar content. The direction of causality is expected to flow from the intellectual stimulation to the items. Intellectual stimulation could be specified as a reflective measurement model.

Individualized consideration is exhibited when leaders pay attention to the developmental needs of followers in addition to supporting and coaching the development of their followers (Bass, 1985, 1999; Shin & Zhou, 2003). Individualized consideration is operationalized to be the degree of attention and support given to individual followers (Avolio et al., 1999). The seven measures of individualized consideration include, 'Is satisfied when I meet the agreed-upon standards for good work' and 'I earn credit with him/her for doing my job well'. The items of individualized consideration seem to have similar content and dropping any measure will not change the conceptual meaning of individualized consideration. The direction of causality is as expected, drawn from individualized consideration to the items and the items are highly correlated with one another. A reflective measurement model would seem to be appropriate for individualized consideration.

Transactional Leadership

Transactional leadership refers to exchanges in which both the leaders and followers influence one another reciprocally so that each drives something of value (Yukl, 1981). Kellerman (1984) described transactional leaders as leaders who engage their followers in a relationship of mutual dependence in which the contributions of both sides are acknowledged and rewarded. Bass (1985) defined transactional leadership with three dimensions, namely contingent reward, active management-by-exception, and passive management-by-exception.

Contingent reward refers to contractual exchange of rewards for effort, promises of rewards for good performance, and recognizes accomplishments. A contingent reward is given when subordinates were able to accomplish the set goals on-time or ahead of time. Seven items measure a contingent reward. Sample items include 'Tells me what I should do if I want to be rewarded for my efforts' and 'Gives me what I want in exchange for showing my support for him or her'. The items seem highly correlated with each other and thus dropping any item would not cause changes in the conceptual meaning of contingent reward. The direction of causality is expected to be drawn from contingent reward to the items. As a result, the reflective measurement model is preferable for contingent reward.

Management-by-exception consists of active and passive route (Bass, 1985). Leaders who practice active management-by-exception are those who continually review subordinates' performance and make changes to their work to make corrections throughout the process. Contrastingly, leaders with passive management-by-exception are those who wait for issues to come up before fixing the problems. Active and passive management-by-exception are each measured by three items. Sample items of active management-by-exception include, 'As long as the old ways work, he or she is satisfied with my performance' and 'As long as all things are going all right he or she does not try to change anything'. Sample items of passive management-by-exception include, 'Ask no more for me what is absolutely essential to get the work done' and 'only tell me what I have to know to do my job'. The items that measure active and passive management-by-exception seem to have similar content and share a common theme

respectively. Dropping any items would not alter the conceptual meaning of active management-by-exception. The same interpretation could be applied to passive management-by-exception. The reflective measurement model could be more appropriate to both active- and passive management-by-exception compared to the formative measurement model.

Second-order Transformational and Transactional Constructs

Because of the different conceptual meaning of each first-order construct and dropping any constructs changing the conceptual meaning of transformational leadership, the first-order construct of charismatic leadership, intellectual stimulation, and individualized consideration form the second-order construct of transformational leadership. This means the arrows pointing from the three first-order constructs to the second-order constructs, namely transformational leadership. Similarly, the conceptual meaning of contingent reward as well as active- and passive management-by-exception are mutually exclusive, and dropping one of these three first-order constructs will alter the conceptual meaning of transactional leadership. Based on these decision criteria, contingent reward, active management-by-exception, and passive management-by-exception form the transactional leadership. Therefore, the conceptualization of transactional leadership is derived from these three first-order constructs.

Third-order Integrated Hierarchical Leadership Construct

Transformational leadership and transactional leadership are two distinct constructs based on the conceptualization of the second-order constructs of transformational leadership and transactional leadership with its respective first-order construct and measures (Judge & Piccolo, 2004). Subsequently, it could be proposed that the two second-order constructs of transformational leadership and transactional leadership generate the third-order reflective-formative-formative IHLC. Figure 3 shows the proposed conceptual model of third-order IHLC.

