Determining Variances of Teacher Performance Explained by Gender and Teacher Efficacy Variables

Menna Olango[1] and Adamu Assefa[2]

Abstract: This study is conducted to determine the variations in teacher performance variables explained by gender and teacher efficacy variables in the context of university teaching. Descriptive survey data are obtained from 183 (164 male, 19 female) teachers from eight faculties through a close-ended questionnaire and adopted teacher efficacy scales. ANOVA and t-test are employed to compare means; regression procedures are used to analyze direct and indirect effects of gender and efficacy variables on teacher performance scores. The results suggest that the level of perceived teacher efficacy in the university is high with significant difference among faculties/colleges. Significant gender difference is observed only on instructional strategies, reflective responses efficacies, and students' rating of teacher performance. Gender has significant direct effect on instructional strategies and reflective responses efficacies. But all indirect effects of gender on performance and efficacy variables are not significant. Student engagement and academic advising efficacies have positive and significant direct effect on department heads' evaluation scores. Instructional strategies and academic advising efficacies have positive and significant effect on student engagement. In sum, the sense of teacher efficacy has considerable effect on teacher performance as depicted by students' evaluation. Nevertheless, for further insight into the relationship between teacher efficacy and teacher performance thorough procedures of teacher evaluation are suggested. Some recommendations for building capacity of young staff are also forwarded.

[1] Associate Professor, Hawassa University
[2] Lecturer, Hawassa University

Introduction

One's belief about the level of competence he or she expects to display in a given situation in order to perform a given task is his or her perceived self-efficacy. This belief intervenes how much effort one puts forth, how long he or she will persist in the face of obstacles, how resilient he or she is in dealing with failures, and how much stress or depression he or she experiences in coping with demanding situations to perform the task (Bandura, 1997, 1996). In part, such self-perceptions can be better foretellers of working behavior than actual ability because they are influential in shaping what individuals do with the capability and understanding they have. The *mediational* role these self-beliefs play also helps explain why people's accomplishment may vary when they possess similar abilities and skills (Pajares and Miller, 1995).

Efficacy influences the diligence teachers place on the teaching and learning process. Teachers devise goals for student activities and act on the basis of the strength of their sense of efficacy. Studies indicate that teachers with greater efficacy show greater level of planning and organizing of their instruction with enthusiasm (Allinder, 1994), are less critical to students' errors (Ashton and Webb, 1986), work longer with needy students (Gibson and Dembo, 1984), and are more likely to stay in the teaching job (Burley et al, 1991).

Little data exists about how efficacy beliefs change or go hard across different phases of a career. A study discovered that teachers at later periods in their career have an inferior sense of efficacy (Brown and Gibson, 1982). Another study found out that there are no variations across career phases among excellent teachers (Pigge and Marso, 1993). A number of researches on the efficacy of pre-service teachers indicated that efficacy changes as they acquire proficiency (Guyton and Byrd, 2000).

Due to the enormous expansion of higher education in Ethiopia, shortage of qualified and experienced teachers is an obvious threat to the delivery of quality education in colleges and universities. Hawassa University shares this concern because it has increased its annual intake to over 7000 students in the regular program alone and most of its teaching staff is at lower career stage. While providing continuous professional development for young teachers through post-graduate studies and short term trainings is an appropriate response to the challenge, improving working conditions through motivations and enhancing teachers' efficacy could mitigate teacher stress and strengthen their performance.

Although there are research efforts that investigated effects of gender and self-efficacy factors on student achievement (Pajaris and Schunk, 2001, Yalew, 1997; Pajares, 1996a and 1996b), local researches in this area are inadequate. Hence, investigating the effects of the affective factors like teacher efficacy on teaching performance may provide essential and crucial information for academic leaders in teacher development efforts.

It is true that contemporary motivation researchers and educators accept the broad application of self-efficacy across various domains of teacher behavior. In spite of the fact that there are efforts to provide helpful dimensions of teacher efficacy internationally, there is an apparent paucity in local research output in the area of teacher efficacy as it relates to teacher performance. The indirect influence of gender in this relationship is also not clear. There exist scarce empirical studies of teacher self-efficacy concerned with instructional practices and teacher performance in the Ethiopian context. It is essential to understand how teachers' conviction that they can do their tasks could influence how well students learn and enhance their performance.

A closer look into those teacher behaviors that relate to engaging students in self-regulated learning would benefit both teachers and academic leaders in promoting teacher performance as well as student

achievement. Teachers need to be assertive in classroom instruction and student advising. This seems to be possible through continuous teacher development and enhanced teacher efficacy. The purpose of this study is thus to determine the relative impact of gender and the different dimensions of teacher self-efficacy on teacher performance as evaluated by students, peers and heads of departments in Hawassa University.

The results of this study may suggest ways of enhancing teachers' skills through enhanced efficacy, which would be valuable for academic leadership, counseling and mentoring of newly recruited teachers.

This study attempts to address the following issues:

- factor structure of the teacher efficacy data and how consistent it is with that reported in the literature;
- levels of perceived efficacy of teachers in Hawassa University;
- differences in teacher efficacy and performance based on gender and teaching subject area differences; and
- gender and teacher efficacy variables direct and indirect effects on teacher performance and the levels of effects.

