Teacher Academic Optimism: A Preliminary Study Measuring the Latent Construct

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Present study aimed at exploring whether academic optimism exists as a general latent construct comprising teacher self-efficacy, teacher trust in parents and students, and teacher emphasis on academics. During first phase of the study Teacher Academic Optimism Scale-Elementary (TAOS-E; Beard, Hoy, & Woolfolk Hoy, 2010) was used. The data was collected from primary school teachers of Islamabad (N=243). The Confirmatory Factor Analysis (CFA) showed an acceptable model fit, with low reliabilities of the two subscales i.e., Teacher self-efficacy, Teacher trust in parents and students and Academic emphasis, .38, .70 and .37 respectively, with full scale reliability of .48. Therefore, it was decided to revise the instrument in order to improve its reliability. Exploratory Factor analysis (EFA) was performed on the same data which resulted in a meaningless factor structure. During second phase of the study, through literature review and discussions with teachers the instrument was revised, and put to test on a sample of teachers (N=201). The final scale comprised of 25 items with good reliability (α=.91).

Key words: academic optimism, exploratory and confirmatory factor analysis, dispositional optimism, school teachers

Teacher beliefs and attitudes have profound impact on their role as a teacher. Teacher beliefs serve as a guide for their thoughts and actions that is also reflected in their teaching practices and other job related attitudes. Academic optimism is one such belief that emerged from emerged from studies in the fields of education and psychology. Academic optimism is defined as a, teacher's trust in parents and students about their studies, self-efficacy to get over the related problems, meanwhile emphasizing academics to help students succeed (Hoy, Tarter, & Woolfolk-Hoy, 2006).

The construct of academic optimism has its theoretical underpinnings in Bandura's social cognitive theory, Coleman's social capital theory; Seligman's learned optimism and Hoy and his colleagues' studies on culture and climate of the schools. This construct has been studied as an individual teacher characteristic (Beard, Hoy, & Woolfolk Hoy, 2010; Woolfolk Hoy, Hoy, & Kurz, 2008) and also as the property of the school (Hoy et al., 2006; Hoy, 2002; Hoy & Miskel, 2008; McGuigan & Hoy, 2006). However at both levels, the theoretical underpinnings and its components remain the same—only difference being that the unit of analysis is either the individual teacher or the school. Following is a brief description of each component of teacher academic optimism:

Teacher Self-efficacy

Based on social cognitive theory (Bandura, 1997, 2006) teacher self-efficacy may be conceptualized as individual teacher's belief in his/her own ability to plan, organize, and execute actions that are required to achieve desired educational targets. Whenever, individuals take an action they reflect on it and change their future course of action in the light of what they know from their experience. According to Tschannen-Moran, Woolfolk-Hoy, and Hoy (1998), self-efficacy is a teacher's judgment of his or her capacity to bring about desired outcomes, of student engagement and learning, even among those students who are difficult or unmotivated. Self-efficacy beliefs are developed by four sources: mastery experience, vicarious experience, verbal persuasion, and physiological state (Alderman, 1999; Bandura, 1986; Dweck & Leggett, 1988; Maehr & Pintrich, 1997).

If a teacher believes he /she has the capacity to affect student learning, he/she sets higher standards, puts in more effort, and acts with resilience when things get difficult (Tschannen-Moran & Hoy, 1998). So it makes sense that teacher sense of efficacy has been found to be related with student academic achievement (Ashton & Webb, 1986; Ross, 1992; Woolfolk Hoy, Davis, & Pape, 2006).

As far as teacher related outcomes are concerned, teachers with high sense of efficacy are more satisfied with their job (Trentham, Silvern, & Brogdon, 1985), they demonstrate more commitment (Trentham, et al. 1985), and have lower absenteeism rate (McDonald & Siegall, 1993). According to Tschannen-Moran and Woolfolk Hoy (2001), teacher efficacy is related to many educational outcomes, such as teachers' persistence, enthusiasm, commitment, and instructional behaviors, as well as student related outcomes such as achievement, motivation, and self-efficacy beliefs.

