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Message of Rector

We, in the International Islamic University, Islamabad, consider ourselves privileged to be associated with this unique centre of learning in the Muslim world which strives to combine the essentials of the Islamic faith with the best of modern knowledge. I believe that quality of teaching is the most important factor which promotes academic excellence of any educational institution. I am really excited on the launch of International Journal for Innovation in Teaching and Learning (IJITL). IJITL will provide a forum to the academicians, professionals and researchers to re-shape their knowledge about teaching and learning along with an intellectual and international linkage atmosphere. It is focusing on the latest trends, issues and innovations in teaching and learning. I do hope that the innovations in teaching and learning will be highlighted in the journal for improved practice.

Prof. Dr. Masoom Yasinzai
Rector, International Islamic University Islamabad

Message of President

International Islamic University, Islamabad, is in the process of embarking on a new phase in the history of the University. We are busy in making preparations for an expansion plan both in terms of education as well as in terms of physical development. The main task of the educational institutions is to provide quality education (teaching and research). The Department of Education is striving hard to achieve academic excellence. This department is one of the most important departments of the university. This Department has established its credibility in offering regular programs and recently launched a variety of programs through dual mode of learning. Launching an International Journal is a big challenge and I appreciate the efforts made by the Department of Education for it. This journal is expected to address the expectations of the academic community and I am confident that the Department of Education will maintain the quality of International Journal of Innovation in Teaching and Learning (IJITL). I value the insightful contribution made by all in making IJITL a renowned journal of its kind.

Prof. Dr. Ahmad Yousif A. Al-Draiweesh
President, International Islamic University Islamabad

SCOPE OF THE JOURNAL

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- Philosophy of Education
- Innovation in teaching methodology

Characteristics and Methods of Effective Teachers: A Qualitative Study of Students' Perspective

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Abstract

The objective of present study aims to analyze the perspectives of the university student about preferred effective teaching approaches. Qualitative description is the research design selected for sampling, data collection techniques and analysis procedures. A purposeful sample of twenty students by using convenient sampling technique was employed (16 males; 4females). Contextual setting of the study was provided by the universities located in Islamabad, Pakistan. Qualitative software NVIVO 10 was used for data analysis. The analyses of word frequency report and word tree are made to gain in-depth understanding about effective teaching. The qualitative model of the study leads to the conclusion that there are two main categories of effective style of teaching i.e. characteristics and methods. Findings of the study suggest that there are different factors perceived by the university students about the effective teaching. Theoretically, the study contributes to the styles and characteristics based literature in general and to the literature particularly on the relationships between styles of effective teaching and students' learning particularly. Particular implications on the basis of qualitative source findings will be discussed in the context of students preferred teaching approaches, teachers' teaching style and university administrators and personal management.

Key words: Qualitative Study, Characteristics, Methods, Students' perspective, Pakistan

1. Introduction

Monitoring and evaluating the quality in education sector is pivotal in education system of every country. Particularly, education is considered important but it is also a known fact that the educational process will never be completed without teachers (Saroyan

& Trigwell, 2015). Teachers and their actual methods of teachings create an impression and impact on the educational process and develop the learning aptitudes of students. It must be recognized that teaching is a complicated and challenging activity. It requires the enclosure of actual experiences and the development of materials that can give more meaningful learning to the students , skills, and attitudes (Awofala, 2012). Effective teaching characteristics and methods, is one of the dominant dimensions in the quality education (Duflo, Dupas, & Kremer, 2015). Extending the notion from this definition it can be induced that the role of a teacher is very essential in the educational process. The characteristics and style of the teaching have a major impact on students' learning. The position of students as major stakeholders in the educational process is much exclusive. Therefore, the conception of students about the teacher's characteristics and style is a major concern of researcher in the field of educational management.

Teaching style is an approach which teacher put into practice throughout the teaching and learning activities. Teaching style is the reflection of the assessment of a teacher and preferred behavior of disseminating knowledge to the students. Research studies in the educational literature posit that teacher's style can put a significant impact on students' effective learning.

1.1 Research Objective

The main objective of present study was to explain the characteristics and style of effective teachers at higher education level.

1.2 Research Questions

The study responded the following questions:

1. To explore the perceptions of university students about the preferred style of teacher in the context of higher education?

2. To examine the perception of university students about the preferred characteristics of teacher in the context of higher education?

1.3 Significance of the Study

The research has addressed the most imperative issue of teacher style and characteristics perceived by the students in the field of education. Teachers and their competency is the back bone of any educational system. The quality of a teacher is the assurance for the quality in education. By considering the student voice that what actually

they prefer about the teaching methods, is an important issue to be discussed. The study predicts various constructs which should be considered by the teachers to become an effective teacher.

The findings of the study posit that teachers in higher education should equip themselves with the modern pedagogical methods and techniques to enhance the quality of education and student learning experiences. The study also contributes in the missing link through the present literature which mainly focus upon the subjective constructs of an effective teacher. The study also provides subjective and student centric constructs about the quality of teachers at higher education level.

2. Literature Review

In every system of education, teacher is one of the substantial component. Excellence of plans, success of process executed, and surety of desired outcomes greatly depend upon a teacher. Teacher in fact is an operator of the teaching-learning process. Zhang & Fang, (2009) conceptualized teacher style and characteristics into six dimensions: 1) academic qualification and publication, 2) preparedness and subject knowledge, 3) personality trait and personal style, 4) attachment with students, 5) devoutness and enthusiasm, and 6) classroom supervision. University students with different perceptional differences attached different degrees of importance to different dimensions of conceptions about effective teachers. For example, students with the executive thinking style considered that effective teachers would be connected with students, prepared for teaching and equipped with the subject knowledge. Teaching styles are the characteristics by which each individual collects, organizes and transforms the pieces of information into useful knowledge.

There are many factors that affect teaching styles. Teachers have different personalities and attitudes subject to vary over times. In addition to teaching style and the teacher's characteristics changes along with technological, social and culture changes (Walklin, 2002). Effective style of learning and teaching at higher studies demands robust knowledge of the subject matter (Calaguas, 2012). Theory of mental self-government is largely adopted by the researcher to comprehend the notion of effective style of teaching at different educational levels (Li, 2004). The main thrust of the mental self-government theory is the intellectual styles and development that has different ways. Likewise, by employing theory of intellectual styles Zhang & Fang (2009) investigated the preferred teaching styles among university students in Hong Kong and the United States.