Literature Review

Self-efficacy theory is one of the few conceptualizations of human control that describe a distinction between competence of the human agent and contingency. While competence is the agent-means relationships (e.g. I can do the actions), contingency is the means-ends relationships (e.g. the actions will result in certain outcomes) (Skinner, 1996; Rotter, 1966). Rotter laid the theoretical base of the concept of locus of control by elaborating control of reinforcement as internal control versus external control. However, Bandura (1997) demonstrated empirically that perceived self-efficacy is distinct from internal-external locus of control. Perceived self-efficacy is concerned with beliefs about whether one can perform a certain task, whereas

locus of control is concerned with beliefs about whether actions produce outcomes. Thus, perceived self-efficacy is a stronger predictor of human behavior than Rotter's idea of internal-external locus of control.

The study by Schwarzer, Schmitz and Tang (2000) revealed that one domain where specific self-efficacy is applied is teaching in schools. Why do some teachers succeed in continuously enhancing students' achievements, in setting high goals for themselves, and pursuing these goals persistently, while others cannot meet expectations imposed on them and tend to collapse under the burden of daily stress? There are many reasons, one of which pertains to a teacher's perceived self-efficacy as a job-specific behavior. Teacher's perceived self-efficacy is becoming one of the most valuable psychological constructs in the field of teacher education.

Even though teacher efficacy was first conceived as the extent to which teachers believed that they could control the reinforcement of their actions (Rotter, 1966), it was later identified as a type of self-efficacy, as a cognitive process in which a teacher constructs beliefs about his/her capacity to perform at a given level of teaching effectiveness (Bandura, 1977). This conceptual root of teacher efficacy emerged out of Bandura's social cognitive theory and his construct of self-efficacy (Bandura, 1997 and 1996). Bandura, as cited in Tschannen-Moran, Hoy and Hoy (1998), illustrated that self-efficacy beliefs mediate thought patterns and emotions that facilitate actions. Thus self-efficacy is a future-oriented belief about one's competence level displayed in a specific situation. It is more like teachers' self-perception of capability than real level of accomplishment. It is a judgment about one's capabilities to influence student's engagement and learning, even among those students who may be difficult or unmotivated.

Some perplexing issues arise as we try to capture the meaning and measure of teacher efficacy. Is teacher efficacy a trait that we can sum up using a single teacher efficacy instrument or is it context specific?

What contributes to the development of a strong and positive teacher efficacy? How stable is teacher efficacy once it is recognized? Studies of teacher efficacy show that there are two separate dimensions or factors commonly called *personal teaching efficacy* and the *general teaching efficacy*. Personal teaching efficacy is one's own belief of competence as a teacher, whereas the meaning and label of general teaching efficacy is in question since there is considerable confusion and debate over its meaning and labels. While some called it 'external influences" (Emmer, 1991), others called it "an outcome expectancy" (Riggs and Enochs, 1990; Gibson and Dembo, 1984). On the other hand, Bandura and others (Woolfolk and Hoy, 1990) argued that the second factor or the general teaching efficacy is about the potential impact of a teacher and cannot be considered outcome expectancy.

The measures of teacher efficacy in research grew either out of Rotter's (1966) generalized expectancies of reinforcement (Guskey 1981; Ashton, Olejnik, Crocker and McAuliffe, 1982) or out of Bandura's concept of self-efficacy (Gibson and Dembo, 1984; Riggs and Enoochs, 1990; Bandura, 1997; Tschannen-Moran and Woolfolk Hoy, 1998). The general and personal teaching efficacy as measured in terms of the locus of control that teachers expressed was found to account for significant variance in student achievement (Ashton and Webb, 1986); in teacher's time spent in interactive instruction (Smylie, 1988), in teacher's level to stress in managing student behavior, teacher-administrator relations, teacher-parent relations (Parkay, Greenwood, Olejnik and Proller, 1988). Furthermore, teacher's willingness to implement innovation and their willingness to stay on the teaching job are also correlated to their efficacy (Glickman and Tamashiro, 1982).

Teacher efficacy, as measured by the Gibson and Dembo (1984) instrument, is demonstrated to be a powerful construct related to teachers' motivation (Midgley, Feldlauffer and Eccles, 1989), their classroom behavior (Gibson and Dembo, 1984), and their willingness to try a variety of materials and approaches, and to display high level

planning, and fairness, clarity and enthusiasm in teaching (Fuchs, Fuchs and Bishop, 1992; Allinder, 1994). Although the concept of teacher efficacy has enjoyed researchers' attention in the last two decades, it has as well endured conceptual confusion that resulted in difficulty in finding appropriate measures. The most difficult part of measuring teachers' efficacy is finding an appropriate balance between specificity and generality of task and subject matter on which to seek responses to measure it. Teachers do not feel equally efficacious for different teaching situations. They feel efficacious for teaching particular subjects to certain students in a specific setting. In this regard, Banduras' Teacher Self Efficacy Scale (1997) and Ohio State Teacher Efficacy Scale (Tschannen-Moran and Woolfolk Hoy, 2001) attempted to provide a multifaceted structure of teacher efficacy without becoming too specific. This study has adopted the teacher efficacy scale (TES) developed by Bandura (1997) and Tschannon-Moran et al. (1998) for data collection and used the Integrated Teacher Efficacy Model as a conceptual framework for the study.