CONTEXTUALIZING THE STUDY

In educational context, transformational leadership theory is an influential leadership model in the field of education administration (Bush, 2014; Hallinger, 2003). The research into transformational leadership in educational settings was initiated by Leithwood and his colleagues in the late 1980s and early 1990s (Geijsel, Slegers, & van den Berg, 1999). Leithwood et al. (1996) have revealed three core dimensions of transformational school leadership based on the four dimensions of Bass's transformational leadership version (Leithwood, Tomlinson, & Genge, 1996). The first dimension consisted of Bass's version of charismatic and inspirational leadership, referring charisma or inspiration or vision. It indicates inspiring teachers to be engaged in their work by developing, identifying, and articulating a particular vision. The second dimension is individual consideration, referring concern and respect for the personal feelings and needs of teachers. The third dimension is intellectual stimulation, referring challenging teachers to professionalize themselves in such a manner that the organization is learning.

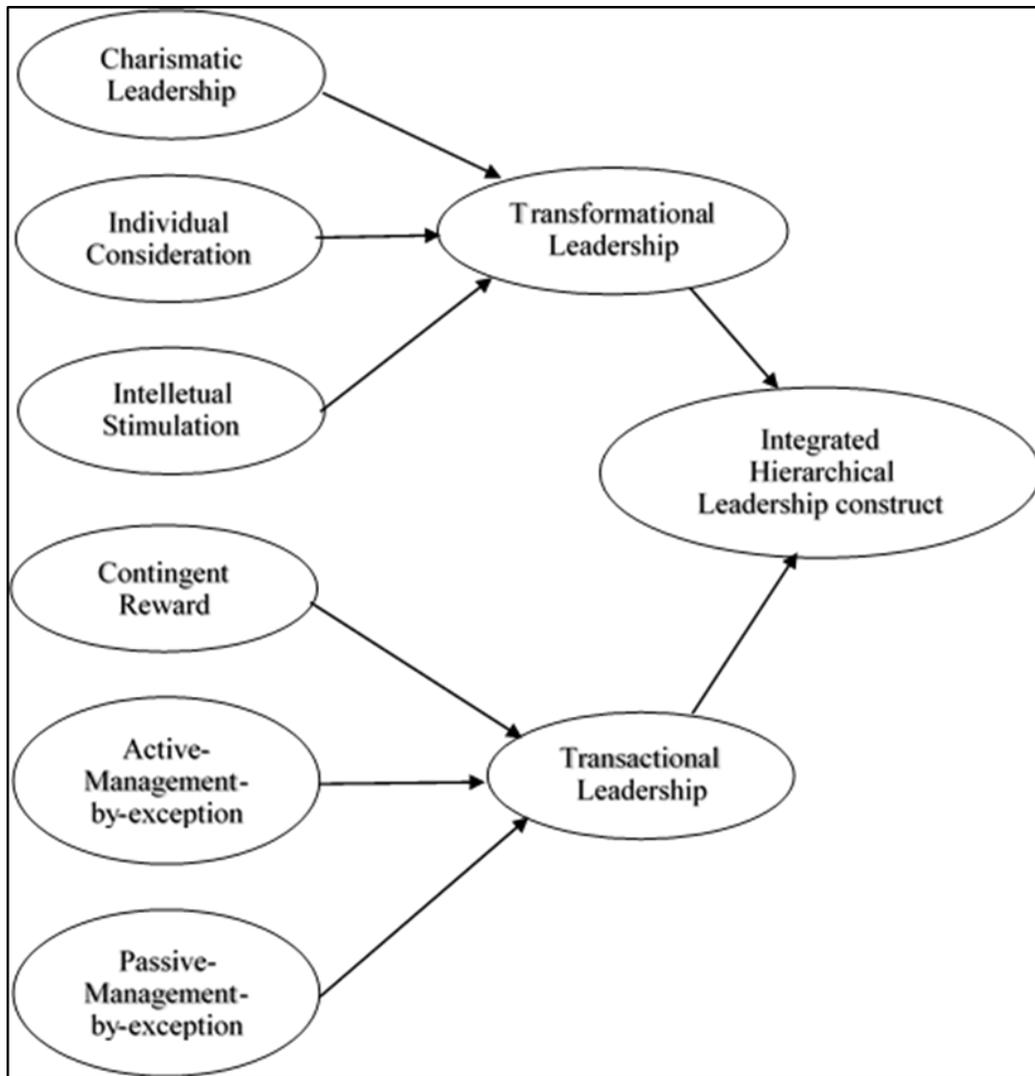


Figure 3. The proposed third-order integrated leadership construct

The importance of transformational school leadership is evident with a voluminous research related to the adoption of transformational leadership behaviors in school management and the internal processes of transformational school leaders and its effects on the school, teacher, and student outcomes (Geijsel et al., 1999). Particularly, transformational school leadership research are mostly dealt with its effects on the perceptions of leader effectiveness, the behaviors of teachers, teachers' psychological states, organizational learning, school improvement, the school culture, and students in various school contexts (Wiyono, 2017; Leithwood et al., 1996; Geijsel, Slegers, Leithwood, & Jantzi, 2003) as well as its antecedents that both mediate and moderate its effects on student learning outcomes (Leithwood & Jantzi, 2000, 2006). With this concern, this study has selected Malaysian secondary school teachers as the sample.