Furthermore, the study of (Zhang, 2005) suggested that students' preferences in teaching styles varied as a function of their own characteristics, including age, academic disciplines, self-rated abilities and thinking styles. However, the substantive literature review of studies reveals that effective style of teaching required the investigation of the relationships of students' intellectual styles to their preferred teaching styles in different ways (Moore,2016).The literate review reveals that past studies mostly examined preferred teaching styles from teachers' perspectives rather than from the students' perspectives (Moore,2016). Effective teaching style and characteristics are divergent around the globe due to the governance infrastructure of education in each country.

Furthermore, most of the studies employed the Quantitative or Logical Positivism Paradigm to explore the phenomenon. But as it is revealed from the past theories about the effective style of teaching that it is a subjective phenomenon. The paradigm of logical positivism does not meet the feasibility to assess subjective phenomena. Studies expounded in literature which attempt to discover various characteristics by using various perspectives. The studies in preceding literature have used both quantitative and qualitative techniques to assess the phenomena of effective teaching (McMillan, 2007). Zimmerman, Bockerts, Pitrich & Zeidner (2000) inferred from their study that effective teaching strategies could only be instigated by effective and experienced teachers in a class. Jackson, (2015), described that effective teacher training is unavoidable to produce a good teacher who would be well-trained in the respective domain in achieving educational and organizational goals.

There are various studies explicated in the literature which posit about the teacher style and characteristics and their possible impact on student learning efficiency. However, there are limited evidences that what are the actual styles and characteristics perceived by the students. Previous studies mainly discuss this issue by using quantitative data which does not effectively incorporate the voice of students. Therefore, the current study aims to fill this gap by using the qualitative data to comprehend that what are the essential style and characteristics of a teacher perceived by students. Teacher style according to previous studies are operationalize as the techniques adopted by the teacher to disseminate the knowledge, whereas the characteristics are the personal qualities which are reflected through behavior.

3. Methodology

Research Design: Fundamental qualitative description was the research design selected for sampling, data collection technique and analysis procedure (Liane & Ginsburg, 2007). This approach is employed to gain a comprehensive summary of facts using the qualitative naturalistic data from the participants. This type of qualitative approach is employed when we require answers to questions about specific events or phenomena.

Sample Size: A Purposeful sample of twenty students from four business disciplines, i.e. (Economics, Management, Human Resource Management and Finance) was employed by using convenient technique (16 males and 04 females). The age of participant's ranges from 20 to 25 years and the academic levels of the participants was graduation.

Contextual Setting: Contextual setting of the study was provided by the universities located in Islamabad, Pakistan. Five major universities were selected, i.e., Bahria University, Air University, SZIBEST (Shaheed Zulfikar Ali Bhutto Institute of Science and Technology), NDU (National Defense University) and University of Lahore, Islamabad campus.

Collection of Data: The current study employed in-depth interviews to gain comprehensive understanding of the phenomenon. The use of the interviews in the field of education is dominant and is considered an effective source to gain in depth understanding (Carnell, 2007). Unstructured interviews were used to gain the in-depth immersion about the effective style of teaching in higher education. The unit of analysis which was incorporated in the current research study contained the students enrolled in universities located in Islamabad, Pakistan. Extent of literature on characteristics and style of teaching was reviewed and unstructured open ended questions were deduced (Carnell, 2007).

Substantively, respondents were asked to respond about the characteristics and style of teaching in higher education. The average mean duration of the interview was 20 to 30 minutes for each respondent. The issues of confidentiality and ethical consideration were taken into account and a formal informed consent was obtained from each respondent to record the interview digitally. Unstructured interviews are effective to explore the subjective phenomena by using fundamental qualitative approach (Sheila, 2010).

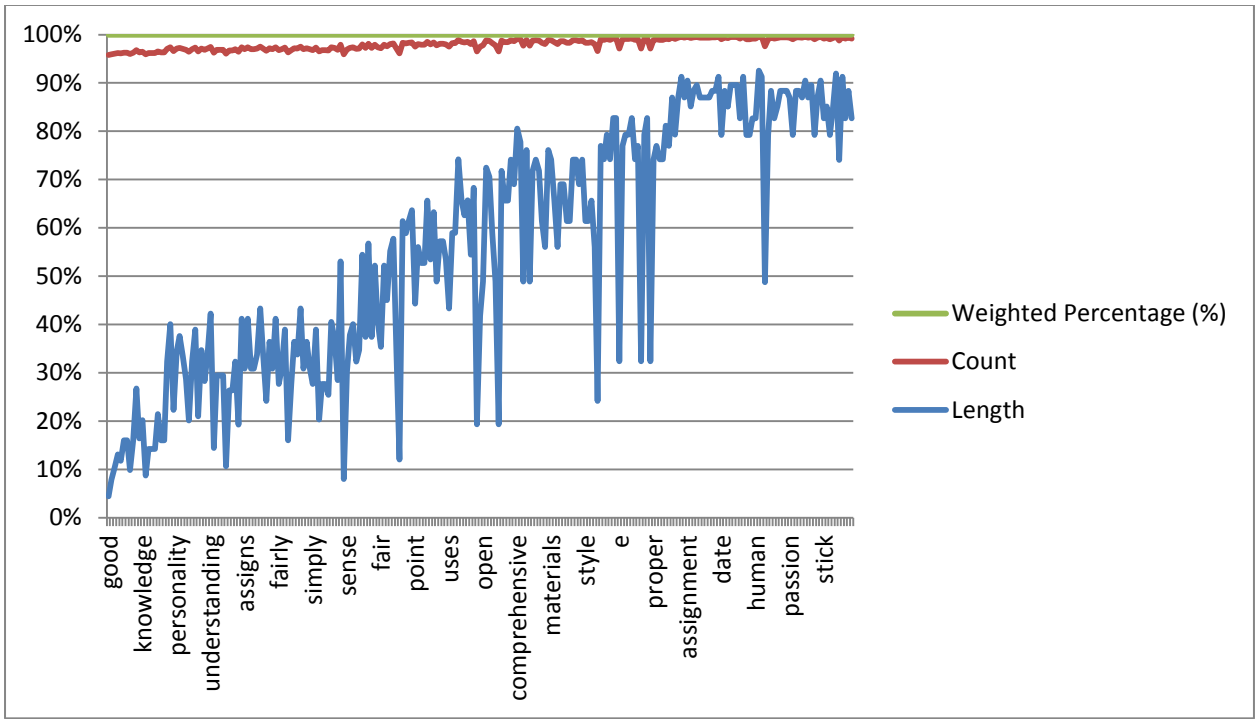
Data Analysis: The transcription process is a critical element in data analysis and the central in qualitative research (Carnell, 2007; Penny, 2003). NVIVO 10 software was

used to analyze the unstructured qualitative data. The first step towards the data analysis is importing the data to internal source into NVIVO. The second step involved the transcription of data through recorded interviews carefully and correctly. After transcription the auto coding was run on all the recorded interviews. After transcribing, the process of coding was done by making nodes demanded by the transcribed data. Different reports of the qualitative data were generated by NVIVO software mainly, word frequency report, tree map, tag cloud and proposed model to effectively understand the major dimensions of the effective teacher characteristics.