The need for teacher evaluation and attempt of evaluating has a long history in school teaching. It passed through three periods. The first is the attempt to find *Great Teacher* by describing the characteristics of best teachers. The second is the endeavor to infer teacher quality from students' achievement. The third is the attempt to focus on identifying effective teacher behaviors linked to student learning rather than identifying desirable characteristics of teachers. The assumption is that effective teachers' behaviors are correlated with students' achievement. However, studies (eg. McNergney and Imig, 2009) showed the absence of a relationship in all these attempts.

Research findings indicated that the intensity of efficacy influences the level of an endeavor a teacher expends in a teaching situation and the perseverance a teacher shows in facing problems (Gibson and Dembo 1984). Teacher efficacy is related to the extent of professional commitment for both in-service primary and junior school teachers (Coladarci, 1992). In addition, Guskey (1988) pointed out that teachers

with a high sense of efficacy are receptive to new ideas and more enthusiastic to try out new strategies to satisfy the needs of their students at an enhanced level. Furthermore, teachers with a strong sense of efficacy show better interest for teaching (Allinder, 1994; Guskey, 1984), have better devotion to teaching (Coladarci, 1992), take responsibilities of academic success (Guskey, 1981) and are more probable to continue in the teaching profession (Burley et al, 1991; Glickman and Tamashiro, 1982). To sum up, teachers' sense of efficacy is related to teachers' perseverance to tackle problems, professional commitment, willingness to meet the need of students, and high enthusiasm for teaching, each of which are believed to enhance teacher performance results.

In the higher education institutions in Ethiopia, teachers' work performance is evaluated by three rating scales which are filled out by students, peers and department heads, respectively. The major underlying constructs in the scales are teaching strategies, lesson planning, student assessment of learning, conducting research, work relationship with colleagues, and proper utilization of resources. Most of the variables indicated above in the evaluation instrument of teachers' work performance directly or indirectly are related to instructional task such as planning and using varied strategies to help students learn, perseverance in facing problems related student interaction (Gibson and Dembo 1984), the extent of professional commitment and devotion to teaching (Coladarci, 1992), and accepting and entertaining new ideas and strategies to satisfy student needs (Guskey, 1981). These indicators of teacher performance behavior are well established in the literature to correlate to teacher efficacy.

Therefore, teachers' performance in these areas results in positive or negative outcome on their evaluation results. That is, students, colleagues, and department heads who are satisfied with the performance of a teacher are supposed to rate him/her high and those that are less satisfied rate low. Thus, it is hypothesized that there could be positive correlation between teacher efficacy and teacher

performance results and probably direct effects of the subscales of teacher efficacy on performance.

Methodology

The primary data for this study are collected from the Hawassa University staff, students and department heads. The secondary data are gathered from the registrar's office archival source to determine the sample size of staff in each faculty. Accordingly, a sample of 250 teachers is randomly selected from all the eight faculties of the University (see Table 1 below).

A sample of 250 (208 male; 42 female) teachers is randomly selected from 15 departments of the eight faculties of Hawassa University to participate in this study. Out of 250 participants who received the Teacher Efficacy Scale (TES), 183 (164 male, 19 female) teachers from eight faculties returned appropriately filled questionnaires. Table 1 presents teacher respondents by faculty, service year, qualification and academic rank.

Table 1: **Teacher respondents by faculty, qualification, academic rank, and years of service**

1.	**Faculty**	**No.**	**%**
		183	**100%**
	• Natural Sciences	45	24.59
	• Technology	24	13.11
	• Health Sciences	16	8.74
	• College of Agriculture	53	28.97
	• Faculty of Business and Economics	12	6.56
	• Social sciences	26	14.21
	• Law	1	0.55
	• Education	6	3.29
2.	**Years of Service**	**170**	**100%**
	• Less than 5	103	60.59
	• 6-15	41	24.11
	• 16-25	22	12.94
	• Above 25	4	2.35
3.	**Qualification**	**183**	**100%**
	• PhD	22	12.00
	• MA/MSc.	95	51.90
	• BA/BSc	55	30.10
	• Diploma	7	3.80
	• Other	4	2.20
4.	**Rank**	**183**	**100%**
	• Professor	**-**	**-**
	• Associate Professor	5	2.70
	• Assistant Professor	14	7.70
	• Lecturer	112	61.20
	• Assistant Lecturer	8	4.40
	• Graduate Assistant	39	21.30
	• Others	5	2.70

To measure teacher efficacy, the researchers developed a 29-item instrument by adopting Bandura's Teacher Self-Efficacy Scale (1997) and Ohio State Teacher Efficacy Scale (Tschannen-Moran and Woolfolk Hoy, 2001). The teacher efficacy instrument consisted of 5-point Likert scale items adopted from the two scales with few additional items included based on local context of teacher tasks. Teachers were actually asked to rate a 5-point Likert type questionnaire. The scale asked the respondents to determine how much they can do to perform various teaching tasks and teaching and learning process oriented functions. For instance, 'How much can you do to reduce student attrition?' was posed as a 5-Likert scale item and teachers **rated** their efficacy as very low (1) through very high (5). The scale was pilot-tested before final administration. Fifty staff members from Hawassa College of Agriculture and Faculty of Natural Sciences of Hawassa University filled the scale in the pilot study to check its reliability. The Cronbach alpha coefficient for the pilot data was .70 for the scale. Some items were edited for clarity based on the feedback of the pilot responses.