METHODS

Participants

This study employed a cross-sectional survey method. The targeted population were Malaysian secondary school teachers and the sample was collected by using stratified cluster sampling. 20 secondary schools were selected with five schools each from Penang, Perak, Sabah, and Sarawak. A number of 20 teachers were selected randomly from each school. This made up of the desired sample of 400 teachers. Participation was solely voluntarily basis. Questionnaires were distributed to the respondents with consent obtained from the Malaysian educational regulatory authorities. The teachers were required to notify the purpose of the study to the respondents before answering the questionnaires.

A total of 322 completed questionnaires by the secondary teachers were collected, which means a return rate of 80.5 percent. Three quarters of the sample were female teachers and the remaining 25 percent were male teachers. Major ethnic group was Malay (75%) and non-Malay (25%). About 83 percent of the selected teachers work in national schools and the remaining 17 percent work in National Type Chinese Secondary Schools. About 30 percent of the teachers have five years or less of teaching experience, about 25 percent had between six and 10 years of teaching experience, about 14 percent between 11 and 15 years, and the remaining 31 percent had 16 or more years of teaching experience.

Measures and Cross Cultural Adaptation

This study employed the original version of Bass's (1985) Multifactor Leadership Questionnaire (MLQ) for the measures of the underlying six first-order constructs: (a) charismatic leadership (18 items), (b) individualized consideration (7 items), (c) intellectual stimulation (3 items), (d) contingent reward (6 items), (e) active management-by-exception (3 items), and passive management-by-exception (3 items). The constructs were measured using a 5-point Likert Scale that ranged from 0 (not at all) to 4 (frequently, if not always). The construct of leadership effectiveness used by Bass (1985) served as a reflective construct to assess the convergent validity of IHLC while conducting the redundancy analysis. The leadership effectiveness was measured by four items with a 5-point Likert scale, ranging from 0 (not effective) to 4 (extremely effective). Leadership effectiveness is a reflective construct that can represent the same meaning of IHLC (Judge & Piccolo, 2004).

The original MLQ was written in English. The 43 items in MLQ were translated into the Malay language. This study employed translation guideline recommended by Beaton, Bombardier, Guillemin, and Ferraz (2000) to ensure the cross-cultural equivalence between the original and Malay version of MLQ. Forward translation was conducted in Step 1. The forward translators consisted of two independent native-speaking translators from a Malaysian public university. In Step 2, translators identified poor wording choices and resolved to ensure semantic and conceptual equivalence based on the translated version in Step 1.

In Step 3, the forward translated version was subjected to backward translation. Two English language experts from Malaysian public university were invited to translate the Malay version into English version without referring to the original English version of MLQ. In Step 4, all the four translators who involved in forward and backward translation reviewed both English and Malay versions thoroughly. The translators highlighted the aspects of the comparability of language, similarity of comprehensibility and interpretation between English and Malay versions. The Malay version was revised accordingly based on the inconsistencies between the English version in backward translation and original version. The finalized Malay version were included in a survey questionnaire. Finally, a pre-testing was conducted with five secondary

school teachers. The purpose of conducting the pre-testing is to ensure the suitability of wordings of the survey items (Memon, Ting, Ramayah, Chuah, & Cheah, 2017).

Data Analysis Procedure

This study employed partial least squares-structural equation modeling (PLS-SEM) to assess and validate the IHLC. PLS-SEM is a suitable technique to assess a complex model, including reflective and formative constructs, and for theory development (Hair et al., 2017; Ramayah, et al., 2018). This study used WarpPLS 5.0 software to perform the data analysis because of its superiority to estimate the measurement (outer) model parameters and latent variable scores (Kock, 2015). The analyses involved: (1) assessment of first-order measurement model, involving internal consistency, convergent validity, and discriminant validity, (2) assessment of measurement model after generating two second-order formative constructs, and (3) assessment of third-order formative measurement model. In addition, when assessing the convergent validity of a formative construct, redundancy analysis is required to test the correlation between this construct and a reflective measure of the same construct (Hair et al., 2017).

