Teaching Effectiveness; Exploring the Role of Personal Variables

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The current research aimed to explore the relationship of Teaching Effectiveness (TE) and personal variables i.e. age, gender, marital status, the type of school (coeducation, boys' or girls' school) and sector of school (government or private) of secondary school teachers and to adapt and validate the Students' Evaluations of Teaching Effectiveness Rating Scale (SETERS) for teachers and their students. For this correlation survey based research the data was conveniently collected from secondary school teachers (*N*=303) and three students per teacher (*N*= 909). The results of factor validation have shown that Teaching Effectiveness Self Rating Scale (TESRS) and Teaching Effectiveness Students' Rating Scale (TEStRS) are the valid instruments for the evaluation of TE. It has also been found that TE has a negative relationship with age and positive with gender (both ratings), marital status of the teachers, the type of school (students' ratings) and sector of school (self-ratings) and same results were shown in the prediction analysis except for type of school as it has come out as a non-significant predictor of TE. Furthermore, female and young adults (in both ratings), single and girls' school (students' ratings) and private school (self-ratings) teachers are more effective. The results have important implications education sector.

Keyword. Teaching Effectiveness, Secondary School Teachers, TESRS, TEStRS.

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Education is a dynamic force that is the agent of transformation in every aspect of human mental, physical, ethical, and social growth and development. It is one of the most important thing that shapes the human personality and plays a vital role in the development, prosperity and as well as the growth of the nation. Hence, education is the foundation of nation building; consequently, teaching is the basis of education that is why the importance of research emerges in this pivotal area. In fact, a lot of researches had been done in this area (i.e. Elizabeth, May, & Chee, 2008; Haigh & Macjisack, 2013; Kyriacou & Chein, 2009; Westwood, 1996) but still there is an open avenue for new researches because as human growth and advancement is continuous, so as the need of the flourishment of this field. That is the reason that teaching effectiveness has gained a lot of importance. It is defined as the teaching that successfully achieves the learning by students as intended by the teacher.

Effective teaching

There is no question about the role of teachers and their importance in any of the educational process and its product results. An ineffective or weak teacher can shake the entire structure of the education. For the educational improvements betters and effective teachers are essential and can be called as the basic need. A competent and proficient teacher can guarantee the attainment of desirable goals or outcomes. From the current literature perspective, it is agreed that a good teacher is effective and teaches in a way that in the response the learning of the students occur (Bukist, 2000).

The basic ambition of the all the members of the education sector is good and refine teaching. A lot of researches have been done on the teaching profession since old times. But still unfortunately, that all the researches had been done or written in

the field of education are failed to explain or define in concrete terms that what effective teaching really is. Generally teaching has been defined as a *process* that involves the imparting knowledge and skills to the learners that are essential to master a certain subject. Morse and Wingo have said the achievement of the teacher and students had been evaluated by the ability of the student to answer the questions of the teachers regarding the content of the course. The definition of teaching by dictionary extends its traditional concept and defines it in a way that to elaborated and show how the things are done, make the students understand and deliver the instructions; although this definition is fine and self-explanatory but lacks in answering the questions of why, what and who of teaching (McKeachie, 1986). To answer these kinds of questions effective teaching had been studied several times but still there is no consensus on the definition of effective teaching.

There are plenty of definitions found on effective teaching but generally they come with an outcome of students' learning. Ryans (1993) explained it like that; the effectiveness of the teaching depends upon the acts of the teachers as they constructive for the development of basic skills, understanding, work-habits, desirable attitudes, value judgments and adequate personal adjustment of the pupils. Kyriacou (2009) defined effective teaching as teaching that successfully achieves the learning by pupils intended by the teacher. While Westwood (1996) summarized the researches on effective teaching in a way that they agreed on the proposition that excellent teaching is that which produces learning and understanding of the students.

Many researches had been done the factors that affect students' achievement and the findings suggest that schools can make a lot of difference and in school teacher effectiveness is a strong determinant (Darling-Hammond, 2000). Students who are

assigned to one ineffective teacher have significantly lower achievement and learning than those who learn under highly effective teachers (Sanders & Rivers, 1996).

Effective teachers are those who achieve the goals which they set for themselves or by others (e.g. ministries of education, legislators and other government officials, school administrators). The effective or good teacher should have the required skill and knowledge that are desirable for the achievement of the goals and tasks but at the same time should be able to utilize that skill and knowledge accurately. As Medley (1982) termed the possession of the knowledge and skills as teacher competence and use of them as teacher performance. In terms of cognitions teaching is defined as to maximize the possibilities for students to conduct the cognitive activities that are essential for the building of knowledge and development of reasoning capacity in a certain kind of created learning environment.

From the above discussion we can conclude the definition of effective teaching in a way that the teaching that successfully achieves the learning of students as intended by the teacher.

Theoretical background of effective teaching

There are several theories explaining teaching effectiveness but the perspective of Bolhuis (2003) on teaching effectiveness seems to be relevant for the current research. He made distinctions between five interrelated components: goal setting, goal orienting, executing learning activities, evaluating, and regulating/ monitoring/deciding. Goal setting and goal orientation is defined as the classroom activities that shape the aims or goals and direct or orient students towards learning for the attainment of the goals. Students' internal (like information-processing) and external (like hands-on) learning is affected by the classroom learning activities.