To measure teacher performance, the three existing teacher evaluation formats of the University developed in 2000 are used. The formats are filled by students, peers, and department heads each semester. The evaluation format filled by students has 30 items concerning teacher performance in teaching learning areas. Items include effectiveness in the areas of instructional planning and preparation, classroom presentation and management, learning resource material preparation and classroom facilitation, assessment and grading, and overall professional ethics. The format filled by peers has 25 items that focus on teachers' overall duties outside classroom such as preparation, acquisition and use of teaching materials, tutorial and advisory support to students, research and publication, collegial cooperation, and community and departmental services. The department heads fill the third format with 34 items on matters that relate to all dimensions of teacher duty such as course offering, research, and extension work. Some details such as punctuality, cooperation, responsiveness to

student and departmental needs are also included. These formats are used because there is no standardized alternative format that could be applied to the context of higher learning. Besides, formats similar to these are the ones used in higher learning institutions in the country for administrative purposes at both department and university level.

After it was improved based on the pilot data feedback and expert comments of modifications on some items, the 29-item final scale was distributed among the participants in the eight faculties of the University in February 2011. Researchers sought the cooperation of each department through a letter of cooperation from the Vice President for Academic Affairs and Research. Fifteen technical assistants from the different faculty/college took part in coordinating the process of final data collection after they were given training and orientation about the data collection procedures. They distributed copies of the scale to participants in each faculty/ college and collected the completed copies.

These three teacher evaluation formats were administered respectively to students taught by the evaluated teacher, peer teachers of the department, and the department head. There is a calendar-based time, at the end of each semester just before the final examination week, for administration of teacher evaluation. These groups filled the formats in the third week of June 2011. The researchers monitored the process of collecting the evaluation results closely through the technical assistants assigned to each faculty for data collection. The performance evaluation results of teacher respondents were obtained from each department at the end of June.

Both descriptive and inferential statistical methods were used to analyze the data. Means and standard deviations were obtained to determine the levels of the study variables. Correlations of the different variables were considered by way of preparation for determining effects of teacher efficacy on teacher performance. Factor analysis was conducted to identify the dimensions of TES. Chrombach alpha coefficients were used to check the reliability each factor. Path analysis was employed to trace the amount of direct and indirect effects of TES on teacher performance.

Results

In this section, the study attempted to answer the basic research questions. More specifically, the questions regarding the level of perceived efficacy of teachers, the construct validity of the instrument adopted for this research, gender and subject area difference in teacher efficacy, and direct and indirect effects of gender teacher efficacy subscales on teacher performance were addressed. The data obtained from TES and teacher performance evaluation were statistically analyzed and presented in tables and figures.

One of the objectives of the study is to analyze the factor structure of the teacher efficacy data to check its consistency with that reported in the literature. This study adopted a multifaceted structure of teacher efficacy suggested by Bandura (1997) and Tschannen-Moran and Woolfolk Hoy (2001) and used it with college teachers. Teachers were actually asked to rate a 5-point Likert type scale. The responses were used for factor analysis to determine the subscales of the TES from the data. The results are presented in Table 2 below.

Initially, the factorability of the 29 Teacher Efficacy Scale (TES) items was examined. Several well recognized criteria for the factorability of a correlation were used. First, all of the 29 items correlated at least .37 with at least one other item, suggesting reasonable factorability. Secondly, the Kaiser-Meyer-Olkin measure of sampling adequacy was .89, above the recommended value of .6, and Bartlett's test of sphericity was significant (χ^2 (406) = 2107.07, p < .01). The diagonals of the anti-image correlation matrix were all over .72, supporting the inclusion of each item in the factor analysis. Finally, the communalities were all above .3 (see Table 2) further confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was conducted with all 29 items.

As the result of factor analysis using principal components extraction and applying varimax rotation method, five factors were identified. They were characterized as *student engagement, instructional strategies, reflective*

responses, academic advising and administrative supports. Principal components analysis was used because the primary purpose was to identify and compute composite efficacy scores for the factors underlying the short version of the TES. The initial eigenvalues showed that the first factor explained 13.78% of the variance, the second factor 14.51%, a third factor 9.04%, a fourth factor 9.83%, and a fifth factor 8.44% of variance in TES. The fifth factor had eigenvalue just over 1.