4. Results

The following section presents the results based on qualitative data. The following table 1 is showing the word frequency query report about the recorded unstructured interviews.

Table 4.1. Graphical Chart of Word Frequency Query Report



Word frequency query diagram states the list of most frequently occurring words from the source. It only provides the details about the contextual content of the sources. It states the most common feature of the style of effective teaching. Examination of the report illustrates that 20 to 25% of the contextual content sources contain the discussion about

the word "Good Communication". During the process of conducting interviews and transcription, it was noted that respondents replied that the communication skill is one of the major characteristics of effective teaching. The word frequency query reported that 30 to 40% respondent's discussion was about the subject area and punctuality.

The rigorous transcription and detailed interview process shows that if providing practical example related to the topic is also one of the main characteristics of effective teaching. Theme of the command over subject is emerged when respondents were discussing about the methods of effective teaching. Similarly, the word humor and fair marking were reported as 50% to 60% in the whole discussion and it is asserted that as one of the major characteristics of effective teaching. Furthermore, 70 to 80% discussions of respondents show that sympathetic and caring behavior is another characteristic of an effective teacher. Word query only provided the details about the contextual content of the sources. Moreover, in depth analyses of the qualitative sources were made to identify the substantive themes of the study.

Table 4.2. Significant Nodes of Effective Teacher Characteristics

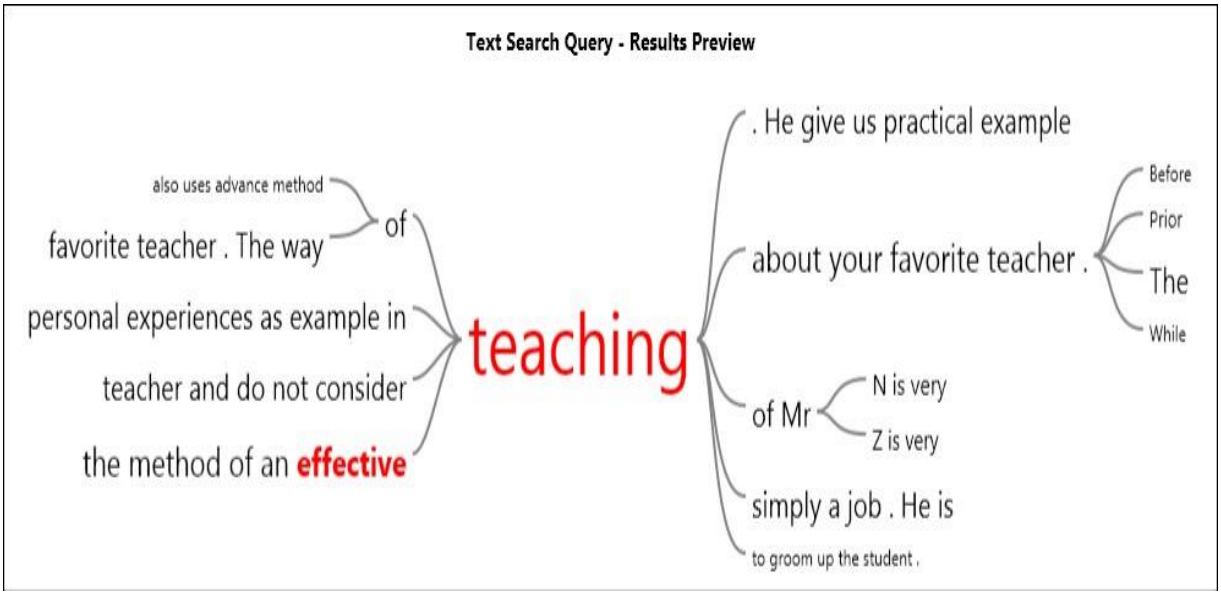
Table 4.2 reports the result about the main themes of the characteristics of effective teaching. Significance of the theme is decided on the size of the boxes. The larger size of the box reflects the higher level of significance. One of the significant node compared by number of items coded are mainly, Kindness and Sympathy, Knowledge, Attractive personality and Punctuality. Furthermore, the coding of the nodes about the teacher characteristics shows other different less significant nodes also. These less significant

nodes were mainly communication skills and other behavioral characteristics such as humorous nature, sense of belonging and providing equal opportunities.

Table 4.3. Significant Nodes of Effective Teacher Methods

Table 4.3 reports, the result about the main theme when the respondents were discussing about the methods of effective teaching in higher education. The size of the boxes is the sources to comprehend the significance of a particular theme. One of the significant node compared by the numbers of item coded are mainly, the use of Multimedia, Work as a Team, Advancing Practical Examples related to the topic contents and Equal & Fair marking. Other less significant nodes were mainly reported as Communication Skills, Sense of Belonging and Providing Equal Opportunity to each student to participate in the class discussion.

Table 4.4. Word Tree of the Effective Teaching Text Search Query



To analyze the qualitative unstructured data, word tree result preview is useful tool to comprehend the contextual setting of the word used in the process of interview conduction. It is an effective way to explore the characteristics with particular text search query. Table 4, presents a logical contextual setting of the words used about the effective teaching. The logical contextual view of the study illustrates that when respondents replied about effective teaching, they mainly focused upon the practical example which are related about the topic during the class. The word tree report solely depends upon the quality of transcription and the process of interviews. It merely involves the personal conception of the respondents about effective teaching styles.