Teacher trust in parents and students

Hoy et al. (2006) defined trust as, an individual's vulnerability to another person in terms of the belief that the other person would act in his/her best interests. A trusting relationship includes feelings of honesty, benevolence, reliability, openness, and competence (Goddard, Salloum, & Berebitsky, 2009; Hoy & Tschannen-Moran, 2003). These five

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characteristics together make up the construct of faculty trust, which has been found in both elementary (Hoy & Tschannen-Moran, 2003) and high schools (Smith, Hoy, & Sweetland, 2001).

If teachers trust their students—that they have the capability to benefit from teachers efforts, they have openness to learn from the educational experiences and they are honest, it is only then a trusting (between teacher and student) relationship is nurtured. If teacher trust their students only then they are able to set high expectations for students and look up to parental support in their quest (Tschannen-Moran, 2004).

Forsyth, Barnes, and Adams (2005) found that a trusting environment is predictive of internal school conditions and consequences. Trust appears to be very important for developing positive relationships with the students. If a teacher trusts students, it helps in creating an environment where students are more likely to challenge their (own) capabilities and learn from their previous errors. According to Adams, Forsyth, and Mitchell (2009) this influences students' academic achievement and often makes parents think that the best interest of the students keeps the teachers motivation high to work harder.

Fullan, Bertani, and Quinn (2004) after conducting a meta-analysis of several studies identified 'trust' among several other factors that are crucial for school effectiveness. Furthermore, they elaborated that school cultures with high levels of trust creates such environment where people are motivated to realize fullest of their potentials, and persist which eventually leads to success. Whereas, in environments with low levels of trust people are less likely to be motivated enough to engage in rigorous efforts.

Teacher emphasis on academics

Academic emphasis interchangeably is often also called as academic press. Purkey and Smith (1983), and Fisher and Berliner (1985) have referred to academic emphasis as a teacher's ability to maintain the students' focus on the academic activities along with being involved in social tasks. Academic emphasis is believed to be characterized by high but achievable academic goals, orderly and serious learning environment, motivation for students to work hard, and a respect for academic achievement (Hoy & Miskel, 2008). Academic emphasis should expand the time students spend successfully and actively engaged in academic tasks, which relates positively to student learning (Woolfolk-Hoy, 2007).
Weinstein and Magnano (2007) consider that academic learning time is important for students because the time they spend successfully and keenly engaged in academic activities is related positively to student achievement and learning. However, usually students spend only small amount of the school time on tasks that involves academic learning. Effective teachers always make sure that their students are actively engaged in suitable learning tasks so much so that their time in school is productive (Woolfolk-Hoy, 2010).

Lee and Bryk (1989) also connected achievement with academic emphasis, another component of academic optimism, followed by other studies that had similar findings (Goddard, Sweetland, & Hoy, 2000; Hoy & Miskel, 2008; Hoy, Tarter, & Kottkamp, 1991). In their study Licata and Harper (1999) found that a healthy school-level emphasis on academics had a significant effect on the overall health and environmental robustness of the school. In fact, Wang (as cited in Vanhoff, 2012) conducted an analysis studies on school effectiveness and found academic emphasis is one of the school characteristics that has been frequently linked to student success.

Relationship between Three Components of Teacher Academic Optimism

The three major dimensions of teacher academic optimism are functionally dependent on one another. Teacher trust in parents and students promotes a sense of teacher efficacy, and a sense of teacher efficacy develops and strengthens trust. So, when the teacher trusts parents, he or she sets high academic standards with the confidence that they will not be challenged by the parents, and high academic standards in turn reinforce the teacher's trust. Therefore, when a teacher believes she or he has the capability to effect student achievement positively, the teacher stresses upon high standards of academic achievement which in turn enhances the teacher sense of efficacy. In sum, all the components of academic optimism interact with each other to create teacher sense of academic optimism. Furthermore teacher self-efficacy, trust in parents and students and academic emphasis are considered as cognitive, affective and behavioral dimension of the construct of academic optimism. The construct of academic optimism has never been studied in Pakistan before, therefore the present study aims to find out the following:

Objectives:

1. To examine that teacher academic optimism exists as a latent construct—comprised of teacher self-efficacy, trust in parents and students, and academic emphasis or not.
2. To establish the psychometric properties of the measure for teacher academic optimism.