The students and teachers progress according to the learning goals is judged by the evaluation activities that had been conducted in the classroom activities. Lastly, the model incorporates the regulative component which is highlighted by the activities that are essential to decide, stimulate or monitor learning.

As stated by Bolhuis (2003) the first four components last in a cycle, however the central integrative components regulating/ monitoring/ deciding are linking the other four components. Whatever the arrangement of the cycle of the components they do not play their role in a sequence, the arrangements can be aligned by slopes and moves between components. But at the same time for the building of knowledge students must be indulged in the learning activities. She also believed that the execution of the learning activities is primarily related to knowledge-building processes.

Later on, Seidel and Shavelson (2007) adapted and expanded Bolhuis's (2003) model to develop a framework for effective teaching. They further added four more components like knowledge domain, amount of time for learning, organizational frame for learning, and classroom social climate. But they kept the remaining components of Bolhuis's model (2003) that were goal setting and orientation, executing learning activities, evaluation, and regulation, monitoring, and decision-making. Additionally, by expanding the three distinguished aspects of the executing learning activities component they gave; social interactions/direct experiences, basic information processing, and domain-specific information processing. With adding together, the Bolhuis's model (2003) offered a framework in which they tracked diverse teaching variables.

With reference to teaching, they kept four domains/ components under consideration that covered the instructional

context and gave the essential frame that could engage the students in learning activities. These domains/ components are knowledge domain, time for learning, organization of learning, and social context. The knowledge domain is differentiated from other domains in a way that it divides the teaching and learning areas (like, science, arts, maths). The second domain/ component is time for learning is defined as the time requirements that would be needed or provided for teaching by keeping in mind the pace of students' engagement in the students learning activities. The third domain/ component is organization of learning which is defined as the degree to which the teachers gives an ordered and functional classroom management while the fourth domain/ component is the social one which emphasizes on the extent to which the teacher develops of social teaching and learning environment in the class room. The fundamental components of teaching that are speculators to guide the students' learning are goal setting/orientation, execution of learning activities, evaluation, and regulation and monitoring (Bolhuis, 2003; Seidel & Shavelson, 2007).

To the degree that these components are present in teaching, student learning is expected to increase. Teaching acts such as clarifying goals, teaching in a clear and structured way, or activating student pre-knowledge are important elements of the goal-setting and orientation component. The execution of learning activities is characterized by teaching acts that support social interactions between students and provide direct experiences for students, facilitate the basic processing of information (e.g., high language level, thinking-aloud methods), or provide domain-specific opportunities for processing content information (such as mathematic problem solving, science inquiry). Evaluation of learning characterizes teaching acts that aim to assess student progress toward learning goals. And the regulation and monitoring component includes teaching acts such as feedback and support or

teaching students' strategies of self-regulation and self-monitoring (Seidel & Shavelson, 2007).

Up till now the theoretical and conceptual framework of teaching effectiveness had been discussed and now the evaluation of teaching effectiveness would be discussed in the light of above mentioned domains. Different practitioners and researchers (e.g., Abrami & d'Apol- Ionia, 1991; Cashin & Downey, 1992; Feldman, 1997; Marsh & Roche, 1993) have a notion of agreement that teaching can be called as a complex activity that involves multiples dimensions like clarity, teacher-student interaction, enthusiasm, student evaluation. But at the same time the evaluation of teaching should be formed in a way that has multiple diagnostic reflections, it should not in one or two areas. In this regard some of the components of Seidel and Shavelson (2007) are similar with the earlier described dimensions of evaluation of quality of education by Marsh and his colleagues (Marsh, 1983). These nine evaluation dimensions are learning/value, enthusiasm, organization, and group interaction, and individual rapport, breadth of coverage, examination /grading, assignments, and workload / difficulty. A lot of work had been done on the basis of Marsh's and his colleagues' work and Toland and DeAyala (2005) used the three-factors solution proposed model by d'Apollonia and Abrami (1997) and evaluated the teaching effectiveness on the three dimensions which were given by Marsh that are Instructor's Delivery of Course Information (e.g., enthusiasm, organization, presentation, clarity), Teacher's Role in Facilitating Instructor/ Student Interactions (e.g., group interaction; rapport; understanding learners' backgrounds, ethnicities, and attitudes), and Instructor's Role in Regulating Students' Learning (e.g., exams, assignments, readings, quizzes). Furthermore, Toland and DeAyala (2005) and Faleye and Awopeju (2012) have recommended to validate the factor structure of the above mentioned three factor dimensions among different cultures.

Multiple ratings on teaching effectiveness

Generally suggested in the literature measurement of teaching effectiveness is to be done by multiple sources.A concept of combined effective teaching was given by Berk (2005) which stated the use of multiple sources of substantiations or evidences like rating of students, peers, self-evaluation to get the reliable and appropriate grounds for decision making regarding teaching. Multiple sources give an edge in the regard that the strengths of one source compensate the weakness of other sources or a single source. The unified concept of different sources of teaching is suggested and recommended for the complex measurement and to get the direct and indirect evidences. Each source can provide unique and different information but also contradicts the information of the other sources for instance the biases and weaknesses of self ratings would not be the same as the students' ratings and the strengths and the weakness of the students' ratings would not be the same as self ratings. By relying on the different sources or ratings can compensate the weakness of the other source or rating and can also contribute to the decision making that is being done based on teaching effectiveness (Appling, Naumann, & Berk, 2001).

