Validation of Authentic Leadership Questionnaire in Pakistani Context: Evidence form Higher Education Institutions of Khyber Pakhtunkhwa

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Abstract

This study was aimed to investigate the validity of Authentic Leadership Questionnaire (ALQ) in the context of Higher Education Institutions (HEIs) of Pakistan. Although, the ALQ has been used worldwide in different organizational fields, however, little is known about its psychometric features in the context of HEIs. This study is therefore an endure to explore its psychometric features in Pakistani context taking evidences form HEIs of KP, Pakistan. A cross-sectional survey was applied to know about the leaderships style in HEIs of Khyber Pakhtunkhwa-Pakistan. Data were collected from 1437 employees of HEIs through convenient sampling technique. The data were analyzed using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) approaches. A factor loading of .40 was set as the item selection criteria for retaining in the scale. Using Principle Component Analysis (CFA), the four factor structure was assessed. Using Structural Equation Modeling (SEM) through AMOS, the results of this study showed that the four dimensional ALQ is a reliable and valid instrument in HEIs of Khyber Pakhtunkhwa, Pakistan. The construct validity provided evidences concerning applicability of the ALQ in the same context. Based on the findings, it is recommended that the ALQ may be tested in other organizational cultures in Pakistani context to enlarge its scope in other fields of research. Leadership style, associated with working behavior of employees, is considered a significant predictor in the overall organizations' performance.

Keywords: Authentic Learning, Scale Validation, Higher Education

Leadership is a multifarious branch of learning that remained foci of researchers and practitioners for the last many decades (Masuku, 2011; Antonakis, 2011; George, 2015). Researchers have therefore developed its theoretical foundation that further elaborated its recognition and its thoughtful consideration to ensure optimized utilization of the leaders. Each construct and theory of leadership has its own value and their yielding mostly depend upon their best fit utilization. Researchers and practitioners have been struggling since long to introduce such a leadership style that could be utilized at par of every complex situation. The continuous efforts of leadership scholars brought fruit in the form of introducing a new pillar of Authentic Leadership (AL). AL provides favorable working environment in organization wherein followers perform their duty in efficient manner and thus contribute in achieving the organizational goals in successful manner (Oldham, Hackman, & Pearce, 1976; George, 2015).

Successful organizational performance depends upon the relationship of leaders across hierarchical levels (O'Reilly, Caldwell, Chatman, Lapiz, & Self, 2010), but the circumstances under which leaders are able to affect performance are less clear. Team members reciprocate leaders' favorable treatment that increases their emotional attachment with organizations. One of the aspects of effective leadership is to manage team authentically (Wang & Hsieh, 2013). The concept of Authentic Leadership (AL) has, therefore, become focus of researchers in the recent years and it is getting interest both in practical and academic fields (Avolio, Gardner, Walumbwa, Luthans, & May, 2004). Although many studies have been conducted on the emerging style of AL, however little is known about the psychometric features of its measuring instruments especially in Asian context like Pakistan. It is therefore a need of the day to investigate the psychometric features of the Authentic Leadership Questionnaire (ALQ) in order to add to its generalizability in different cultures across the world. This study is an endure to explore the psychometric features of ALO in Pakistani context and to investigate its relationship with the Organizational Citizenship Behavior of employees in Higher Education Institutions (HEIs) of Khyber Pakhtunkhwa, Pakistan.

The consolidated Psychometric features of ALQ has been examined through various samples from Canada, USA, Germany, Norway, China, Taiwan, Iran and Belgium etc. (except India, Pakistan and Bangladesh) wherein found that the ALQ is a validated instrument to tap the

leadership behavior across different culture (Roof, 2014). In order to bridge the gap, Bakari and Hunjra (2017) conducted research in Pakistani context with three different samples from the organizations of health, railway, and higher education and reported the ALQ as a valid and reliable instrument in the context of health sector. In order to reconfirm the aforesaid evidences in Pakistani context and to extend the same to Higher Education Institutions, this study was aimed to investigate the psychometric features of ALQ in HEIs in the Khyber Pakhtunkhwa province of Pakistan.