Table 4.5. Qualitative Model of the Study

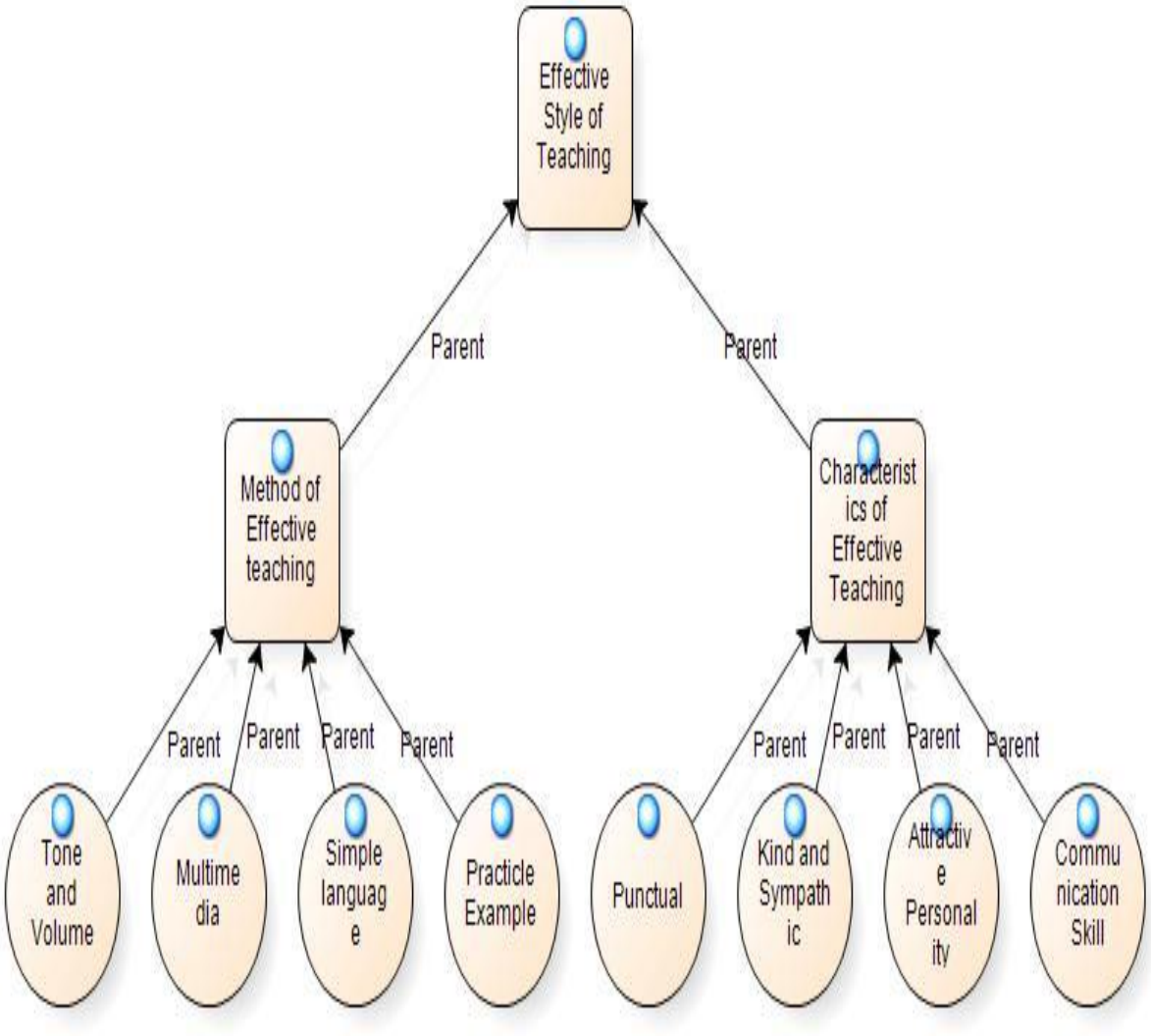


Table 4.5 reports the qualitative model of the study generated by NVIVO 10 software. The hierarchical qualitative model shows the major themes of the characteristics and methods of effective teaching. This qualitative model is built on the basis of coding the major nodes of the source data. Auto coding technique was employed to make the dominant nodes of the source data. The parent node of the characteristics of effective teacher exclusively includes Punctual, Kindness and Sympathy, Attractive and Communication Skills according to student's perspective. The parent node of the second research question which was about the methods of effective teaching are namely, Practical Example, Tone and Volume, Multimedia, Simple Language. All of these factors reflect the perceived

conception of characteristics and method of effective teaching by the students enrolled in universities.

5. Discussion

Major findings of the study report that the key attributes of an effective teacher are Punctuality and Kindness respectively. While the significant methods of effective teaching are Practical Example, Tone and Volume, Multimedia and Simple Language. The findings of the present study are best aligned to the previous studies expounded in the literature. The findings of the study are consistent with existing study of (Zhang, 2005). They posit that effective style of teaching requires sound knowledge, communication skill, uses of advance multimedia technique to transmit the knowledge, attractive personality, appropriate tone and volume of voice. Furthermore, the study of Liane & Ginsburg, (2007) confirms the findings of the current study by advocating that style of teaching in higher educational setting requires a Good Command of the Subject, Punctuality, Kindness & Sympathy and Attractive Personality.

5.1. Characteristics of Effective Teaching in Higher Education

Punctual: One of the main perceived elements of effective teaching according to university students is the characteristic of punctuality. Previous research studies also has the view that punctuality is considered to be one of the main characteristics of effective teachers (Calaguas, 2012). The participants also responded about other behavioral characteristics of effective teaching including sense of belonging, providing equal opportunity to each student to participate in class activities. But the major theme which was developed on the basis of source data is punctuality. It reflects the perspective of the respondents about the importance of punctuality in becoming the effective teacher at university level.

Kindness and Sympathy: The other characteristics of effective teaching as explored by the current study are the kindness and sympathy. During the process of interview conduction and transcription, it was analyzed that the majority of the respondents have the view that a teacher at the university level should be kind and should be able to understand the intellectual abilities of the students. Beside this, the students also hold the perception about fairness in grade marking and un-biasedness in class. But the major theme which is developed on the basis of source data was kindness and sympathy which reflects the

perspective of the respondents about the importance of kindness and sympathy as the major characteristic of an effective teacher at university level.

Attractive Personality: One of the other perceived characteristics of effective teaching according to university students is the attractive personality. Previous studies also have the view that personality is considered as one of the main characteristics of effective teacher. Moreover, students also responded that besides attractive personality, the way of presenting the lecture also matters a lot such as most of the students respond about the gesture and non-verbal communication of the effective teacher at the university level.

Communication Skill: The next notable characteristic of effective teaching as explored in the current study is the communication skill. The qualitative source data reported communication skills as the most important characteristics of an effective teacher at university level. Word frequency query also reported about the tone and volume of effective teacher at university level but the major theme which is developed on the basis of source data is communication skill.

5.2. Methods of Effective Teaching in Higher Education

The next unstructured question was asked to the participants that what are the methods of effective teaching? On the basis of qualitative source data the following major themes emerged.