Furthermore, teaching effectiveness can be measured or evaluated by the teacher himself or herself (self rating), current or former students (students' ratings), colleagues (peer ratings), administrators (principal's ratings), or trained observers (observer's ratings). Self-evaluations of teacher are important and useful because it can be collected easily in all current educational settings and are likely to be more important for intervention designing of teaching and also provide the self-concepts of teachers about their teaching and at the same they can also be more persuasive for the teachers to except the new information (Toland & DeAyala, 2005).

In the last thirty years students' ratings had out shined and been the primary source of the measurement of teaching effectiveness (Seldin, 1999). The strongest support for the multidimensionality of SETs (Student Evaluation of Teaching) is based on the nine-factor (Learning/ Value, Instructor Enthusiasm, Organization/ Clarity, Group Interaction, Individual Rapport, Breadth of Coverage, Examinations/ Grading, Assignments/ Readings, and Workload/ Difficulty) Students' Evaluation of Educational Quality (SEEQ) instrument (Marsh, 1987; Marsh & Dunkin, 1992). These factors are based on various sources (e.g., reviews of current instruments, interviews with students and teachers) and psychometric analyses and were supported by Marsh and Dunkin's (1992) evaluation in relation to theories of teaching and learning (Toland & DeAyala, 2005).

Role of demographic variables in teaching effectiveness

It is the general observation that the general demographic variables like age, gender, education and experience have significant effects on the job performance but the literature on these variables provide mixed findings that is why this research intends to explore their role in relating the teaching effectiveness.

A report by Teacher Training and Learning Program (2006) revealed that most teachers maintain their effectiveness but teachers do not necessarily become more effective over time. Teachers in later years are at greater risk of becoming less effective though these are still a minority.

Celep (2002) studied on relationship between self-efficacy attitudes and management according to some individual variables. The result showed that there is significant relationship only according to their age. The more age increases the more self-efficacy rises but teaching ability falls. Hence, we have concluded

above that teachers' sense of self-efficacy have a positive relationship with teaching effectiveness so it can be linked that as sense of self-efficacy increases by age the teaching effectiveness would also increase.

Furthermore, Pagani and Seghieri (2002) found that an instructor's overall teaching effectiveness, that is an aspect of teaching, is influenced by a combination of teacher characteristics such as gender, age, previous experiences.

Kagathalal (2001) aimed to find out the relationship between teacher effectiveness and gender, educational qualification and experience of teaching. They found that there is no significant effect of gender and qualification on the effectiveness of teachers and the effect of experience of teaching on 19 years, but it is found decreasing after that level of experience.

Recently Rajammal and Muthumanickam (2012) found that teachers significantly differ in teacher effectiveness in respect of gender, place of school, level of teaching and they do not differ in teacher effectiveness in respect of marital status, age, type of management, years of experience and monthly income of teachers.

From the above discussion it can be concluded that the available literature on the demographic variables and teaching effectiveness is limited and have contradictory or mixed findings.

Hence in the current research the relationship of demographic variables with teaching effectiveness would be explored as the findings are mixed and limited for indigenous perspective.

For the prosperity and success of a nation education is an essential component and it can only be fruitful if it is imparted by

effective teachers. No one can deny the importance of a teacher; as a teacher can inspire their students and help them in developing healthy habits and produce leaders in our intellectual, social and cultural life (Riaz, 2000). Hence, a teacher can fulfill his duty completely until he/she is effective. So, it is necessary that every aspect of effective teacher and teaching should be explored. As it is being observed that the requirement, selection and training of teachers is based on personal variables, so the exploration of these variables is very essential. As, it being recommended by Ugwu & Ugwu (2017) that deployment of staff for their task and extra roles leading to increased job performance should be based on educational qualifications, age, work experience and job ranks. Hence, current research will provide the evidences in the profession of secondary school teaching in indigenous perspective.

In the current educational scenario of Pakistan, the role of a teacher is very demanding and there is a vital need to explore the causes of the downfall of the education system of Pakistan.

Furthermore, Seidel and Shavelson (2007) concluded that correlation survey studies dominated teaching effectiveness studies in the past decade but proved to be more distal from the teaching hence the researches that would contribute purely in effective teaching which is the requirement.

Moreover, the researches that are found on effective teaching are tends to be related to higher education while ignoring the fact that secondary education is the foundation of the educational careers of the students. Hence, the sensitivity of that time period requires just effective teaching none of the negligence in teaching cannot be spared as it is staking the future of the students on stake.

As it is mentioned above literature in teaching is generally based on the scale development (Ahmad, 1998; Hanif & Pervez, 2004; Riaz, 2000), teacher quality and education (Ali, 2011; Dilshad, 2010) and factors effecting teacher's performance (Nadeem et al., 2011) but researches on effective teaching are in scarce that is why this research proposes to fill the literature gap in these indigenous contexts. The above discussion clarifies the need and vitality of the current research and the significant requirement for the exploration of the above-mentioned areas.