Literature Review

Authentic Leadership

Authentic Leadership (AL), defined by Luthans and Avolio (2003), is a "process that draws from both positive psychological capacities and a highly developed organizational context, which results in both greater self-awareness and self-regulated positive behaviors on the part of leaders and associates, fostering positive self-development". Authentic leadership is derived from the concept of authenticity and the foundation of authenticity lies upon transparency and trust. These two concepts play a pivotal role in making teamwork effective in efficient manner (Avolio & Gardener, 2006 cited in Lee-Ann Melissa George, 2015). According to multilevel definition, AL includes leader, follower and context (Avolio, Walumbwa and Weber, 2009), and the term AL is defined as "it is a process of leading others in a manner enjoying both positive psychological capacities and a highly developed organizational context. AL is more than just a leadership style as it is based on a system of sound values that align with others and the organization(Bishop, Kent, Plumb, and Rayner (2013). It fully encompasses the characteristics of ethical leadership (leader-centered approach) and further includes the characteristic of fostering authentic followership (Eilam & Shamir, 2005). AL, therefore, has significant impact on many of the behavioral variables of followers related to the development of authentic followership (Gardner et al. 2005). Çeri-Booms (2012) conducted empirical research that indicated a positive correlation between transactional leadership and trust in leaders, moderated by AL.

Bento and Ribeiro (2013) conducted research to know about the perception of the teachers/students about their leaders. Results show that authenticity of leader, in the perception of the subjects inquired, is above the moderate level. AL is comprised of ethical and moral standards of exemplary leadership in view of todays' theorists (Avolio, 2003, Avolio & Gardner, 2005, Brown & Trevino, 2006). Kim (2014) conducted research to investigate the influences of AL on many work related attitude like self-efficacy, empowerment, trustful work-environment, work-engagement, and role-based performance in an organization, found therein a significant affect. Fraser (2014) examined the AL characteristics and behavior on higher education leadership. Findings of the study revealed that communication, self-awareness, openness, and trust are important qualities of leadership. Datta (2015) empirically examined the effectiveness of AL in execution of management and leadership functions of leaders. He concluded that AL leads to effective management and leadership performance in efficient manner. Roncesvalles and Sevilla (2015) conducted research and found a significant effect in the relationship of AL with followers' trust and performance in educational management. AL is a contemporary form of leadership style which takes into consideration positive psychological capacities and highly developed organizational context. AL is multilevel phenomena of leadership style that takes into account the leaders, follower, and context simultaneously.

Dimensions of AL

AL is comprised of the following four dimensions (Avolio and Luthans, 2005):

Relational Transparency: It refers to a leader presenting him/her self to the followers in an honest and sincere manner (Walumbwa et al., 2008). It is the leader's own self exposure in real manner as such rather to be theatrical and fake (Gardner et al., 2011). Hence, authentic leaders express their feelings and their behavior develops a trustworthy environment among their respective followers. According to Goldman and Kernis (2003), Relational Transparency refers to an active process of self-disclosure where trust and sincerity is developed between the employee and the individual. Trusting environment between employees (followers) and employer (leader) is needed for enduring organizational activities;

Internalized Moral Perspective: It refers to adopting a manner by the leaders in which their behavior is steered by their core values, ethics and beliefs regardless of any pressure upon them in challenging situation (Tapara, 2011). Authentic leaders are aware of the core ethical values and they have the ability to instill them in their associates (Luthans and Avolio, 2003) . Authentic

leaders stand upon high level standards of morality and ethicality and hence they are expected of their roles and responsibility. They always act in the best interest of others with greater morality (May, 2004) without compromising on the norms of organizations' standards and ethical value;

Balanced Processing of Information: It refers to analyzing data wholeheartedly in an unbiased manner before making a decision (Walumbwa et al., 2008). Decision made in such a situation is regarded as biased free and universally acceptable. Kernis (2003) defined the term balanced processing of information in smart words stating that it is regarded as pedestal of personal integrity. Unbiased decision requires the internal as well as the external evaluation of data before announcement. To ensure such phenomena, leaders are expected to go through introspection and to obtain viewpoints of others before reaching to the final decision (Avolio and Gardner, 2005);

Self-awareness: It refers to knowing one's own values and strengths as well as knowing the perception of other people by becoming aware of the impact on others (Walumbwa, et al. (2008). Authentic leaders know well about their self-relevant cognitions and endorse the same as such (Legan, 2007) as well as they know about the context and its implication upon them, wherever they work . This dimension of AL plays a very important role in building base for transparency of leaders among the people whom they lead. Transparency is developed when leaders involve their followers to participate and speak openly and leaders have to receive with honor positive criticism from them. Such behavior of leaders would enable them to act consistently and ethically in challenging situations (Walumbwa, et.al., 2008).