The IHLC was inclusive of transformational and transactional leadership, of which these constructs were reflective-formative second-order constructs. Three first-order reflective constructs, namely (1) charismatic leadership, (2) intellectual stimulation, and (3) individualized consideration were involved to generate transformational leadership, while the other three first-order reflective constructs, namely (1) contingent reward, (2) active-, and (3) passive management-by-exception were involved to establish transactional leadership.

These six first-order reflective constructs were evaluated together by considering the criteria for the assessment of the reflective measurement model. To assess the reliability of the reflective construct, the loading of each indicator on its associated latent construct should be higher than the threshold of 0.7 (Hair et al., 2017). Results showed the presence of low loading of six items of charismatic leadership and one item of individualized consideration. Item CH7, CH8, CH11, CH16, CH17, CH18, and IC7 were excluded and the analysis was rerun.

Table 1 shows that all items loaded on their respective construct with the factor loadings higher than the threshold of 0.7 (Hair et al., 2017). CRs of all the first-order constructs ranged from 0.808 to 0.975 and exceeded the threshold of 0.8 (Chin, 2010). Result supported the reflective measurement model of the six first-order constructs. The construct validity of the reflective measurement model was a function of convergent and discriminant validity (Hair, Ringle, & Sarstedt, 2011). Table 1 shows that all AVEs of first-order constructs were found higher than the threshold of 0.5. The results revealed that convergent validity was ensured for the six reflective first-order constructs.

Discriminant validity is the extent to which each construct is distinct from other constructs in a model (Chin, 2010). To establish discriminant validity, the square root of AVE of each construct should be higher than the highest correlation of the construct with any other latent variables in the model (Chin, 2010; Fornell & Larcker, 1981). Table 2 indicates the acceptability of the discriminant validity for the first-order constructs with the square roots value of AVE (in bold) higher than the correlation between any constructs.

Full collinearity refers to the vertical and lateral collinearity of one construct in relation to other constructs (Kock & Lynn, 2012). The proposed threshold of Variance Inflation Factor (VIF) was below five (Hair et al., 2017). Table 2 indicates the VIFs of all the six first-order constructs was less than five. The finding indicated the absence of full collinearity in the first-order measurement model.

Table 1. Results of measurement model assessment of first-order constructs

Scale	Items	Loadings	CR	AVE
Charismatics leadership	CH1	0.831	0.975	0.765
	CH2	0.893		
	CH3	0.905		
	CH4	0.878		
	CH5	0.908		
	CH6	0.865		
	CH9	0.858		
	CH10	0.871		
	CH12	0.858		
	CH13	0.885		
	CH15	0.875		
	CH14	0.869		
	Individualized consideration	IC1		
IC2		0.833		
IC3		0.891		
IC4		0.874		
IC5		0.851		
IC6		0.790		
Intellectual stimulation	IS1	0.883	0.954	0.873
	IS2	0.953		
	IS3	0.935		
Contingent reward	CR1	0.720	0.908	0.621
	CR2	0.818		
	CR3	0.773		
	CR4	0.805		
	CR5	0.796		
	CR6	0.813		
Active management-by exception	ME1	0.864	0.864	0.680
	ME2	0.857		
	ME3	0.747		
Passive management- by exception	ME4	0.645	0.808	0.587
	ME5	0.836		
	ME6	0.804		

Table 2. Results of discriminant validity of first-order constructs

First order construct	1	2	3	4	5	6	VIF
1 Charismatic leadership	0.875						4.90
2 Individual consideration	0.819	0.852					3.80
3 Intellectual stimulation	0.796	0.770	0.934				3.20
4 Contingent reward	0.376	0.461	0.429	0.802			2.59
5 Active management-by-exception	0.509	0.523	0.508	0.388	0.766		1.62
6 Passive management-by-exception	0.304	0.280	0.252	-0.217	-0.073	0.825	1.48

Note: Square roots of Average Variances Extracted (AVEs) shown diagonally, VIF indicates Variance Inflation Factor.