Method

Objectives

- The evaluation and adaptation of the Students' Evaluation of Teaching Effectiveness Rating Scale (SETERS; Toland & DeAyala, 2005) for teachers and students.

- To explore the relationship of personal variables (age, gender, marital status, income, sector and type of school) with teaching effectiveness (Self & Students' ratings).

- To find out the predicting role of personal variables of teachers (age, gender, marital status, income, sector and type of school) on the multiple ratings of teaching effectiveness (i.e. self & students' ratings).

- To find out the impact of personal variables of teachers (age, gender, marital status, income, sector and type of school) on the multiple ratings of teaching effectiveness (i.e. self & students' ratings).

Research Question

- What is the impact of personal variables (age, gender, marital status, income, sector and type of school on teaching effectiveness (Self & Students' ratings)?

Sample

The sample of main study consisted of secondary school teachers (*n*=303) three students per teacher (*n*=909) that makes the total of *N*=1212 individuals belonging to different secondary schools of Islamabad, Rawalpindi, Karachi, Lahore and Haripur, who were approached conveniently. After the permission from the school authorities, the students were randomly selected from their attendance registers in which every first, last and the middle-named student was selected for the data collection. The sample was conveniently approached from the different secondary schools. The age range of the teachers was from 20 years to 60 years (*M*=33.85, *SD*=9.43), their monthly income ranged from Rs 2,000/- to Rs 75,000/-, their experience in the current school ranged from 6 months to 33 years. The following table 1 would show the frequencies and percentages of the demographic variables.

Table 1

Frequency and percentages of demographic variable (N=303)

Variables	*f*	%
Gender		
Male	87	29
Female	216	71
Marital Status		
Single	199	66
Married	103	34
Age (in years)		
20-39	217	71
40-60	86	29
Education		
MPhil	28	9
Masters	232	76
Bachelors	40	13
Monthly income		
Rs 2,000-20,000	119	39
Rs 21,000-40,000	103	33
Rs 40,000-75,000	46	15
Sector of School		
Government	131	43
Private	171	56
Type of School		
Boys only	86	28
Girls only	99	32
Coeducation	118	38

The above-mentioned table shows the frequency distribution and the percentages of the all the demographic tables that were considered in the present study.

Instruments

The following instruments had been used in the research to collect the data.

1. Demographic information sheet.

The demographic information sheet included name (optional) age, gender, monthly income, overall teaching experience, marital status, education, sector of school and type of school of the teachers. It had been administered only with the secondary school teachers.

2. Teacher effectiveness rating scale.

The teacher effectiveness rating scale was adapted for the present research from Students' Evaluation of Teaching Effectiveness Rating Scale (SETERS;Toland & DeAyala, 2005). The adaptation was done according to the population of the current study and two different scales were adapted for the current study a) Teaching Effectiveness Self Rating Scale (TESR) and, b) Teaching Effectiveness Student Rating Scale (TEStR).

The overall reliability of both scales is .94. The 34 items scale has three subscales namely instructor's delivery of course information (items 1, 3, 4, 5, 7, 8, 10, 11, 12, 13, 14), teacher's role in facilitating instructor/ student interactions (items 18, 19, 20, 21, 22, 23, 24, 25, 26, 30), and instructor's role in regulating students' learning (items 2, 6, 15, 16, 17, 27, 28, 29, 31, 32, 33, 34). The scales are five point-likert scale where 1= Strongly Disagree, 2= Disagree 3= Neither Agree nor Disagree, 4= Agree and 5=Strongly Disagree. There are no reversed score items and the higher score indicates the teaching effectiveness.

Research design

The current research is based on correlation survey design and had been conducted in two phases. In the first phase Adaptation of Students' Evaluation of Teaching Effectiveness Rating Scale (SETERS; Toland & DeAyala, 2005) was done

through Subject Matter Experts (SME) approach while in the second phase hypothesis testing was done.

Phase I: Adaptation of Students' Evaluation of Teaching Effectiveness Rating Scale (SETERS; Toland & DeAyala, 2005)

The main objective of the Phase I of the study is evaluation and adaptation of the Students' Evaluation of Teaching Effectiveness Rating Scale (SETERS; Toland & DeAyala, 2005) for teachers and students through Subject Matter Experts' (SMEs') approach. For that 6 SME's were contacted in which 3 were PhD scholars and 3 were M.Phil scholars who were either educationist or were involved in academic research. Firstly, Students' Evaluation of Teaching Effectiveness Rating Scale (SETERS; Toland & DeAyala, 2005) had been adapted for two different populations i.e. teachers and students with permission from the author. The items were rephrased according to the status (teacher, & student) of the sample. All the items were rephrased with the subject "I" in the teacher's scale, and "my teacher" in student's scale. After that two separate scales were generated. Instructions were also modified according to the population of the scale. A separate set of instructions was developed for the SMEs' which contained the procedure of the evaluation of the scale. The instructions stated that they must give their opinion about the scale in general, its appropriateness according to the population, phrasing of the items and the difficulty of the words. After that, the opinions and suggestion of all the SMEs' were noted and then with the help of PhD scholar they were incorporated in the scale. The suggestions were related to the grammatical structure of the sentences and the difficulty of the words. None of the SME suggested anything about the construct and face validity of the instruments. In the Teaching Effectiveness Self Rating Scale, the phrase "I tried to" was added in the item number 12. Furthermore,

by keeping the cultural context in the mind "(for academic purposes only)" in the item number 26. In Teaching Effectiveness Student Rating Scale in item number 15 "hands on activities" was replaced with "practical exercises and activities". After all these amendments and changes the scales were prepared for the main study.