Leaders play a crucial role in utilizing the potentials of human resource in organizations' functioning. Researchers, therefore, argued that positive experiences and behaviors of individuals in the workplace promotes the effectiveness and quality of life within the organization (Donaldson & Ko, 2010). In this regard, previous research findings revealed that AL enjoys the essentials of Positive Psychology wherein strengths and virtues of individuals are taken into account rather to focus on their weaknesses. AL stands upon the authenticity that refers to 'to be real' rather to be theatrical. Unlike distorted personality, authentic leaders present their authentic self to others without keeping anything hidden. Leader's relationship with their followers influences their teamwork relationship (Podsakoff et al., 2000) and such phenomena maintain trust and confidence among leaders and followers upon each other. AL provides environment for mutual respect, trust and commitment and such environment develops trusting phenomena for leaders and followers.

The AL is based on authenticity and authentic relationship promotes an open and honest communication between leaders and followers where they openly share common values in the best interest of organization (Avolio & Gardner, 2005). When leaders and followers feel themselves on one page, such phenomena enable them to go ahead towards achieving the organizations' goals and such working environment enhances the authentic relationship between leader and followers (Robins and Boldero, 2003) and resultantly improves the overall organization's performance.

Leaders are the custodians of a society and future of its people are safeguarded by them. Therefore, leaders, of whatever kind, should be a person of proven ability with in-depth knowledge and skills of leading the others on the right track. Leadership gives clear vision and turns people to the right track towards the desired goals. Leadership is an art of inspiring people, enlivening the deceased mind to act creatively for the desired goals. Leadership should be clear handed based on discipline of certain code of conduct. Although leadership in Pakistan has strongest beliefs and quality of unmatched ability. However, history of leadership across the world remained a shady place and the persons on such positions are rumored or endorsed with numerous scandals. Some of the political elites and heads of different organizations/institutions in Pakistan have also been alleged with different kind of scandals including financial, intellectual corruption and immoral behavior. Leader, once endorsed in corruption or/and moral turpitude, loose their authenticity in their respective society. The role of leadership, therefore, remain a central concern in organizational studies in Pakistan and AL having distinct attribute of leader's legitimacy is need of the day especially in developing countries like Pakistan.

AL is an emerging concept in organizational contexts. It has been studied in different organizational context around the world. Authentic Leadership Questionnaire (ALQ) is one of most frequently used measure (Avolio, 2004; Luthans et al, 2007) for measuring the leadership style. Although, ALQ has been used in Pakistani context in different organizational contexts (Al Hassan et al, 2013; Zubair, 2015; Bakari and Hunjra, 2017), however, there is no clear evidence about its use in academic setting at the level of Higher Education Institutions (HEIs). This research study contributes to this gap by testing the four-factor structure of ALQ in the context of HEIs of Khyber Pakhtunkhwa, Pakistan. Following were the main objectives of this study:

1. To explore the psychometric features of the ALQ in the context of Pakistani HEIs of KP using Exploratory Factor Analysis (EFA)
2. To validate the four-factor structure of ALQ by using Confirmatory Factor Analysis (CFA) in HEIs of Khyber Pakhtunkhwa, Pakistan.
3. To assess the Discriminant and Convergent validity of the ALQ in the context of HEIs in Khyber Pakhtunkhwa, Pakistan.