In the second step, the measurement model was assessed after generating two second-order constructs, namely transformational leadership and transactional leadership. To create the second-order constructs, a two-stage approach recommended by Becker, Klein, and Wetzels (2012) was used when the higher-order construct is formative. In this step, the measurement model was assessed with two second-order formative constructs. The criteria to assess the formative construct were different from the criteria employed for the reflective construct. The VIF, or collinearity between the associated items of formative construct were assessed and should be lower than five. The outer weight of the items should be significant (Hair et al., 2017). Table 3 shows that the VIFs between the associated items of the transformational leadership and transactional leadership constructs were lower than five and the outer weights were significant. The results revealed the establishment of the measurement model for the second-order formative constructs. The first-order constructs were positively associated with transformational leadership and transactional leadership. Notably, charismatic leadership, individualized consideration, and intellectual stimulation have an almost equal beta weight of about 0.36, which is associated with transformational leadership. However, the relationships between two of the first-order constructs of transactional leadership, convergent reward and active management-by-exception were relatively stronger with an outer weight of 0.559 and 0.505, respectively compared to passive management-by-exception. Table 3 shows the low full collinearity of two involved formative constructs, indicating the absence of conceptual overlapping among the constructs.

Table 3. Results of measurement model assessment of second-order constructs

Higher-order construct	Lower-order construct	Weight	p-value	VIF	Full collinearity
Transformational	Charismatic Leadership	0.362	< .001	3.820	1.008
	Individual Consideration	0.359	< .001	3.431	
	Intellectual Stimulation	0.355	< .001	3.084	
Transactional	Contingent Reward	0.559	< .001	1.229	1.008
	Active Management-by-Exception	0.505	< .001	1.177	
	Passive Management-by-Exception	0.330	< .001	1.050	

Note: VIF represents variance inflation factor

A two-stage approach was used to create the third-order IHLC (Becker et al., 2012). The VIFs for the indicators of the IHLC were 1.008 and 1.008 for transformational leadership and transactional leadership, respectively. The VIFs were lower than five and acceptable.

A redundancy analysis was performed to validate the IHLC by examining its relationship with leadership effectiveness. By doing this, a previously published four reflective items of leadership effectiveness was used (Bass, 1985) were used as a reflective simple construct that can represent the same attribute of IHLC as a third-order construct (Judge & Piccolo, 2004). The correlation between the IHLC and the reflective construct with the same attribute should be higher than 0.8 (Hair et al., 2017). The results yielded a beta weight of about 0.81 and significant at .001 level. Result supported the convergent validity of IHLC (Hair et al., 2017).

DISCUSSION

Transformational leadership and transactional leadership are seen as complementary to each other (Bass, 1985) and produce more effective leaders than if solely either leadership style was practiced (Bass & Avolio, 1993). The difference is that transactional leaders use rewards as a control mechanism to carry out an exchange relationship and extrinsically motivate followers,

while in transformational leadership, leaders use rewards too, but as a component of a system to increase followers' commitment and motivate followers by appealing to intrinsic motivation (Rafferty & Griffin, 2004).

This paper aimed to develop and assess an IHLC, including transformational leadership and transactional leadership perspectives. Several previous studies, including Bass (1985) defined two multi-dimensional perspectives of leadership, namely transformational leadership and transactional leadership. Transformational leadership includes charismatic leadership, individualized consideration, and intellectual stimulation whereas the transactional leadership comprises of contingent reward, active-, and passive management-by-exception.

The results supported the distinction of these two perspectives of leadership based on the very low VIFs of these constructs. The significant outer weights as shown in the results supported the proposed third-order integrated IHLC. The result of a redundancy analysis showed the acceptability of this proposed IHLC empirically. These results were consistent with previous studies that identified transformational leadership and transactional leadership to be the two complementary aspects of leadership (e.g., Bass, 1985; Bass & Avolio, 1993; Judge & Piccolo, 2004).

This study assessed transformational leadership and transactional leadership to be the formative second-order constructs. The results identified charismatic leadership, individualized consideration, and intellectual stimulation to be the dimensions of transformational leadership that formatively support this construct empirically. The results of the present study verified an acceptable distinction of these dimensions based on the value of VIF lower than five for each dimension, and an acceptable role of these dimensions to establish transformational leadership by showing significant outer weights. Several previous studies identified charismatic leadership, individualized consideration, and intellectual stimulation to be the different dimensions of transformational leadership (e.g., Avolio et al., 1999; Bass, 1985; Judge & Piccolo, 2004) and the results of the present study were consistent with the results of those previous studies.