Procedure.

As mentioned above first of all scales were adopted then for data collection permission was taken from Director of Education Islamabad and Managing Director of the one of the big private school chains. After that schools were identified and approached. The principal of the school had been clarified about the objectives of the research and all the ethical considerations and after their consent the booklets were distributed among the teachers, principals and students. The teachers, students and principals were briefed about the research process and about all the ethical considerations and confidentiality. They were asked to follow the instructions carefully and do not leave any item of the booklet. They were also requested to honest and punctual while filling the booklets. It was recommended to the teachers that if possible they should fill the booklets on the same day but as the booklet was lengthy enough that it may take 35-45 mins of a teacher to fill they were asked to keep the booklet overnight to be filled. After that analysis was conducted on SPSS and AMOS.

Results

Result analysis was done was done with the help of Analysis of Moment Structure (AMOS) and Statistical Package for Social Sciences (SPSS 22). Before the conduction of the analysis the average of the three students' ratings on a single teacher was computed and students' rating was formulated.

Descriptive Analysis

Mean, standard deviation, skewness, Cronbach's alpha reliability coefficient, potential and actual ranges of the scales have been reported in Table 2. Skewness shows the normal distribution of the data.

Table 2

Descriptive statistics and alpha reliability coefficients, univariate normality of study variables

								Range	
Variables	items	*N*	α	*M*	*SD*	Skew	Kur	Actual	Potential
TE (SR)	34	303	.94	143.03	15.91	-1.70	7.61	40-170	34-170
TE (StR)	34	909	.94	140.51	19.33	-.93	.87	57-170	34-170

Note. TE (SR) =Teaching Effectiveness (Self Rating), TE (StR)= Teaching Effectiveness (Student Rating)

In the light of above-mentioned scale, the alpha reliabilities of both scales are excellent. The values of mean, standard deviation, skewness and kurtosis indicated that the data is normally distributed except for the data on the Teaching Effectiveness Self Rating Scale.

Confirmatory Factor Analysis

In the current perspective the factor structure of Teaching Effective Self Rating Scale and Teaching Effective Student Rating

Scale is being tested in a model as given in Students' Evaluation of Teaching Effectiveness Rating Scale (SETERS; Toland & DeAyala, 2005). In each of the model there are three factors or subscales namely instructor's delivery of course information (12 items), teacher's role in facilitating instructor/ student interactions (10 items), and instructor's role in regulating students' learning (12 items). As the name indicated both of the models are being tested for different populations and the results are represented in the following tables.

Table 3

Factor loading of the items of the Teaching Effectiveness Self Rating Scale (N=303) and Teaching Effectiveness Students' Rating Scale (N=909)

Instructor's Delivery Of course Information		Teacher's Role in Facilitating Students' learning		Instructor's Role in Regulating Students' learning	
Item#	Factor Loadings TESRS (TEStRS)	Item#	Factor Loadings TESRS (TEStRS)	Item#	Factor Loadings TESRS (TEStRS)
1	.62(.55)	18	.58(.61)	2	.63(.62)
3	.66(.63)	19	.65(.58)	6	.59(.54)
4	.58(.65)	20	.59(.66)	15	.49(.47)
5	.55(.64)	21	.64(.68)	16	.55(.59)
7	.62(.63)	22	.71(.63)	17	.57(.53)
8	.60(.52)	23	.60(.61)	27	.68(.55)
9	.48(.51)	24	.42(.36)	28	.53(.55)
10	.46(.51)	25	.62(.47)	29	.58(.65)
11	.43(.54)	26	.48(.38)	31	.62(.59)
12	.65(.53)	30	.53(.60)	32	.58(.43)
13	.66(.58)			33	.58(.54)
14	.58(.57)			34	.59(.48)

Note. TESRS= Teaching Effectiveness Self Rating Scale, TEStR=Teaching Effectiveness Students' Rating Scale

The above-mentioned table shows the factor loadings of Teaching Effectiveness Self Rating Scale which are ranging from .42-.71 and Teaching Effectiveness Students' Rating Scale are ranging from .36-.68 and fulfils the criteria given by Stevens (2002).

Table 4

Chi square value, degree of freedom, Goodness of fit indices of TESR and TEStR (N=303)

			Goodness of fit indices				
Scales	χ^2	df	χ^2/df	CFI	IFI	TLI	RMSEA
TESR	895.31	484	1.85	.91	.90	.88	.05
TEStR	1741.74	510	3.41	.90	.92	.88	.05

Note. TE= Teaching Effectiveness, TEStR= Teaching Effectiveness Students' Rating Scale, CFI=Comparative Fit Index, IFI=Incremental Fit Index, TLI= Tuker-Lewis Fit Index, RMESEA= Root Mean Square Error of Approximation

The above-mentioned Table 4 describes the goodness and fit indices for the CFA model of Teacher's Effectiveness Self and Students' Rating Scale. As the rule of thumb suggests that three of the fit indices should be acceptable according to above mentioned criteria and the current model fulfills the criteria of good fit.