Practical Example: Qualitative model of the study shows the characteristics of practical examples. Students have the perception that explaining the content of the text with advancing practical example is an effective way to gain active attention of the student during lecture. Most of the respondents also have the views that practical examples are effective to learn the content related to concerned area of study. By asking further advantages of practical example from the respondents, it is also conceptualized that it is the effective method to involve the students during the lecture in class. Practical examples also assist the students to simplify the conceptual clarification about the complex concept of the subject.

Simple language: The next important theme of the effective method of teaching is to explore the importance of simple language. The source data analysis documented that the most effective method of effective teaching is the use of simple and precise language. The rigorous process of interview and transcription of source data shows that during the lecture an effective teacher should use simple and precise language according to the intellectual

and academic ability of the students. Students have also the perception that they feel ease in understanding the concept when language used by the teacher is simple and precise in nature. The use of simple and precise language also positively affects the students' learning.

Multimedia: Qualitative model of the study display the factor of using multimedia during the lecture. Students have the perception that by using presentation on multimedia is more effective to understand the topic easily. Majority of the students have the view that by practice of multimedia it is much easier to understand the topic.

Tone and Volume: Qualitative model of the study depicts the characteristics of tone and volume of speech during the lecture. Students have imparted that explaining the content of the text is linked with appropriate tone and volume of the speech which in turn grabs the close attention of the students during class lecture**.** Furthermore, the students have also the perceptions that gesture and presentation skills also matter a lot during the advancement of lecture at university level.

6. Conclusions

To achieve the objective of the study effectively two main unstructured research questions were asked from the participants. First, what should be the major effective teaching characteristics of a teacher at university level? Secondly, what the effective teaching methods of a teacher should be at university level? Regarding the first research question the major theme or characteristics of effective teaching are punctuality, kindness & sympathy, attractive personality and communication skills. The factors of effective method of teaching were explored as the characteristics of practical example, tone and volume, multimedia and simple language. Findings of the study are consistent with two previous studies (Liane & Ginsburg, 2007; Zhang, 2005).

Recommendation and Future direction: The practical implication of the study is context based and cannot be generalized at larger extent. However, theoretically the study contributed to the styles and characteristics literature in general and to the literature on the relationships between styles of effective teaching and learning particularly. In the light of study findings, it is recommended that faculty members at the higher level education in Pakistan should improve their self-efficacy to enhance the student's learning. University management needs to pay attention to the professional competency of the teaching faculty. In order to build the teachers' competence in-service trainings should be provided. To

increase the productivity of in-service training of teachers, financial rewards and promotions may be given. This study employed Auto Coding by using NVIVO 10 software, thus the future studies can best use Axial Coding for in-depth understanding of this subjective phenomena. Last but not least, future studies can conduct a comparative study of effective teacher characteristics among private sector and public sector universities.

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Learning Styles : An Overview of the Felder-Silverman's Model and Measure

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Abstract

Individual differences are of particular concern for educators in the teaching-learning process. Besides physical and social facets, it includes interest, motivation, aptitude, attitude etc. One of the recently focused such facet is learning style. Learning style denotes an individual's instinctive pattern of acquiring knowledge and processing information. Learning styles are significant to education and curriculum. There are various models and measures of learning styles like Kolb (1984), Honey and Mumford (1982), Sousa's (1995) Visual, Auditory and Kinesthetic (VAK), Fleming's (1995) Visual, Auditory, Read-Write and Kinesthetic (VARK) and Felder and Silverman's Model (1988). One of the most comprehensive and widely used conceptions is Felder-Silverman's model of learning styles. The dimensions of this model consist of four continuums known as sensing-intuitive, active-reflective, visual-verbal and sequential-global. Also, the facets of this model are analogous to the facets of other conceptions of learning styles. The learning style dimensions of this model are determined through a scale known as Index of Learning Styles (ILS). This tool has shown ample validity and reliability. In Pakistan, research on learning styles is scarce. Also, there was no evidence of using this model in any research inquiry in the local context. The aim of this paper was to give a detailed description of Felder-Silverman Model and Measure. Similarly, it was planned to report the psychometric features of the ILS. Furthermore, it was also intended to persuade the researchers to use this tool for research.

Key words**:** *Learning style, Felder-Silverman Model, Index of Learning Styles*

1. Introduction

Learning is an inclusive procedure that considers many factors like intelligence, motivation, goal, aptitude, interest, memory etc. Similarly, individual difference is also an important component of learning. These differences exist in the people's physique, sociability, affective attributes and cognitive characteristics (Din, 2009). Individual differences appear in different shapes. Gender, physique, age, ethnicity etc. are explicit

differences while intelligence, memory, early experiences and other behavioral attributes are latent differences (Din, 2009; Al- Azawei & Badii, 2014).

Students are different in terms of processing information. They prefer learning practices that they found appealing and adequate, for instance, a student may take notes of a topic from History, but his classmate prefers to watch a documentary about the same area or topic (Kanninen, 2009). Likewise, some learners like to perform tasks while others learn better through listening. Similarly, some learners take interest in learning through visual modality (Din, 2009). This particular preference to learning practices is known as leaning styles. Cassidy (2004) holds that learning styles denote particular approaches to accomplish academic errands.

Learning styles are worth to consider in the process of schooling. Apparently, students having learning activities matching to their respective learning styles perform better than those who face a mismatch. Collinson (2004) holds that learning style is an established factor of getting better results from the instructional procedures. Many researchers are of the view that learning styles have a vital role in the process of education. Students will face problems if their learning styles do not complement with the instructional mode of their teachers (Felder & Silverman, 1988; Felder& Spurlin, 2005).

Researchers have identified various models of learning styles (see, e.g. Kolb, 1984; Honey & Mumford, 1992; Fleming, 1995 and Felder-Silverman, 1988; etc.). The Felder-Silverman's proposed model is a comprehensive and widely used model. This study aimed at to provide a theoretical framework of Felder-Silverman's Model and Measure. It is also intended to encourage implication of this model for research investigation in the local context.

1.1 Objectives of the Study

In Pakistan, there are a few studies on learning styles. The researcher has not found any study based on Felder-Silverman's model. Therefore this study aimed at:

1. To give a detailed description of the Felder – Silverman's Model of Learning Styles.
2. To highlight the instrument of learning styles based on Felder-Silverman's model.
3. To review the validity and reliability of the Index of Learning Styles (ILS).
4. To persuade researchers to employ this model and measure for investigations.