Method

The present research comprised of two phases, (i.e., phase I and phase II). Each phase was further completed in several steps:

Phase I

Comprised of three steps (1) Review of teacher academic optimism scale-elementary (TAOS-E) (Beard, Hoy, & Wool-folk Hoy, 2010) (2) Translation of the instrument (3) Try out of the translated scale (4) Confirmatory factor analysis of TAOS-E (Urdu).

Literature Review & review of teacher academic optimism scale-elementary (TAOS-E)

In this step the literature review relevant to the variables construct, along with a review of the development of the teacher academic optimism scale was carried out.

Translation of the TAOS-E

During this step of the study the TAOS-E was translated into Urdu. TAOS-E was given to five principals (of primary schools), five teachers and one educationist to check for the relevance of the statements with respect to schools in Pakistan. After this review it was decided that all the statements in TAOS-E could be used in the study as these were relevant to schools in Pakistan. Furthermore, it was suggested by the teachers and educationists that the instrument should be translated into Urdu. Therefore, TAOS-E (Beard, et al, 2009) was translated into Urdu. The method of back translation was used for this purpose. For more accurate results bilinguals were requested to provide as much precise translation as possible. They were requested to translate the items into Urdu such that it would convey the same meaning as the original instrument. All the items were retained in their original form. On the basis of the responses, the closest translation with highest frequency was selected. To check the authenticity of Urdu translation it was back translated into English. The back translation technique has been recommended by Rosen (1950), Brislin (1970), and Thorndike (1973). Two psychologists evaluated translation and back translation. All the items that conveyed similar meanings in both versions of the instrument were accepted and the scale was finalized.

Try out of the TAOS-E (Translated) This step comprised of tryout of the translated TAOS-E. Details are as follows:

Sample

The sample of phase I of the study comprised of primary school teachers (*N*=243) from federal capital Islamabad. The mean age of the teachers was 38.5 years (*SD*=8.7). Mean education of the teachers was 14 years. 101 teachers had education level up to Masters (41.6%), 110 teachers had BA/BSC degree (45.3%), 23 teachers had education level up to FA/F.Sc. (9.5%). Whereas, 9 teachers had education level up to Matric (3.7%). The mean professional experience of the teacher was 13.5 years. The data was collected from the schools in G-sector, F-Sector and I-Sector. The mean monthly income of the sample was Rs.22784 per month. The sample comprised of female teachers only as it is FDE's policy to appoint female teachers at primary school level in schools located in urban areas of Islamabad.

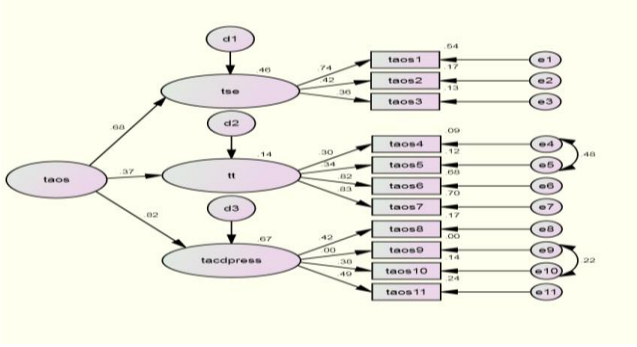
Procedure

For administering the questionnaire teachers were approached in the schools, during school hours. The headmistresses were requested to allow the researcher to meet teachers in person. In some schools researcher was allowed to meet the teachers and distribute the questionnaire amongst them. This helped the researcher in gaining insight into the teachers' comprehension of the items in the questionnaires. However, in some schools researcher was asked to leave the questionnaires with the administration to be distributed and filled in by the teachers during their free time.