Table 5

Correlation of Teaching Effectiveness (Teachers N=303 & Students=909) with Personal Variables

	Teaching Effectiveness	
	Self-Rating	Students' Rating
Age	-.12*	-.14*
Gender	.20**	.37**
Marital Status	.07	.14*
Income	-.16**	-.80
Sector of School	.15**	.06
Type of School	.02	.22**

Note. **p<0.01, *p<0.05

The above-mentioned table comprised of correlation between TE and personal variables. For the computation of correlation with age and income Pearson Product Moment Correlation was used and for the rest of the variables Point-Biserial Correlation was used. shows there is significant weak negative relationship of TE with age (both ratings) and income (Self rating). There is significant weak correlation between TE and gender (both rating), sector of school(Self) and type of school and marital status (students' ratings).

Table 6

Simple linear regression showing the effect of demographics of the teachers on teaching effectiveness (self & student rating; Teachers N= 303, Students N=909)

	Teaching Effectiveness (Self Rating)		
Predictors	*β*	R^2	95%CI
Age	-.12*	.01	[-.39, -.01]
Gender	.20***	.04	[3.22, 11.05]
Marital status	.08	.00	[-.43, 3.46]
Sector of school	.15*	.02	[1.38, 8.59]
Type of school	.02	-.00	[-1.68, 2.58]
Income	-.16*	.02	[.00,.00]
	Teaching Effectiveness (Students' Rating)		
Age	-.14*	.02	[-.45, -.05]
Gender	.37***	.14	[9.78, 17.40]
Marital status	.16***	.02	[.85, 4.81]
Sector of school	.06	.00	[-1.46, 6.00]
Type of school	.22	.04	[2.15, 6.42]
Income	-.08	.00	[.00,.00]

Note. *β*=standardized regression coefficient, R^2= R square,***p<0.001, ** p<0.01, *p<0.05

The above-mentioned Table 5 is showing the predicting relationship of demographic variables on teaching effectiveness (self & students' ratings). It has appeared that demographic variables of age negatively predicted and gender positively predicted in both ratings of teaching effectiveness whereas marital status positively (students' ratings) and income (self ratings) negatively predicted teaching effectiveness.

Mean differences on demographic variables

Mean differences were seen for those demographic variables that have significantly predicted teaching effectiveness.

Mean difference analysis of teaching effectiveness (self & students' ratings) based on age

The population of the current study is consisted of the professional adults. As Erickson (1980) has divided the adulthood into two phases young adulthood (20-39 years), middle adulthood (40-64 years).

Table 7

Mean standard deviation and t-value for age on teaching effectiveness (self & students' ratings)

	20-39 years (n=217)		40-64 years (n=80)				95% CI		
Variable	*M*	*SD*	*M*	*SD*	*t*(295)	*p*	*LL*	*UL*	Cohen's d
TE(SR)	144.53	15.41	139.88	16.35	2.27	.02	.62	8.69	.29
TE(StR)	141.64	16.52	137.54	15.94	1.96	.05	-.11	8.31	.25

Note. CI = confidence interval; LL = lower limit; UL = upper limit, TE(SR)= teaching effectiveness self rating, TE(StR)=teaching effectiveness students' ratings.

The above-mentioned Table is showing the difference of teaching effectiveness (average, self and students' ratings) on the basis and it has apparent that young adults show more effective teaching as compare to middle adults but the effect is showing medium effect in all ratings.

Mean difference analysis of teaching effectiveness (self & students' ratings) based on gender

The difference of mean was analyzed of teaching effectiveness (self & students' ratings) based gender of the teachers.

Table 8

Mean standard deviation and t-value for gender on teaching effectiveness (self & students' ratings)

	Male (n=86)		Female (n=216)				95% CI		
Variable	*M*	*SD*	*M*	*SD*	*t*(300)	*p*	*LL*	*UL*	Cohen's d
TE(SR)	137.98	16.31	145.12	15.30	-3.49	.001	11.17	-3.10	-.45
TE(StR)	130.84	17.01	144.43	14.38	-7.02	.000	-.17	-9.78	-.86

Note. CI = confidence interval; LL = lower limit; UL = upper limit, TE(SR)= teaching effectiveness self rating, TE(StR)=teaching effectiveness students' ratings

The Table 8 is showing the difference of teaching effectiveness (self and students' ratings) based on gender and it has apparent that females are more effective teachers then males in all ratings. The values of Cohen's d are reflecting the large effect size in students' rating while medium effect size in self ratings.

Mean difference analysis of teaching effectiveness (self & students' ratings) on the basis of marital status of the teachers

The mean difference analysis was conducted to see the differences of teaching effectiveness (self & students' ratings) on the basis of teacher's marital status i.e. married or single.