1.2 Significance of the Study

This study has included description of the salient features of the Felder-Silverman's model. The facets of this model could assist teachers in making instructional and assessment plans. It could also help curriculum planners to consider the facets of learning styles in devising curriculum, subject matter and assessment procedures. The facets of this model have been thoroughly discussed. Further, the status of Index of Learning Styles (ILS) is discussed as a valid and reliable instrument. In addition, this study has suggested guidelines for future investigation.

2. Review of Literature

2.1 Learning Styles

Learning style is an important factor of learning. There is slight variation in the definitions of learning styles. The term 'style' helps to identify how individuals are similar to or different from each other with respect to their learning approaches (Din, 2009).The leading definition of learning style, which is preferred by ELSIN association (cited in Peterson, Rayner & Armstrong, 2009b), is a person's preferred manner of behavioral and cognitive reactions towards learning errands. Learning styles are thought to be flexible as they are liable to changes with changes in environment. Learning style is not a fixed and isolated term. It is not totally independent of other terms or variables (Kanninen, 2009). Instead, a specific learning style is formed through a conjugation of intellectual, affective and behavioral traits. These elements influence how an individual will sense, interact and respond to the learning stimuli. The exclusive combination of these traits determines how an individual will learn in a particular style. It results in different approaches from different students in a similar learning situation (Gordon 1998 as cited in Din, 2009). Further, preferring one learning style does not mean that a person has no inclination for other styles. An individual with preference for particular learning style may bring into play elements of other styles too. Students with diverse styles of learning may integrate them to get an appropriate concoction for every learning opportunity (Kanninen, 2009).

2.2 Learning Styles and Cognitive Styles

The terms 'cognitive styles' and 'learning styles' are assumed to be compatible (Cassidy, 2004; Din, 2009). They have been used in tantamount in research investigations (Evans &Charlesworth2010; Evans & Sadler- Smith 2006). It is difficult to draw a line of distinction between these terms (Cassidy, 2004). Gordon (1998 as cited in Din, 2009)

believes that these are inclusive concepts and contain facets of cognition, behavior and affection. Further, cognitive style denotes the discrepancies among individuals on the basis of how they execute information. It is allied to an individual's cognitive system. Cognitive styles represent a person's preferred approach to execute information. It is assumed to be somewhat stable and probably innate (Peterson et al., 2009b). However, Din (2009) viewed that cognitive style resides in a human mind and has no patent association with the environment. While learning style is environment based and has evident association with motives, wants, hassles, difficulties and effects of the surroundings. In addition, Peterson et al. (2009b) considered learning styles as top-down strategies that focus on the students and learning assignments. Whereas, cognitive styles are assumed to be bottom-up i.e. from inner to outer mode.

Since 1980, learning styles have been a focus of many researchers. As a result many models and instruments have been introduced. Some well-known models are Kolb (1984), Honey and Mumford (1982), Sousa's (1995) VAK (Visual, Auditory and Kinesthetic) and Fleming's (1995) VARK (Visual, Auditory, Read-Write and Kinesthetic) and Felder and Silverman Model (1988). Many researchers (e.g. Cassidy, 2004, Din, 2009) attempted to classify the models of learning styles. Din (2009) has arranged learning models into three wide categories namely perceptual modalities, information process and personality attributes.

2.3 Felder and Silverman Model of Learning Style

Richard M. Felder and Linda K. Silverman put forward their model of learning styles in 1988 (Din, 2009).They considered learning style as an approach with which pupils acquire and apply new concepts. It describes how people obtain, interrelate and reasonably retort to the learning stuff (Felder & Silverman, 1988; Felder & Brent, 2005; Felder & Spurlin, 2005).At first this model was made known to the graduates of Engineering (Zywno, 2003).Felder and Silverman (Felder, 1993; Felder and Silverman, 1988) suggested four factors of their learning style model. Each dimension embodies the preferred manner of an individual's learning (Tanner & Allen, 2004).These dimensions are helpful in addressing the multiplicity of learning styles and their relation with the pedagogical practices(Tanner & Allen, 2004).These facets consist of: type of information preferred either through 'sensing or intuiting,' modality to acquire information through 'visual or verbal' mode. Primarily, this model contained five factors (Zywno, 2003):

(a) The active-reflective dimension is subsumed under the 'processing of information.'

(b) Sensing-intuitive element belongs to the 'perceiving of information' factor.

(c) Visual-verbal aspect comes under the 'input of information' facet.

(d) Sequential-global is considered under the 'understanding of information' factor.

(e) Inductive-deductive dimension falls under the 'organization of data' factor.

Felder advocated the facet of 'organization' for teaching only. It is not estimated through index of learning styles (Zywno, 2003). The facets of this model are not distinct categories rather they are laying on a continuum. A person's score on any dimension could be located anywhere between two extremes. It implies that favoring one aspect, such as visual, does not indicate the individual has no inclination towards verbal modality at all (Fillipidis & Tsoukalas, 2009).

2.3.1. Active or Reflective

This dimension is subsumed under the category of information processing. Active learners are dynamic people who like performing activities and trying things out (Din, 2009; Leithner, 2011; Fillipidis & Tsoukalas, 2009). They are fond of 'learning by doing' and carrying out activities in groups (Mestre, 2010; Fillipidis & Tsoukalas, 2009). They may describe, apply or operate the learning stuff. They find it hard to attend the long lecture sessions (Mestre, 2010). On the other hand, reflective learners concentrate on and contemplate about the objects, ideas or issues presented to them. They think over ideas for a long time before conceptualizing them (Din, 2009).They like to work and study in isolation (Leithner, 2011; Mestre, 2010; Bacon, 2004) or with a single known mate (Ultanir, Ultanir & Temel, 2012). They like instruction through lectures and seminars (Din, 2009).

2.3.2. Sensing or Intuitive

This factor considers how people 'perceive' information (Leithner, 2011). Sensing learners have pragmatic approach. They like factual data and workable ideas (Fillipidis & Tsoukalas, 2009). They prefer conventional and stereo-type techniques to address problems. Similarly, they like courses which have marked association with everyday life. They also go well with extensive data (Mestre, 2010; Ultanir, et al., 2012).Sensing learners become upset with challenging tasks (Mestre, 2010). They have usually concerns about the effectiveness of academic practices and programs. They also dislike to be assessed in vague and embedded concepts and ideas (Din, 2009).

On the contrary, intuitive learners favor abstract conceptions and originality. They are keen to identify associations and likelihoods among ideas (Leithner, 2011; Fillipidis & Tsoukalas, 2009). They are also highly interested in novelty. Computation and rote learning activities are unappealing to them (Mestre, 2010).Intuitive learners are more innovative as compared to their opposites (Ultanir, et al., 2012).They averse the conventional practices and welcome changes and challenge (Din, 2009).