Confirmatory Factor Analysis of TAOS-Urdu

In order to test that the teacher academic optimism is a construct based on three factors i.e., teacher self-efficacy, teacher trust in parents and students and teacher academic emphasis, a confirmatory factor analysis was done. When the model was tested without constraining item number 9, model fit was achieved but factor loading for teacher academic press on teacher academic optimism remained non-significant. However, after constraining item number 9 to 0 model fit was achieved and the contribution of the teacher academic press became significant with a factor loading of .82 (see figure 1).When testing for second order model, error covariances were allowed, all the factor loadings became significant and goodness of fit indices were improved. Specifically, the goodness of fit indices for the tested model included a, χ2 *(*Chi-Square) test score of 60.32 with *df*=40 that was significant (*p*=.02). The Root Mean Square Error of Approximation (RMSEA) was .05, which is within acceptable limits for a good fit. Likewise the Root Mean Square Residual (RMR) was .05 indicating an acceptable fit. Finally the Goodness of Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI) were .95 and .92 respectively, offering further evidence of an acceptable fit for the tested model. Also, CFI and TLI were .93 and .91 respectively.

Figure 1. CFA for Teacher Academic Optimism Scale



Note. (taos=teacher academic optimism; tse=teacher self-efficacy; tacdpress= teacher academic press)
All the factor loadings are significant at .001.

Alpha reliability for the 10 items of TAOS-E was .58. For the sub-scales teacher self-efficacy, teacher trust in parents and students and teacher academic emphasis alpha coefficient was computed as .37, .70 and .38 respectively. Although the reliability coefficients fall within acceptable range but two subscales (i.e., teacher self-efficacy and academic emphasis) had low reliabilities. Therefore, it was

decided to revise the instrument in order to improve its reliability.

Phase II

This phase of the study was intended to improve the reliability of Teacher Academic Optimism Scale-Elementary (TAOS-E) that was translated into Urdu during Phase I. The teacher academic optimism scale was re-assessed for the reason of the low reliabilities of the 11 item scale, although the CFA showed acceptable model fit (after deleting item number 9). Exploratory Factor Analysis (EFA) using the same data (*N*=243) did not result in any meaningful solution. It was concluded that may be for the specific educational settings of Pakistani schools the scale doesn't have sufficient indicators that could measure the construct (academic optimism). Subject experts were also consulted. So it was decided to revise the instrument by adding more items to the existing instrument.

Revision, development and validation of Teacher Academic Optimism Scale

This work was carried out in three steps (1) Translation of existing scales, as used in the studies which initially explored individual teacher academic optimism b. Literature review and writing the new items (2) Selection of items through committee approach (3) EFA and ascertaining psychometric properties.

Literature review and generation of the item pool

For this purpose the development of TAOS-E (Beard et al., 2009) was studied in detail. Initially the academic optimism was identified as a school characteristic and later on it was studied as an individual teacher level characteristic. As mentioned earlier, the methodology adopted by the researchers who have previously worked on the construct was studied. It was decided that for measuring Teacher self-efficacy (TSE) Ohio state Teacher Self-Efficacy Scale (TSES, short form) (Tschannen-Moran & Hoy, 2001) could be used since the instrument has been widely used and has already been translated into several different languages i.e., Chinese, Arabic etc. for translation of TSES method of back translation was followed.

For measuring teacher trust in parents and students a sub-scale of Omnibus Trust Scale (Hoy & Tschannen-Moran, 2003) i.e., teacher trust in parents and students was translated. More items were added to this in order to add the indigenous perspective of trust to it. For teacher academic emphasis a sub-scale of Organizational Climate Index (OCI; Hoy, Smith, & Sweetland, 2002) was translated into Urdu Language. Back translation technique was used for this purpose. Altogether 12 items from TSES, 8 items for teacher academic emphasis and 10 items from omnibus trust scale were translated into Urdu language.