Table 2: Results of Factor Analysis

Item	SE	IS	RR	AA	AS	Communalities
Q1	.672					.87
Q2	.673					.52
Q3	.572					.63
Q4	.614					.51
Q5	.404					.45
Q6	.709					.44
Q9	.635					.44
Q12	.459					.62
Q14	.501					.63
Q26	.475					.56
Q7		.501				.35
Q8		.652				.48
Q11		.620				.37
Q16		.442				.75
Q17		.655				.45
Q18		.544				.64
Q20		.578				.30
Q21		.513				.53
Q15			.544			.89
Q19			.531			.57
Q23			.573			.60
Q24			.752			.52
Q25			.427			.90
Q22				.769		.88
Q27				.439		.48
Q29				.649		.81
Q10				.420		.46
Q13					.762	.75
Q28					.729	.75

SE=Student engagement, IS= Instructional strategies, RR= Reflective responses, AA=Academic advising, AS=Administrative supports; Q1-Q29 are items in TES.

Out of the 29 items of the scale, the number of items that loaded on each of the factors were 10, 8, 5, 4, and 2, respectively. While the corresponding Cronbach alpha reliability coefficients were .87, .80, .74, .72 and .54, respectively, the overall reliability was found to be .92 indicating high internal consistency of the scale. The percentage of variance in teacher efficacy explained by the individual subscales is given in Table 3. This table depicts the mean, standard deviations and alpha coefficients of the subscales for the overall data. The total percentage of variance explained by the subscales is 59.39% for the data and the communalities were sufficiently high as shown in Tables 2 and 3.

Table 3 below presents the typical prevalence of teacher efficacy as well as the consistency of the sub-scales and teacher performance for the overall data, which actually might vary with gender, subject area of teaching, and years of experience of teaching in college setting. The level of perceived efficacy of teachers in the Hawassa University was found to be high showing low variability as the overall data show (TES Mean=4.22 out of 5, SD=.27).

Table 3: Means, Standard Deviations, and Reliabilities of the Study Variables

	No. of items	Mean	SD	Cronbach Alpha	% of Var.
TES	**29**	**4.22**	**.27**	**.92**	**59.39**
SE	10	4.25	.21	.87	13.78
IS	8	4.40	.18	.80	14.51
RR	5	4.08	.25	.74	9.83
AA	4	4.24	.19	.72	9.83
AS	2	3.69	.41	.54	8.44
Gen	-	1.10	.31	-	-
STE*	30	86.6	8.06	-	-
PEER	25	93.27	6.89	-	-
HOD	34	91.19	7.49	-	-
WA	-	90.48	5.37	-	-

*Alpha could not be computed for performance scales, because researchers used the performance scales' summary from the departments, not the raw scores. TES=Teacher efficacy scale; SE=Student engagement, IS= Instructional strategies, RR= Reflective responses, AA=Academic advising, AS=Administrative supports. Gen=Gender (1=Male, 2=Female); STE=Student evaluation, PR=Peer evaluation, HD= Evaluation of Head of Department, and WA= weighted average of student, peer and head of department evaluations, each out of 100.

Regarding the efficacy of sub-scales, teachers demonstrated lower average and higher variability only in administrative supports efficacy (AS Mean = 3.69, SD = .41). To determine possible difference between male and female teachers in teacher efficacy, t-test was conducted. The results are shown in Table 4. Accordingly, efficacy in instructional strategies and reflective responses of teachers are the two dimensions that showed significant gender difference at 5% level of significance.

Table 4: The t-test summary for teacher efficacy sub-scales

	Male N=164		Female N=19		Df	t	Sig.
	M	**SD**	**M**	**SD**			
Student Engagement	4.27	.51	4.20	.55	181	.54	.58
Instructional Strategies	4.42	.44	4.21	.44	181	2.03*	.04
Reflective Responses	4.13	.58	3.70	.44	181	3.04*	.00
Academic Advising	4.23	.59	4.28	.67	181	-.40	.69
Administrative supports	3.73	.85	3.39	.64	181	1.64	.10
Total TES	**4.24**	**.43**	**4.06**	**.45**	**181**	**1.73**	**.08**

* $p < .05$.

To determine whether or not variation among subject areas occurred in teacher efficacy sub-scales based on the data, ANOVA procedures were applied by taking subject area as grouping variable. In each ANOVA procedure, the grouping factor used was subject area with 5 levels (Natural science, Technology, Medicine and Health Science, and Social Science). Significant mean score differences were detected in all teacher efficacy sub-scales except instructional strategies efficacy among the different disciplines at 5 percent level of significance (see Table 5 below).

Table 5: ANOVA Summary of Teacher Efficacy for Five Faculties

	Source of variance	Sum of squares	df	Mean square	F	Sig
Student Engagement	Between groups	15.824	4	3.96	4.237**	.003
	Within groups	166.176	178	.93		
	Total	**182.000**	**182**			
Instructional Strategies	Between groups	8.812	4	2.20	2.264	.064
	Within groups	173.188	178	.97		
	Total	**182.000**	**182**			
Reflective Responses	Between groups	15.917	4	3.98	4.265**	.003
	Within groups	166.083	178	.933		
	Total	182.000	182			
Academic Advising	Between groups	17.987	4	4.50	4.880**	.001
	Within groups	164.013	178	.92		
	Total	**182.000**	**182**			
Administrative supports	Between groups	10.456	4	2.61	2.712*	.032
	Within groups	171.546	178	.96		
	Total	**182.000**	**182**			

* p< .05, ** p<.01.