2.3.3 Visual or Verbal

The visual-verbal preference belongs to the 'input' factor (Leithner, 2011). Visual learners are inclined to learn from visual data like figures, images, charts, tables etc. (Fillipidis & Tsoukalas, 2009; Ultanir, et al., 2012). They have better capacity to observe. They do not like verbal instructions (Din, 2009). On the other hand, verbal learners are superior in learning from oral narration and written descriptions and listening (Mestre, 2010; Fillipidis & Tsoukalas, 2009; Leithner, 2011). They are also known as auditory learners as they are superior in dealing information explained through spoken words and verbal details. They also take interest in lengthy periods of lectures and discussion sessions (Din, 2009).

2.3.4 Sequential or Global

The sequential-global facet is subsumed under the 'understanding' facet (Leithner, 2011). Sequential learners adapt a stepwise approach for comprehension. They study in a linear format and learn step by step. They do not ignore minute details. One step leads to another on rational basis (Fillipidis & Tsoukalas, 2009;Mestre, 2010; Din, 2009). They need a valid connection between different aspects of an idea (Din, 2009). They are keen to get extensive details about a concept (Ultanir, et al., 2012).

To the contrary, global learners focus on the whole view and like to understand in huge bounds (Leithner, 2011). They ignore minute details (Fillipidis & Tsoukalas, 2009; Bacon, 2004) and study randomly. They frequently disregard the relationships among ideas and rush to the conclusions (Mestre, 2010; Ultanir, et al., 2012). They can rapidly resolve complex problems and configure objects and ideas in an innovative format (Mestre, 2010).

2.4 Equivalency with Other Models

The facets of Felder-Silverman Mode correspond with certain facets of other conceptions (Felder & Spurlin, 2005; Perna, 2011). For instance, the active-reflective

dimension is existed in Kolb's Model (Kolb, 1984; 1993). It is also alike to the extravert-introvert dimension of Myers–Briggs type indicator (MBTI) (Lawrence, 1993).The sensing-intuitive continuum is also existed in the Myers–Briggs type indicator (MBTI). It is also equivalent to the concrete-abstract element of Kolb's model. The active-reflective and visual-verbal elements are also matching with the compositions of modality theory and neuro-linguistics (Fillipidis & Tsoukalas, 2009).

2.5 Index of Learning Styles

Felder and Solomon (n.d.) devised an instrument based on Felder-Silverman (1988) model for determining learning styles. It was known as index of learning styles (ILS). In 1996, the printed form of the ILS was placed on the world-wide-web. The online form was initiated in 1997 (Felder & Solomon, n.d.). It was intended to facilitate the learners to fill in the questionnaire online and get immediate feedback (Perna, 2011). The index of learning style is free of cost for noncommercial purposes, for instance, researchers who wish to use it for investigation. Similarly, teachers who want to employ it for instructional purposes and individuals who desire to find their own learning modes (Ultanir, et al., 2012).

The ILS describes only the preference of a particular learning mode. It does not indicate the strength or weaknesses of a person. The ILS identifies the skills of an individual on particular learning mode. It does not consider the group comparison (Felder & Spurlin, 2005). This instrument classifies students on either side of each of four continuums based on their preferences i.e. either on visual or verbal. An individual may also be placed between the two extremes (Felder & Spurlin, 2005; Zywno, 2003; Clarke, Lesh, Trocchio & Wolman, 2010). At the beginning, this tool was dispensed to a sample of engineering students (Ultaniir, et al., 2012). Generally, the scale consists of 44 simple statements with each statement having two responses represented by options 'a' and 'b.' The respondents have to tick either option 'a' or 'b' in accordance with their preferences (Van Zwanenberg, Wilkinson, & Anderson, 2000; Green &Sammons, 2014; Graf, Viola, Leo & Kinshuk, 2007). This scale determines a respondent's preferences for one or other aspect of all four dimensions(Felder & Spurlin, 2005; Zywno, 2003; Clarke et al., 2010).There are 11 questions for each dimension of learning styles which determine an individual's position on each dimension (Leithner, 2011; Graf, et al. 2007).

2.6 Validity and Reliability of ILS

Validity and reliability are the two major attributes to be considered for any instrument to be psychometrically sound. Several investigators (Zwyno, 2003; Felder & Spurlin, 2005) have shown that ILS is a valid and reliable instrument and could be used for studying learning styles. The ILS has adequate test-retest reliability. Alumran (2008) found the test-retest reliability was calculated to be 0.8 with an interval of 2 weeks for all facets of ILS. Ultanir et al. (2012) found the test-retest consistency in the range of 0.51 to 0.89 with an interval of 3 months using a sample of non-native English speakers. Felder & Spurlin (2005) computed the test-retest reliability and found it to be in the range of 0.7 to 0.9 with a time gap of 28 days.

Several studies have computed low level of internal consistency of ILS, for instance, Van Zwanenberg et al. (2000) reported the internal consistency in the limits of 0.41 to 0.65. Similarly, Livesay, Dee, Nauman & Hites (2002) proclaimed alpha to be existing between 0.54 and 0.72; although, they reported high level of test-retest consistency. Similarly, Felder & Spurlin (2005) have reported the internal consistency being in the limits of 0.55 – 0.76 while Zywno (2003) estimated it in the range of 0.53 – 0.70 for all four facets. However, other researchers presumed this level for achievement scales, while for attitudinal scale, an internal consistency of 0.5 is accepted (Tuckman, 1999).

ILS is also a valid instrument. Zywno (2003) identified that ILS has the attribute of construct validity by analyzing consecutive cohort studies. It was also shown that there were no meaningful distinctions between the average scores of the students in the successive years which confirm the construct validity. Similarly, this instrument also bears convergent construct validity (Felder & Spurlin, 2005), as engineering students of different areas and in different periods have shown numerous common characteristics (Zwyno, 2003). Similarly, the discriminant validity of ILS has also been confirmed by showing meaningful difference in results from populations with diverse attributes. For instance, Van Zwanenberg et al. (2000) have shown a meaningful difference of learning styles between students of Business and Engineering. Similarly, researchers (Wetzel & Harmeyer, 1997; Zywno, 2003) have made a comparison between learning styles of learners and faculty members by employing ILS and have detected vital differences in distribution of learning styles.

Zywno (2003) is of the opinion that ILS meets the adequate standard of construct validity and reliability. In addition, Felder (2005) asserted that the ILS has been validated

in ten universities of four countriesby studying English oriented Engineering students. Further, feedback from the learners and factor analysis endorse its validity. To conclude, ILS is an approved instrument in the research arena regardless of some criticism (Akbulut & Cardak, 2012; Al-Azwei & Badii, 2014).