Table 9

Mean standard deviation and t-value for marital status on teaching effectiveness (self & students' ratings)

	Married (n=170)		Single (n=132)				95% CI		
Variable	*M*	*SD*	*M*	*SD*	*t*(300)	*p*	*LL*	*UL*	Cohen's d
TE(SR)	141.93	16.17	144.45	15.57	-1.36	.17	-6.15	1.11	-
TE(StR)	138.55	16.54	143.15	15.79	-2.44	.01	-.17	-8.30	-.28

Note. CI = confidence interval; LL = lower limit; UL = upper limit, *r*=effect size, TE(SR)= teaching effectiveness self rating, TE(StR)=teaching effectiveness students' ratings

The Table 9 is showing the differences of teaching effectiveness (self & students' rating) since marital status. The results revealed that single teachers are more effective in (students' ratings) while there is no significant difference in teaching effectiveness (self rating) although the effect size is low.

Mean difference analysis of teaching effectiveness (self & students' ratings) based on sector of school

The difference of mean was analyzed of teaching effectiveness (self & students' ratings) based on sector of schools i.e. government or private from where the teachers belong.

Table 10

Mean, standard deviation and t-value for sector of school on teaching effectiveness (self & students' ratings)

	Government (n=131)		Private (n=171)				95% CI		
Variable	*M*	*SD*	*M*	*SD*	*t*(300)	*P*	*LL*	*UL*	Cohen's d
TE(SR)	140.21	16.00	145.20	15.58	-2.72	.05	-1.38	-3.10	-.31
TE(StR)	139.27	17.15	141.54	15.69	-7.02	.23	-6.00	1.46	

*Note.*CI = confidence interval; LL = lower limit; UL = upper limit, TE(SR)= teaching effectiveness self rating, TE(StR)=teaching effectiveness students' ratings.

The above-mentioned Table 10 is showing the mean differences of teaching effectiveness (self & students' ratings) on the basis of sector of school i.e. government or private school. The results have shown that the teachers of private of schools are more effective than government school teachers in self rating while there is no difference in teaching effectiveness in students' ratings.

Analysis of variance (ANOVA) showing the difference of teaching effectiveness (self & students' ratings) based on type of school

The analysis of variance was conducted to see the differences of teaching effectiveness (self & students' ratings) based on type of school from where they belong i.e. co-education, boys or girl.

Table 11

Analysis of variance (ANOVA) for type of school on teaching effectiveness (average, self & students' ratings)

	Coeducation (*N*=118)		Boys (*N*=86)		Girls (*N*=99)			
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*η2*
TE(SR)	143.72	13.53	140.01	14.88	144.83	18.90	2.31	
TE (StR)	138.67	15.69	134.80	16.27	147.67	14.67	17.13***	.01

*Note.****p*>.001,**p*>.05,CI = confidence interval; LL = lower limit; UL = upper limit, TE= teaching effectiveness average ratings, TE(SR)= teaching effectiveness self rating, TE(StR)=teaching effectiveness students' ratings *η2*= partial eta square.

The above-mentioned table is showing the results of analysis of variance of teaching effectiveness (self & students' ratings) based on type of school i.e. coeducation, boys or girls. The results showed that teachers who belong to girls' schools are more effective than of coeducation or boys schools in students' ratings while there is no difference in self ratings. The values η^2 is indicating that the effect size is small in students' ratings.

Table 12

Post hoc analysis for type of school on teaching effectiveness (average, self & students' ratings)

i-j	Mean D (i-j)	S.E	95% CI	
			LL	UL
girls> coeducation	-8.99*	2.11	-13.98	-4.00
girls>boys	-12.86*	2.29	-18.26	-7.47

Mean difference analysis on multiple ratings of teaching effectiveness

As it is mentioned above that data on effective teaching was taken through multiple sources i.e. self and students' ratings as Berk (2005) has suggested. Furthermore, their average was used for the analysis. The mean difference was evaluated among these multiple ratings through one sample t-test.

Discussion

The current research was aimed to explore the role of demographic variables on teaching effectiveness. Teaching is core of education, in other words the basic aim of education is effective teaching and there are multiple factors that affect the teaching and its effectiveness. As the journey of individual education is revised in the indigenous perspective it is apparent that secondary school education is one of the major mile stone or turning point, which is the basis of the careers and the personalities of the individuals. So, the factors that can maximize the teaching and its benefits are explored in this research on the sample of secondary school teachers (*N*=303) and their students (*N*=909) belonging from both government private secondary schools.

As mentioned recommendations of literature (Toland & DeAyala, 2005; Faleye and Awopeju, 2012) the factor structure of TESRS and TEStRS was validated with all the 34 items on Paksitani sample. The results of the factor validation (confirmatory factor analysis) showed that the original three-factor solution by the authors Toland and DeAyala (2005) was confirmed for both rating scales (self & students). The three factors that had been validated are instructor's delivery of course information, teacher's role in facilitating instructor/ student interactions and instructor's role in regulating students' learning. The factor loadings of the items of TESRS and TEStR were fulfilling the criteria of Stevens' (2002) critical values of factor loadings. The goodness of fit indices of both scales are indicating a good model fit. Hence, it proves that both of the teaching effectiveness rating scales are reliable and suitable to be used not only for current research but for future indigenous researches also. Furthermore, the alpha reliabilities of both scales were excellent according to George and Malley (2003).

The findings of descriptive statistics indicated that univariate normal distribution of the data except for the data of teaching effectiveness self rating scale (Skewness=-1.70). But at the same time Miles and Shevlin (2001) indicated the values of skewness greater than 2.0 are a significant problem.