Research Methodology

Design

A quantitative method was used in this research study with a survey design. Quantitative approach (Creswell & Inquiry, 1998) was selected as a suitable in order to explore the perceptions of respondents in the context of higher education of Pakistan. This survey was useful for obtaining comprehensive data from the participants (Brink, 2006). The targeted population was selected from both public and private sector HEIs (Universities) of Khyber Pakhtunkhwa, Pakistan. A survey method was used for being less expensive, time saving and easier to administer (Krejcie & Morgan, 1970).

Population

Population of this research study was comprised of all Higher Education Institutions (Universities) of Khyber Pakhtunkhwa, Pakistan and employees working therein were the units of interest. There were 34 universities (23 public sector and 11 private sector) which were located in seven different administrative divisions of the province (retrieved on October 14, 2017 from the official website of Government of Khyber Pakhtunkhwa http://hed.kp.gov.pk/page/universities). Academic and administrative structure of all universities were the same as they were working under the academic control of the same institution namely Higher Education Commission of Pakistan.   It was therefore decided to select at least one university from each administrative division through purposive sampling technique. Giving due consideration to female and private sector universities, two universities (one each) were added to the target population. Purposive sampling technique was used in order to select those universities from which maximum and accurate responses were expected from the relevant respondents. Of the 23 public sector universities, a 35% sample of eight universities was taken for this study. In addition, one private sector university was also included in the sample. A total of nine (09) universities were selected, at least one from each administrative division, were taken for this research study (Appendix-I).

Sampling

Population of each University was comprised of two classes of employees: 1) Teaching staff like Professor, Associate Professors, Assistant Professors, and Lecturers or equivalent 2) Non-teaching staff like officers bearing BPS-17 & above and support staff from BPS-1 to BPS-16. The population for this study was limited to the following two strata of the Universities' employees:

First stratum consisted of employees having supervisory positions including Deans, Directors/Chairpersons, Principals, Head of Administrative Section or equivalent (hereafter leaders).

Second stratum consisted of employees working under the supervision of heads mentioned above (hereafter followers) wherein included all teaching staff like Professors, Associate Professors, Assistant Professors and Lecturers and non-teaching staff bearing BPS-17 & above or equivalent.

Population i-e leaders and followers in each of the selected university were found going through their respective official websites available at the Government of Khyber Pakhtunkhwa, Higher Education Archives & Libraries Department, Peshawar. Of 2244 total units of interest, a sample of 1437 (64.04%) respondents was selected based on Morgan and Krejcie (1970) method from the available population. Participants were approached through convenience sampling technique. Convenience sampling technique (Dörnyei, 2007) is a non-probability sampling technique that meet certain criteria like easy accessibility, geographical proximity, availability at given time and/or the willingness to participate are included for the purpose of the study (Etikan *et al.*, 2016)

Instrumentation

In order to know about the leadership style at HIEs, the ALQ, developed by Walumbwa and colleagues (2008), was adopted for this research study, after having permission from the copyright owners (mindgarden.com). The ALQ is comprised of 16 items which was used to

measure the leadership style of the respective leaders at HEIs. Response pertaining to the leadership style of the respective leaders were obtained from the participants on five-point Likert scale rating from zero (not at all) to four (frequently, if not always). The ALQ consisted of the following four distinct dimensions:

Relational Transparency (RT) comprises of 5 items like "I say exactly what I mean;

Internalized Moral Perspective (IMP) comprises of four items like "I make decisions based on my core values";

Balanced Processing of Information (BPI) comprises of three items like "I listen carefully to different points of view before coming to conclusions" ; and

Self-Awareness (SA) comprises of four items like "I seek feedback to improve interactions with others".

Pilot Testing

A pilot test was conducted in order to test the questionnaire in the new context. For this purpose, the questionnaire was piloted on 30 respondents. The internal consistency or reliability coefficient of the scale was checked using Cronbach's alpha. The overall reliability of the ALQ was .911. On the strength of the aforesaid reliability of the scale, the same was administered among 1437 employees of different Universities of the Khyber Pakhtunkhwa through direct investigation method. Data were collected through direct investigation method, therefore, 71% (n=1019) properly completed ALQs were received from the participants. The data were analyzed through SPSS (version 21) and both Exploratory Factor Analysis (EFA) and Confirmatory factor analysis were used for determining the validity of ALQ in HEIs context. The EFA was used to assess the factor structure of the scale and CFA was used to confirm the factor model.