Along with this more items were added on the basis of the discussion with the teachers in the primary schools. Teachers were asked about their understanding of the construct of 'academic optimism' keeping in mind the three dimensions of the construct. Generally the teachers agreed that the teacher efficacy, trust and emphasis on academics are important in making a teacher academically more optimistic. 20 items were written after these discussions were completed, resulting in an item pool, of 50 items. This item pool was reviewed by 5 experts, who reviewed it on the following criteria:

a. Relevance of items according to the construct.
b. Clarity in the statements.
c. Non-repetitive items.

After this expert review several statements were re-written and modified. Whereas, some ambiguous items were eliminated, overall 39 items were put to test.

Try out of TAOS-Revised (Urdu)

This final version was tested on a sample primary school teachers (*N*=201) from federal capital Islamabad. The mean age of the teachers was 39.5 years (*SD*=9.2). Mean education of the teachers was 14 years (*SD*=7.2). 102 teachers had education level up to Masters (50.7%), 77 teachers had BA/BSC degree (38.3%), 19 teachers had education level up to FA/F.Sc. (9.5%). Whereas, 3 teachers had education level up to Matric (3.5%). The mean professional experience of the teacher was 14.9 years. The data was collected from the schools in G-sector, F-Sector, I-Sector and Barah kahu. The mean monthly income of the sample was Rs.20000 per month. The sample comprised of female teachers only.

Exploratory Factor Analysis (EFA) of TAOS-Revised (Urdu)

EFA was carried out to determine the factor structure and to test the dimensionality of the initial form of TAOS-R. Bartlett's test of sphericity and Kaesier-Meyer-Olkim (KMO) measure was computed for verification of data fit for factor analysis. According to these results value of KMO was .842 for TAOS-R and Bartlett's test of Sphericity had a value of 2965.63 (*df*=630). As these values were significant ($p \leq .00$), so data was considered appropriate for factor analysis. As, Kasier (1974) recommends that KMO value close to 1 indicates that patterns of correlations are relatively compact, so factor analysis should yield distinct and reliable factor results. So, EFA was carried out on the 39 items of TAOS-R.

Since literature review suggested that the presumed set of three variables comprising teacher academic optimism are correlated to one another. Therefore, an oblique rotation was tried with the intention to retain the factors having Eigen values greater than one (1). But this resulted in less meaning full factors having 2 to 3 items only. Scree plot suggested retention of 3 factors. When the number of factors was limited to 3, it was only then a meaningful grouping of item was achieved. Hence, three factor solution explaining 41.2% of variance was retained.

Table 1
Factor Loadings, Eigen values and Percentage Variance Explained by the Extraction Sum of Squared Loadings TAOS-R (N=201)

Sr. No.	No. of items	Factor I	Factor II	Factor III	h^2
1	3c	.82			.64
2	10c	.74			.57
3	6c	.69			.55
4	8c	.67			.56
5	1c	.63			.52
6	2c	.60			.56
7	7c	.57			.56
8	4c	.56			.35
9	11c				
10	12c				
11	6b		.68		.43
12	10b		.67		.54
13	4b		.64		.44
14	5b		.62		.43
15	9b		.60		.38
16	8b		.60		.42
17	1b		.58		.33
18	12b		.54		.41
19	11b		.51		.41
20	3b		.51		.38
21	7b				
22	2b				
23	13c				
24	16c				
25	23c			.70	.47
26	20c			.70	.52
27	22c			.64	.51
28	19c			.60	.54
29	21c			.55	.54
30	24c			.54	.40
31	25c			.54	.35
32	26c			.47	.47
33	18c			.45	.28
34	17c				
35	14c				
36	5c				
37	9c				
38	15c				
39	27c				
Factor I	Eigen values	9.82	3.14	1.87	
Factor II	Percentage of variance	27.29	8.74	5.19	
Factor III	Cumulative percentage	27.29	36.03	41.23	