The results revealed that there is significant weak negative relationship of TE with age (both ratings) and income (Self rating). There is significant weak correlation between TE and gender (both rating), sector of school (Self) and type of school and marital status (students' ratings).The results of the linear regression showed that age is negatively predicting all ratings of teaching effectiveness that means that as the age increases teaching effectiveness decreases (Celep, 2002) while gender is positively predicting teaching effectiveness which shows that females are more effective teachers than males in all the ratings as Woods (2012) had qualitatively shown that female teachers are perceived more positive than male teachers whereas marital status positively predicted teaching effectiveness in average and students ratings and income in average and self-ratings (Islahi & Nasreen, 2013). As it is generally perceived that private schools are better than government school and this fact is support by the observation of the researcher during data collection.

As the prior researches were providing the mixed findings on the differences of teaching effectiveness based on demographic variables; so, the mean differences were explored on those demographic variables that predicted teaching effectiveness in the light of indigenous context. Mean differences on teaching effectiveness were seen based on age by following the theory of Erickson (1980) the differences were seen among young and middle adults and it has been found that young adults are more effective than middle adult teachers in both ratings. A report by teachers' training and learning program has found that a minority

of the teachers are not capable of maintaining their effectiveness with the passage of time. Further Celep (2002) has found that as the age increases the efficacy beliefs also increases but the actual effectiveness decreases.

Moreover, when the mean differences were explored based on gender it has been found that female teachers are more effective than the male teachers in all ratings. As the above- mentioned literature showed either non-significant or mixed differences based on gender so this research provides a unique finding in this regard. Although these findings are supported by the indigenous cultural perceptions and schemas that had been established for the female teachers; one of the possible reasons of the results can be drawn by the qualitative analysis of the perceptions about the male and female teachers by Woods (2012) which stated that females are perceived more positively than males and are tending to be more nurturing.

Furthermore, the mean difference analysis was conducted on teaching effectiveness (self and students' ratings) and the marital status of the teachers. The findings represented that single teachers are more effective than married teachers (students' ratings). Additionally, there is no significant difference among the marital status on the teaching effectiveness self rating. Rajammal and Muthumanickam (2012) supported the finding of the teaching effectiveness self rating and they have also used self-evaluation of teaching effectiveness. But at the same time Islahi and Nasreen (2013) have found that female married teachers are least effective than male married teachers but both significantly differ from unmarried male and female teachers and between them female married teachers were more effective. The difference of the ratings can be justified as students perceive single teachers more effective as tend to be more fresh, energetic and less occupied by other familial pressures. While the married teachers according to themselves

provide their full efforts but due to their extra responsibilities they are not as effective as they perceive.

Likewise, when the mean differences were explored in teaching effectiveness based on sector of the school it has been found that teachers of private school tend to be more effective than the teachers of government school in teaching effectiveness self ratings while there was no significant difference was found in average and students' ratings. This may be justified by the observation of the researcher and the perception of the teachers that the teachers of the private school do more hard work than the teachers of the government schools.

In the exploration of mean differences on teaching effectiveness, the type of school was also considered i.e. girls, boys and co-education schools. It has been found that teachers of girls' school are more effective than coeducation school teachers and they are more effective than the boys' school teacher in students' ratings. This finding is supported by the above-mentioned findings of the gender differences. As it was observed by the researcher that the boys' schools have only male teachers who are teaching while coeducation teachers have more female teachers than the male teachers. Hence it has been supported by the above-mentioned fact that female teachers are more effective than male teachers.

Conclusion

From the above research it can be concluded that TESR and TEStR are reliable and valid scales to be used in current and future studies. It was also found out that young adults, females and single teachers are more effective teachers in the indigenous culture while private school teachers are more effective in self ratings. Furthermore, the teachers of girls' school are more effective than the teachers of coeducation schools and they are better than the boys school teachers. Hence, it being concluded that personal

variables play a significant role in determining the effective performance of the teachers, there is a dire need that these factors should be considered at every step of educational planning and reforms.

Limitations and suggestions

Following limitations are found in this research. First of all, the teachers that participated in the research were not exclusively teaching to students of the ninth and tenth year of education. Furthermore, principals did not allow to take the academic grades of the students so the students were randomly selected based on their attendance registers.

After the research following suggestions are recommended to extend this research. The first suggestion for future researches is different levels of teachers like pre-school, primary, middle and secondary school teachers should be compared with respect to their effectiveness. Furthermore, the same comparison can be conducted with the subjects of their expertise.

Furthermore, the translations of all the instruments should be done in Urdu language so a large sample of the population can be contacted.

Implications

In the light of the above-mentioned conclusion teachers' training programs should be designed to increase their effectivity. Furthermore, policies of recruitment and retirement should be revised in the light of this study and others like that.

Furthermore, this research fills the literature gap regarding the kind of research and provides a basis of the information that is important for indigenous purposes. It also gives direction to the

mixed findings that were available on the teaching effectiveness and personal variables.

Lastly this research also provides indigenous scales for the measurement of teaching effectiveness self and students' rating scales which can be used in future researches particularly for secondary schools and can be used for teacher evaluation through multiple sources.

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