Procedure for Validation

This study was conducted in two stages. In phase-I, the questionnaire was piloted. In phase-II, factor analysis was conducted comprising two stages: EFA and CFA. The EFA was done to assess the factor structure of the ALQ. The validation was done in phase 3. For this purpose, CFA was conducted to confirm the four factor hypothesized model based on discriminant and convergent validity testing of the ALQ in HEIs, Pakistan.

Phase I: Exploratory Factor Analysis (EFA)

In this stage, EFA was conducted in order to assess the four-factor structure of 16-item ALQ. The sample included 1019 respondents from HEIs of Pakistan. In order to conduct EFA, first Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity tests were applied as pre-requisites to make sure that the sample is adequate for conducting factor analysis based on the collected data. The analysis was carried out using SPSS version 21.

Table 1. *KMO and Bartlett's Test*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.906
Bartlett's Test of Sphericity	Approx. Chi-Square	1240.813
	Df	120
	Sig.	.000

Table 1 indicated that the KMO test was equal to .90 and Bartlett's Test of Sphericity was found to be significant at 0.000. This showed that the sample was adequate for conducting factor analysis.

Table 2. *Total Variance Explained for ALQ (n=618)*

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.130	44.560	44.560	4.482	28.013	28.013
2	2.072	12.950	57.511	3.132	19.573	47.586
3	1.068	5.672	69.183	2.232	13.949	61.535
4	1.910	6.688	64.870	1.334	8.335	69.870

Table 2 indicates that the overall scale explains 69.87 of the variance. Factor 1 explains 28.013 of the variance in the scale with factor 2, 3 and 4 explaining 19.573, 13.949 and 8.335 of the variance.

Table 3. *Rotated Component Matrix for the ALQ (n=618)*

	Component			
	1	2	3	4
statement1		.706		
statement2		.709		
statement3		.519		
statement4		.732		
statement5			.800	
statement6			.812	
statement7			.576	
statement8	.751			
statement9	.765			
statement10	.733			
statement11	.735			
statement12	.530			
statement13				.438
statement14				.411
statement15				.721
statement16				.532

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations.

Table 3 shows that ALQ is a multi-dimensional scale having four dimensions. The items loaded against four different factors. All loadings were above the cutoff point .40 (Hinkin, 1995). Items *from* 8 to 12 loaded on factor one. Items from 1 to 4 loaded on factor two. Items from 5 to 7 loaded on factor three. Items from 13 to 16 loaded on factor 4.

Table 4. *Descriptive Statistics of all dimensions of ALQ (n=1019)*

Dimension	Number of Items	Mean	SD	Alpha	Skewness	Kurtosis
RT	5	12.595	4.239	.87	.204	-.511
IMP	4	12.4255	2.35807	.72	.257	1.73
BP	3	8.1702	2.36630	.70	.342	-.281
SA	4	10.9787	1.83407	.76	.849	.270

RT: Relational Transparency, IMP: Internalized Moral Perspective, BP: Balanced Processing of Information, SA: Self-Awareness, SD: Standard Deviation

Researchers suggest that the value of Cronbach's alpha (Cronbach, 1951) greater than 0.60 indicate a better reliability (Bagozzi, Yi, and Phillips, 1991, Hair et al., 2010). Table 4 indicates that the alpha reliability of all dimensions in ALQ is above .70. This shows that the reliability of all dimensions are within acceptable ranges (RT=.87, IMP=.72, BP= .70, SA=.84). All other indicators of the sample are also within the acceptable ranges for the 16 items scale.

Phase II: Confirmatory Factor Analysis (CFA)
Confirmatory Factor Analysis is a statistical procedure applied for examining to which extent a given measurement model is valid. It helps the researcher to know about the set of factors which may possibly symbolize data through exploring the data set (Hair, Black, & Anderson, 2010). To confirm the existing 16-item (four dimensional) ALQ, CFA was carried out to confirm the four-factor model identified through the EFA approach in the second phase of this study. In this phase too, same procedure was adopted and followed as mentioned above.