Similarly, the results of the current study supported that contingent reward, active-, and passive management-by-exception to be the dimensions of transactional leadership. From a statistical perspective, the low VIFs of these dimensions showed an acceptable distinction, and significant outer weight identified the role of these dimensions to establish transactional leadership. The results are consistent with several existing studies, which identified contingent reward, active-, and passive management-by-exception as the various dimensions of transactional leadership (Bass, 1985). Passive management-by-exception contributes less effective leadership behavior in forming transactional leadership compared to contingent reward and active management-by-exception. The results were expected because contingent reward behavior includes providing praise and recognition and active-management-by-exception, which enforces rules to avoid mistakes with an emphasis on monitoring subordinates' performance can facilitate transactional leadership. However, passive-management-by-exception, which according to Bass and Avolio (1993), a leader waits until performance problems become serious before responding is a reactive behavior and does not involve any explicit exchange process nor provides any intrinsic motivation, discounting it from transactional leadership.

The exclusion of six items of charismatic leadership, namely CH7 (makes me feel good to be around him/her), CH8 (commands respect from everyone), CH9 (makes me proud to be associated with him/her), CH11 (encourages me to express my ideas and opinion), CH16 (encourages understanding of points of view of other members), CH17 (increase my optimism for the future), and CH18 (gives me a sense of overall purpose); as well as one item of Individualized Consideration, IC7 (makes me feel we can reach our goals without him/her if we have to) reflect Malaysian secondary school teachers' perceptions on their respective school

leaders' charismatic leadership and individualized consideration. These results imply a different conceptual meaning of personality characteristics or traits attributed to charismatic and transactional leadership between the Malaysian secondary school teachers and the existing studies that were conducted in a western context (e.g. Avolio et al., 1999; Bass, 1985). The results could be explained as the different structure and context of Asian society in shaping one's leadership behavior compared to western society.

CONCLUSION

In addressing the issues of measurement model misspecification and multicollinearity in leadership literature, this study has conceptualized and assessed IHLC in education context from measurement model theoretical, and methodological perspectives.

Results of the current study have informed a theoretical implication on generating new knowledge regarding a hierarchical perspective of transformational and transactional leadership behavior in educational leadership literature based on an empirical research. Results supported that the conceptualization of IHLC was formed by each dimension of transformational- and transactional leadership, instead of IHLC reflected by the dimensions of transformational- and transactional leadership.

For practical implication, the assessment of the third-order IHLC enabled researchers to conduct future empirical studies that build on its conceptual framework in different education contexts as well as different demographic characteristics, such as ethnicity and gender. Another practical implication of this study is to use this integrated leadership construct to examine the effects of antecedents on integrated leadership construct and the effect of this integrated leadership construct on other factors in a parsimonious way. This subsequently provides a new direction and a different approach into research on transformational leadership and transactional leadership, particularly regarding educational context.

This study has some limitations. The third-order IHLC is conceptualized and assessed based on secondary school teachers as a response-context. This implied the current empirical evidences are contextual based and limited to education context. As pointed out by Willis, Clarke, and O'Connor (2017), different context or environment might call for different transformational and transactional leadership behaviors. As such, the current findings might not able to applicable or generalize to other context. The original work of Bass (1985) was used as this is the first attempt of the current study to investigate the specification of measurement model of transformational and transactional leadership. However, it should take note that Bass and Avolio (1995) short-form of MLQ is commonly used in leadership literature. As such, investigation on measurement model specification of Bass and Avolio's (1995) version is proposed to be conducted in future studies. The current empirical findings could serve as the baseline in comparison with Bass and Avolio's (1995) version in future studies. Moreover, investigation on Bass and Avolio (1995) short-form of MLQ in future studies could fill the lacking of the current study, that is, the exclusion of inspirational motivation dimension of transformational leadership. Bass and Avolio (1995) short-form of MLQ contains the inspirational motivation dimension of transformational leadership. In addition, the explanatory power of the proposed third-order IHLC compared to the individual transformational or transactional leadership remains unanswered and this limitation could be addressed in future studies.

In sum, this study has contributed to the knowledge and method advancement in leadership literature by conceptualizing and assessing the third-order IHLC based on conceptual and empirical grounds in educational context.

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