Teacher Performance

The mean scores of student rating of teacher performance of males and females are significantly different at .05 level of significance, whereas there is no such difference observed in performance ratings by peers and department heads as well as the weighted average of the three ratings. The weighted average of the scores on the three formats respectively had weights .5, .15, and .35 for student, peer and department head evaluation (see Table 6).

Table 6: The t-test summary for Teacher Performance Ratings by Gender

	Male (N=164)		Female (N=19)		df	t	Sig.
	M	SD	M	SD			
Student rating	86.09	8.10	91.01	5.89	181	-2.56*	.011
Peer rating	93.30	7.19	92.99	3.44	181	.183	.855
Department head rating	91.14	7.25	91.69	9.55	181	-.304	.762
Weighted Average	90.31	5.41	91.99	4.81	181	-1.298	.196

* p< .05.

There is no significant mean score difference in performance ratings among the disciplines except the student ratings, which surprisingly resulted in significant difference at .01 level of significance (see the ANOVA summary in Table 7).

All correlations among the efficacy variables and correlations among performance scores were positive and significant at .05 level. Gender has significant relationship with student rating (r=.19, p<.05), with instructional strategies efficacy (r=-.15, p<.05), and with reflective responses efficacy (r=.22, p<.05) (see Table 8 below). Since the major objective of the study is to investigate the direct and indirect effects of gender and teacher efficacy subscales on teacher performance, a path analysis was employed. Path analysis is a statistical method that seeks causal pathways between variables; it shows direct and indirect effects of a variable on a given dependent variable (Pedhazur, 1982).

Table 7: ANOVA Summary for Teacher Performance by Faculty

	Source of variance	Sum of squares	Df	Mean square	F	Sig
Student rating	Between groups	1431.18	4	357.80	6.126**	.000
	Within groups	10396.71	178	58.41		
	Total	11827.89	182			
Peer rating	Between groups	279.47	4	69.87	1.486	.208
	Within groups	8369.25	178	47.02		
	Total	8648.72	182			
Department head rating	Between groups	59.43	4	14.86	.260	.903
	Within groups	10156.14	178	59.06		
	Total	10215.57	182			
Weighted Average	Between groups	266.33	4	66.58	2.380	.053
	Within groups	4978.69	178	27970		
	Total	5245.02	182			

** p< .01.

Following the significant correlations between gender, efficacy sub-scales and performance variables, paths leading to the performance variables were identified and multiple regression analysis was conducted. To run this statistical analysis, the appropriate entry type to get significant variance contributor is forward selection (Pedhazur, 1982). One of the assumptions is relatively strong correlations of independent variables with the dependent variable.

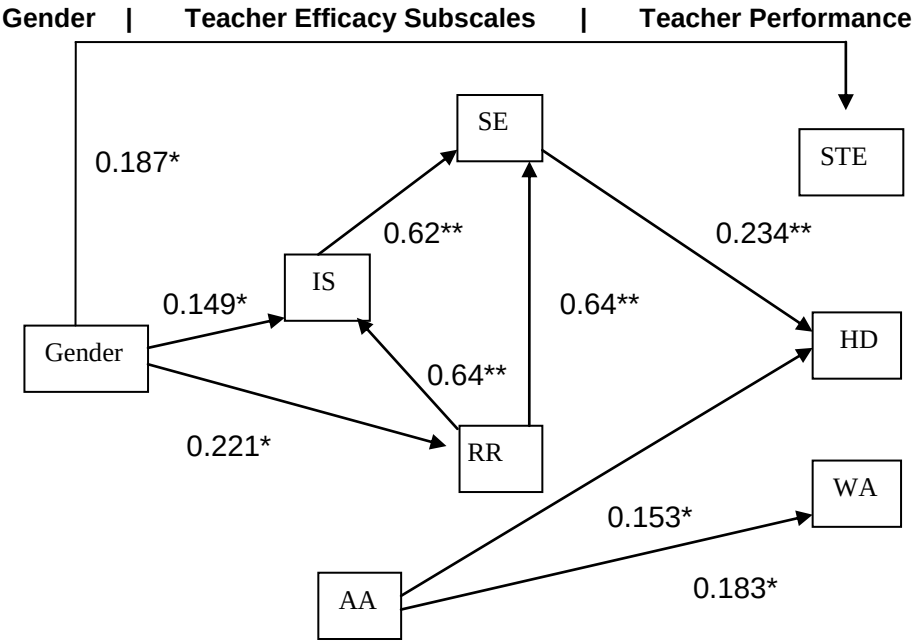
Table 8: Correlation Coefficients of the Study Variables

	TES	SE	IS	RR	AA	AS	Gen	STE	PR	HD	WA
TES	1.0										
SE	.88**	1.0									
IS	.83**	.62**	1.0								
RR	.82**	.58**	.64**	1.0							
AA	.79**	.64**	.56**	.58**	1.0						
AS	.48**	.32**	.26**	.33**	.31**	1.0					
Gen	-.13	.04	-.15*	.22**	.03	.12	1.0				
STE	.001	-.05	.01	.01	.09	.01	.19*	1.0			
PR	.07	.03	.05	.10	.10	.07	.14	.20*	1.0		
HD	.18*	.23**	.13	.07	.15*	.02	.02	.27*	.40**	1.0	
WA	.13	.12	.11	.06	.18*	.02	.10	.66**	.70**	.74**	1.0

Note: Variable abbreviations are as in Table 3. *p<.05, **p<.001.