The CFA was run using AMOS version 18. The model was tested based on model fit indices such as Chi-Square, CEMIN df, GFI, AGFI, CFI, TLI, RMR and RMSEA. The indices were modified few times to find model fit based on the data. During this, two items: 1 and 5 were deleted in factor 2 (IMP) due to poor loading. Thus, the measurement model achieved based on the final running is presented in Figure 1.
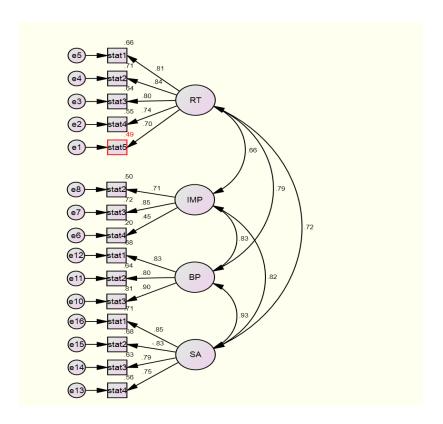
Figure 1: Measurement Model

Table 5. *Fit Statistics based on the Selected Indices in AL Questionnaire*

Statistics	Fitness Indices	Acceptable Threshold Value	Achieved Fit Value
	Chi-square (χ2)	------	
	DF	-----	84
Absolute Fit	CMIN/DF	1.00<CMIN/DF<5.00	1.403
	GFI	.90<GFI<1.00	.988
	RMR	<.050	.065
	RMSEA	0.01<RMSEA<1.00	.035
	NFI	>.900	.926
Incremental Fit	TLI	>.900	.927
	CFI	>.900	.801
Parsimony Fit	AGFI	>.800	.940

Table 5 indicates that the Chi-Square (χ2 = 117.85, df=84 with CEMIN df =1.403) with values of other indices meeting the threshold points (GFI = .988, AGFI =.940, RMR = .065, CFI = .801, TLI =.927, NFI =.926, and RMSEA = .035). The fit indices show that all values are within the acceptable ranges to achieve the goodness of fit (Hair et al, 2010).

Discriminant and Convergent Validity of the ALQ

Discriminant validity is a procedure used for knowing the distinctiveness of a construct from another one (Kiratli et al., 2016) and the same is used for getting insights about the four

constructs of the ALQ. This study adopted the laid down procedure of Fornell and Larcker (1981) wherein suggested that "the square root of the focal construct's average variance extracted should exceed its correlation with related constructs" (Kiratli et al., 2016). This study also measure the convergent validity of the ALQ. It is a measure to evaluate the shared variance among variables. In order to measure the convergent validity of the ALQ, each item of the scale is taken as different approach to measure the construct and to know whether all items converge on the same construct (Kiratli, Rozemeijer, Hilken, de Ruyter, and de Jong, 2016, p.6). Strength and direction of the factor's loading indicate that all values of the factor loading are positive and greater than the threshold cut off vale .50 as well as statistically significant (p<.05) indicating the existence of convergent validity. The value (.40) of a factor loading also comes within the acceptable range as per criteria of Cua, McKone, and Schroeder (2001). The values of AVE being above .50 as an acceptable level (Fornell & Larcker, 1981) as shown in Table 6 provides evidence convergent validity in the context of Pakistan.

Table 6. *Discriminant and Convergent Validity for ALQ*

Dimensions	CR	AVE	RT	IMP	BP	SA
RT	0.725	0.522	0.782			
IMP	0.823	0.541	0.671	0.772		
BP	0.712	0.582	0.942	0.652	0.824	
SA	0.732	0.563	0.734	0.851	0.731	0.752

CR= composite reliability; AVE= average variance extracted
RT: Relational Transparency, IMP: Internalized Moral Perspective, BP: Balanced Processing of Information, SA: Self-Awareness, SD: Standard Deviation

Table 6 indicates that square root for AVE is larger than the inter-construct correlation of each of the variable. The values of inter-constructs are lower than .85 providing the evidence for discriminant and convergent validity for the scale (Hair *et al.*, 2011).