Therefore, 1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 25, 26, 27, 28, 29, 30, 31, 33 were retained on the basis of factor loadings .5 or greater. 8 items for teacher trust in parents and students, 10 items for teacher self-efficacy, and 7 items for teacher emphasis on academics were retained. Altogether 25 items were retained for TAOS-R. The communalities for most of the items were between .4 and .6 which is well within acceptable range, whereas a few items had communalities of .2 and .3 (see table 1).

Table 2
Reliability, Inter-subscale and subscale-total correlations of Teacher Academic Optimism Scale-revised (TAOS-R) (N=201).

Scale	α	*M*(*SD*)	Trust	Eff	Acdpress	TAOS
Trust	.88	33.9(6.0)	-	.41**	.61**	.86**
Eff	.84	41.5(4.5)		-	.37**	.70**
Acdpress	.84	30.6(5.2)			-	.82**
TAOS	.91	105.8(12.6)				-

p≤.001;
Note. Trust=Teacher trust in parents & students; Eff=Teacher self-efficacy; Acdpress=Teacher emphasis on academics; TAOS=Teacher academic optimism scale.

All the values of the correlation coefficient lie well within acceptable range. The alpha reliability for the three subscales and TAOS-R, ranges between .84 and .91, which is sufficiently high (as compared to the previous version i.e., TAOS-E).

Convergent Validity of TAOS-R

In order to establish the convergent validity for TAOS-R, a Pearson product moment correlation was computed between dispositional optimism scale (Schiever & Carver, 1994) and TAOS-R. The value of correlation coefficient was found to be .30 (*p*<.001). This result is consistent with the findings in previous researches (i.e., Beard et al., 2010, Woolfolk-Hoy et al., 2008) that there exists a positive relationship between teacher academic optimism and their dispositional optimism.

Discussion

Although several researchers have examined academic optimism as a property of the school, but academic optimism at the individual teacher level emerged only recently. Since the construct has never been studied in Pakistan before, the present research aimed at exploring whether Teacher academic optimism made up of three components namely teacher self-efficacy, teacher trust in parents and students, and teacher academic emphasis, has similar meaning to teachers in Pakistani primary schools. The measure TAOS-E developed by Beard, Hoy and Woolfolk Hoy (2009) was tested. CFA was carried out, although a model fit was achieved, but scale had low reliabilities for the two subscales i.e., teacher self-efficacy and teacher academic emphasis. When EFA was carried out on the same data it resulted in a meaningless structure.

These findings are similar to Yildiz and Ozer (2012) study, who used Academic Optimism Scales (AOS) for Schools and for Teachers Forms with a sample of Turkish teachers. They have reported high test-retest reliability coefficients and low internal consistency coefficients for Turkish versions of teacher and school academic optimism sale. Furthermore, in CFA a satisfactory model fit was not achieved. Whereas

when an EFA was done the items did not load on the factors as previous researches have indicated.

Once the revision of TAOS Urdu was undertaken it was decided to work on the full scale. When EFA was done on TAOS-revised version it revealed that teacher self-efficacy, trust in parents and students, and academic emphasis do make up the latent construct of individual teacher academic optimism. However, teacher trust in parents and students explained the largest amount of variance (27.2%), followed by teacher self-efficacy (8.74%) and teacher academic emphasis (5.19%). This factor structure matches the theoretical structure put forward by the previous researchers. The revised version of the instrument had improved reliability for all the three subscales and for the full scale.

Limitations & Suggestions

The sample comprised of only female teachers, teaching in schools located in the urban area (of federal capital Islamabad). Confirmatory factor analysis should be done in order to provide further evidence of the validity of the instrument.

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