Accordingly, regression of gender and efficacy variables on the performance ratings was done with forward selection. The direct effects of gender on student rating (β=.187, t= 2.56, p<.05), on instructional strategies efficacy (β=-.15, t= -2.024, p<.05) and on reflective responses efficacy (β=.221, t=-3.048, p<.05) were significant. Similarly, direct effects on head of department rating of student engagement efficacy (β=.23, t= 2.213, p<.01) and of academic advising efficacy (β=.15, t=2.085, p<.05) were found to be positive and significant. Direct effect of academic advising efficacy on the weighted average performance rating (β=.18, t=2.504, p<.05) and on department head rating (β=.15, t=2.584, p<.05) were both positive and significant. As indicated in Table 9 below, all indirect effects of gender on performance and efficacy variables were not significant. The only significant indirect effect observed in the model was

the effect of instructional strategies efficacy (β=.145, t=2.504, p<.05) on performance rating of head of department through student engagement efficacy. The results depicted that both direct and total effects of teacher efficacy variables were stronger than that of gender. Interestingly, the administrative supports efficacy did not show any direct or indirect effect on performance ratings and was excluded from the path analysis. On the other hand, there was no causal path leading to the peer evaluated teacher performance (see Table 9 and the figure below). The coefficients of determination (R^2) were low for almost all predictions with minimum 1.1% and maximum 5.36% of the variance of the criterion variable as can be seen from R values.



A Path model representing the effects of gender and efficacy variables on performance

Note: Variable abbreviations are as under Table 3.

Table 9: Direct and Indirect Effects of Gender and Teacher Efficacy Subscales on Performance

Effect	R	Direct	Indirect	Total
on student evaluation of Gender	.187	.199*	.001	.200*
on head of department evaluation of gender	.031	.031	.032	.063
of student engagement	.229	.234*	.035	.269*
of instructional strategies	.153	.153*	.145*	.300*
on weighted average evaluation of academic advising	.183	.183*	.019	.202*
on instructional strategies efficacy of gender	.149	.149*	.095	.244*
on reflective responses efficacy of gender	.221	.221*	.141	.362*

*p<.05

Discussion

The study aimed at analyzing the factor structure of the teacher efficacy data by way of construct validation. The attempt to confirm the consistency of the factor structure with that reported in the literature seems to be successful. The three moderately correlated factors consistently found in teachers' senses of efficacy scale were teachers' efficacy in student engagement, instructional practices and classroom management with reliability α= .87, .91 and .90 respectively (Tschannen-Moran and Hoy, 2001). Five moderately correlated factors were identified in this study, the first two of which were the same as the first two factors in the literature, namely student engagement and instructional strategies efficacy. The next two factors in this study (efficacy in reflective responses and academic advising) appear to be factors split from the factor efficacy in classroom management. The items that loaded onto these two factors were almost the same items of efficacy in classroom management efficacy. Besides, the fifth factor, efficacy in administrative supports was actually a new factor that emerged due to additional guidance-related items which were not in

the original scale the researchers adopted. Hence, it is not surprising to find that this factor could not be included in the causal paths that explain teacher performance.

The second purpose of the study is to determine the existing levels of perceived efficacy and performance of teachers of the University. Teachers' perceived levels of efficacy were typically well above average out of 5 (minimum 3.69, maximum 4.40). In a teaching force where 60.6% of teachers have less than 5 years of experience of university teaching and only 63.9% were Masters or above (Tables 1 and 3), the observed level of perceived teacher efficacy was actually encouraging. However, if the critical majority of new and young teaching personnel are left without compatible support of mentoring and continuous professional development scheme that would boost efficacy in teaching tasks, it might erode the expected effectiveness and performance of teachers (Smylie, 1988; Tejeda-Delgado and Carmen, 2009).

Teacher efficacy in instructional strategies and reflective responses were the only two dimensions that showed significant gender difference in favor of male at .05 level of significance. This was not supportive of previous research studies. For instance, no differences were found in teacher tolerance and teacher efficacy as a function of gender (Tejeda-Delgado and Carmen, 2009). However, in the instance of the low representation of females in the university teaching, low support to newly recruited teachers, high challenges of workloads, and large class size problems emanating from the higher education expansion program, the researchers believe that these differences might have come from the challenges. They seem to be indicative of the need for supports for novice instructors and especially for critically underrepresented female teachers. They deserve the support to cope with instructional challenges in classroom student interactions that demand reflective responses.