Discussion

The main aim of this study was to validate the ALQ in the context of HEIs in Khyber Pakhtunkhwa, Pakistan. Although, the scale has been used within Pakistan (Abid *et al.*, 2012; Zubair, 2015; Bakari and Hunjra, 2017) and outside (Jensen & Luthans, 2006; Rego *et al.*, 2012) in different organizational fields, however, in this study we report about the validation of ALQ in the context of HEIs, Pakistan. Most of the previous studies have examined the ALQ in organizational fields other than education (Giallonardo *et al.*, 2010; Wong & Laschinger, 2013; Wong *et al.*, 2010). This study examined the four factor structure of ALQ using both EFA and CFA approaches based on Structural Equation Modeling (SEM). For this purpose, the existing model was tested and thereafter, assessed the model fit through CFA approach. During assessment one item was deleted from the second dimension of ALQ (i-e IMP 1) due to poor loadings. The model assessment showed that the hypothesized four-factor model of ALQ structure well fitted across the data. Resultantly, it can be concluded that the four-factor model is a valid and reliable scale for assessing the leadership style with reference to AL in the HEIs. The findings of this study support the results of previous studies on the validity and reliability in other contexts. The scale can be used for assessing the leadership style in other educational institutions in Khyber Pakhtunkhwa, Pakistan. The scale can also be used for modifying the leadership style of leaders and managers aiming at improving leadership roles in the context of HEIs and others alike institutions.

This study could not compare the results with previous research in the context of higher education as there were no solid evidences for such type of studies in the public university sector in KP. Due to this reason, further research is needed for comparing not only the four-factor model rather such studies should also take into consideration the gender roles which might produce more interesting results as there is always a wider difference among gender perceptions in the context of Pakistan. The results of this study supported the multi-dimensionality of the ALQ in the context of Pakistan and further encourage researchers in the field of higher education to test the scale in order to get more robust results.

Conclusion

The findings of this study support the usefulness of ALQ as a brief, valid and reliable scale. The scale could be used in order to test the leadership style of leaders in the context of HEIs in Khyber Pakhtunkhwa and the same may be extended to other HEIs across the country. The current study testified the valuable model of ALQ in HEIs. Therefore, it can be concluded that the four-factor ALQ is a useful instrument for measuring leadership practices at higher education level in the context of Pakistan. The results of this study may be used at par in the public and private sector universities of Khyber Pakhtunkhwa, Pakistan for evaluating as well as improvement of leadership practices. The existing ALQ is recommended to be tested in other organizational contexts.

Limitations

This study was conducted with a data collected from public and private sector universities in Khyber Pakhtunkhwa province of Pakistan which has a typical socio-cultural and linguistic environment. Hence, the results cannot be easily generalized to others parts of the country. The same data was used both for assessing the factor structure using Principle Component Analysis (PCA) and further tested by using CFA approach which may be less informative. Hence, it is suggested that future studies should use separate data set for assessing the factor structure and then testing the construct validity of the scale. It was impossible to overcome respondents' biases while answering the questionnaire as the data was self-reported that also limits the validity of the data.

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Appendix-I

List of Selected Universities Khyber Pakhtunkhwa, Pakistan

S.No	University	Location		Estt:	website
		District	Division		
1	University of Peshawar	Peshawar	Peshawar	1950	http://www.uop.edu.pk
2	Gomal University, DI Khan	D.I Khan	D.I Khan	1974	http://www.gu.edu.pk
3	University of Malakand	Lower Dir	Malakand	2001	http://www.uom.edu.pk
4	Kohat University of Science and Technology	Kohat	Kohat	2001	http://www.kust.edu.pk
5	University of Science and Technology, Bannu	Bannu	Bannu	2005	http://www.ustb.edu.pk
6	Abasyn University Peshawar	Peshawar	Peshawar	2007	http://www.au.edu.pk
7	Abdul Wali Khan University	Mardan	Mardan	2009	http://www.awkum.edu.pk

8	Shaheed Benazir Bhutto Women University, Peshawar	Peshawar	Peshawar	2012	http://www.sbbwu.edu.pk
9	Abbottabad University of Science and Technology	Abbottabad	Hazara	2015	http://www.aust.edu.pk