Regarding teaching discipline difference in teacher efficacy, significant mean score differences were detected in all teacher efficacy subscales except efficacy in instructional strategies among the different disciplines. This was consistent with the findings that teacher efficacy was thought to be both context and subject-matter specific (Tschannen-Moran et al., 1998). However, how to achieve the appropriate level of specificity for measuring teacher efficacy is not clear (Tschannen-Moran and Hoy, 2001).

The data depict some direct and indirect effects of gender and teacher efficacy variables on teacher performance. Gender had significant direct effects on student rating, instructional strategies efficacy and reflective response efficacy of teachers. These findings were consistent with our observation above that teacher efficacy in instructional strategies and reflective responses were the only two dimensions that showed significant gender difference in favor of male. Though this was not supported by previous studies (e.g. Tejeda-Delgado and Carmen, 2009), it indicated that higher representation of females in higher education and fast and continuous professional development of existing young female instructors should be a priority for its modeling effect on girl students and for boosting of female teacher efficacy.

Academic advising efficacy and student engagement efficacy also had significant direct effects on the rating of department heads. This might be due to the fact that department heads supervise the duties of teachers regarding how classroom instruction time and hours of office consultation time were observed by teachers. Failures in these areas usually lead to reprimands for negligence or lack of commitment. Besides, academic advising efficacy had positive and significant direct effect on the weighted average performance rating of teachers probably because student advising duty of teachers is overt and visible for peers, department heads and students who contributed to the weighted average rating.

The only significant indirect effect observed in the model was the effect of academic advising efficacy on performance rating of head of department through student engagement efficacy. This showed that academic advising efficacy was an important dimension of teacher efficacy that had both direct and indirect effect on teacher performance (Tejeda-Delgado and Carmen, 2009).

Regarding teacher performance evaluation practised in the University, the process of evaluation by peers and students was not well organized and coordinated. The evaluators were not sufficiently oriented as to what the purpose of teacher evaluation was. For instance, peer evaluation scores tended to be inflated. These observations might lead one to think that peers and people in charge of administering the evaluation formats and processing the evaluation data seemed to lack objectivity and skills.

Conclusions

The following conclusions can be made based on the findings of the study.

- The adopted TES partly confirms the Megan and Roy scale. That is, out of the identified five factors, two (Student engagement efficacy and Instructional strategies efficacy) are similar with that of Megan and Roy. The three newly identified factors (Reflective responses efficacy, academic advising efficacy and administrative supports efficacy) emerge due to the items adopted from Bandura's scale and also due to items added to measure efficacy of student advisors as academic administrators. Yet the reliability coefficients of the overall scale and the subscales range from moderate to high (0.54-0.92) with the variance accounted for by the five factors to the overall scale being 56.39%.
- The level of perceived teacher efficacy in the University is high with significant difference by faculties/colleges (younger staff members in newer faculties and colleges, or institutes demonstrating lower

efficacy) with respect to all the subscales except administrative supports efficacy. On the other hand, a significant gender difference is observed only on instructional strategies efficacy and reflective responses efficacy areas.

- Only students' rating of teacher performance shows significant difference between the gender groups in favor of females. Since a student assigns high score on the basis of strong performance on the positively stated item of the scale, this shows female teachers demonstrate more commitment to their teaching duties than male teachers.
- Gender has a significant direct effect on instructional strategies efficacy and reflective responses efficacy. But all indirect effects of gender on performance and efficacy variables are not significant. Student engagement efficacy and academic advising efficacy have positive and significant direct effects on head of department evaluation. Instructional strategies and academic advising efficacy have positive and significant effect on student engagement.
- The study shows that the sense of teacher efficacy has considerable effect on teacher performance as depicted by student, peer and department head evaluation. However, the administrative supports efficacy does not contribute sufficient explanation to any of teacher performance scores and is excluded from the model.
- Teacher performance results as rated by peers are inflated with low variability. Moreover, there is no causal path leading to this measure in the model.

Recommendations

Based on the above, the following recommendations can be made:

In order to increase the caliber of the TES to the higher level the variance accounted for by the factors has to be lifted up to 80%. Therefore, the instrument requires some improvement through further research. By this scale, the study indicates low level of efficacy in

areas of instructional strategies and reflective response in some newer academic units. This shows that the University has to identify priorities and work toward building capacity of the young staff through pedagogical and short- as well as long-term trainings.

The study shows that the sense of teacher efficacy has considerable effect on teacher performance. Nevertheless, for further insight into the relationship between teacher efficacy and teacher evaluation, proper and thorough procedures of evaluating teacher performance need to be in place. Therefore, it is recommended that the University may give critical attention for teacher performance evaluation process. More specifically, the following can be suggested:

- Orienting students to perform authentic evaluation of each course teacher so as to maintain both students' and teachers' academic and professional well-being would ensure safety from any kind of harassment expected from teachers or students.
- In the study more variance is observed on the students' evaluation therefore, giving more weight to students' evaluation is desirable.
- Evaluation scores by peers and heads of departments are found to be unrealistically high. In order to make these groups more responsible, higher offices may challenge heads of departments to provide evidences for the evaluation scores they submit. In addition to this sensitizing the importance of their evaluation is recommended.

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