2.7 Scoring and Interpreting the Index of Learning Styles

The results obtained through ILS have been scored and interpreted in two ways by researchers. For each continuum, such as visual-verbal, options 'a' of the respective questions signify responses for 'visual' facet while options 'b' stands for 'verbal.' For each factor, there are 11 questions. The preferences of respondents are either indicated in values from 11a to 11b or in the digits from -11 to +11 (Green & Sammons, 2014; Graf, 2007).

In the first, when (-1) and (+1) format of scoring is used (Graf, et al., 2007). The option 'a' carries (+1) and option 'b' carries (-1) for each item. When a respondent selects an option 'a', for instance, on the visual-verbal facet, visual score is increased by (+1) while the opposite, the verbal facet is decreased by (-1) and is subtracted from the opposite i.e. verbal preferences (Graf, et al., 2007; Green & Sammons, 2014).On each of four dimensions, the scores of students fall between -11 to +11 (Leithner, 2011). Learning styles preferences on the extremes, i.e. -11 or +11 are assumed to be stronger, for example, on sequential-global scale, +11 stands for strong sequential preference while -11 represent strong global tendencies (Green & Sammons, 2014).Further, in interpreting, for example, active-reflective scores, 0 or 1, represents a strong reflective tendency, 2 or 3 symbolizes a moderate reflective preferences, 4 or 5 signifies a mild favoritism for reflective, 6 or 7 shows mild active preferences, 8 or 9 signifies a moderate tendency for active while 10 or 11 stands for strong active inclination (Felder & Spurlin, 2005).

In the second approach, when 11a and 11b scoring procedure is adapted. Then the score is computed by adding up total 'a' response and total 'b' responses. If the sum of 'b' responses is less than the sum of 'a' responses then it is subtracted from the total of 'a' responses and vice versa (Van Zwanenberg, et al., 2000).To put it simple, all the 'a' and 'b' responses for an aspect, say visual-verbal are added up. The sum of smaller score is subtracted from the larger sum and final score is obtained. The final score is interpreted as:

Score	1 or 3	Balanced between two aspects
	5 or 7	Moderate preferences

9 or 11	Strong preferences

If the score of an individual is 5a on active-reflective dimension then he has moderate preferences for active learning mode. Similarly, if an individual scores 9b on the sequential global dimension then he has strong preferences for global style. Finally if the score is between 1 and 3 then the preferences of the individual is balanced on the sequential-global dimension (Felder & Solomon, n.d.).

3. Conclusions

The above discussion revealed that the Felder-Silverman's Model is very broad and comprehensive. It has got sufficient theoretical details. This model is also analogous to various other conceptions. Further, it does not declare learning styles as something absolute or distinct. It shows not only the existence but also the degree to which an individual possesses a particular learning style. In addition, it denotes the learning styles on a continuum and an individual could aptly rate himself at any position on the continuum. It shows the flexibility of this conception and turns it superior over other models.

The facets of Felder-Silverman model are estimated through a comprehensive measure, known as Index of Learning Styles. It is a valid and reliable tool. It has sufficient internal consistency and good test-retest reliability. Furthermore, this tool has good construct validity. It has also the validity to discriminate. This measure has a scoring procedure and terms for interpretation. In a nutshell, this model is of vital significance for researchers, educationists and evaluators.

4. Recommendations

Research on learning styles is scarce in Pakistan. This model and measure would provide an important avenue for researchers to explore it further. Researchers could validate this tool in the local context in original form as well as in its translated version. Similarly, researchers could apply this model and measure to various levels of education. Furthermore, the curricula, instructional and assessment procedures could be evaluated keeping in view the facets of this model. The index of learning styles could also be used in collaboration with other tools of learning styles. Similarly, learning styles could also be used with other relevant variables for correlational investigations. Researchers may also consider developing new tools keeping in view the facets of this model.

Teachers may also consider this model for instructional purposes. It is evident that teaching-learning process is incomplete without proper consideration and implementation of learning styles in different educational contexts. Similarly, it is equally important for students' assessment. For this purpose, the school administration may guide teachers through workshops and seminars on how to utilize this model for instructional and assessment purposes.

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Impact of low Cost Teaching Material on Students' Attitude towards Science at Secondary Level in Khyber PakhtunKhwa Pakistan

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Abstract

This study aimed to investigate the impact of low cost teaching material on students' attitude towards science (Chemistry) at secondary level in Khyber Pakhtunkhwa Pakistan. This was an experimental study. Each group,i.e. Experimental and control was consisted of 30 students of Grade 12 science stream. To assess the impact of low cost teaching material on students' attitude towards science (Chemistry) a modified form of Test of Science-Related Attitudes (TOSRA) comprised of 29 items was used. The test was purely constructed on aLikert scale to measure the students' attitude towards Chemistry on the factors such as Behavior tendency to learn Chemistry, Liking for chemistry laboratory work, Liking for Chemistry theory lesson, Evaluation belief about Chemistry, Leisure interest in science and the Enjoyment of Chemistry. Quantitative data were analyzed using t-test through Statistical Package for Social Sciences (SPSS). The main findings of the study indicated that students in the experimental group taught through activity with low cost materials showed significantly greater attitude towards science (Chemistry) than the control group.

Keywords: Science Education, Attitude towards Science, Low Cost Material

1. Introduction

The civilization of the world owes a great debt of gratitude to modern scientific inventions and discoveries whose stamp is clearly visible in every walk of life. The revolution brought about in the world by this scientific invention is highly commendable. Developed countries have made a wonderful progress because of their scientific education which has enabled them to utilize their material resources. It is now impossible for nations to remain isolated from another. They want to develop the scientific environment to keep their students on the right track to understand their physical environment. According to Fathman et al, (1992) it is because of science education that a student can understand about his physical surroundings by developing a multicultural worldview of scientific phenomena. As science education is related to the teaching of science subjects such as Physics, Chemistry and Biology to the students, it revolves around the education career of the students.

Attitude towards science (Chemistry) may affect students' performance and academic achievement. To have a positive attitude and make the students creative thinkers are main goals of teaching science which ensure their better performance in chemistry.

Many studies conducted on students' attitude towards chemistry,e.g.Archibong (1992) ,Suydam, Marilyn and Higgins (1977), Hussain, et al. (2011) have found that teaching science with activity is more effective to learn science because this approach provides students with a tangible experience. In the education system,activity based teaching is focused on ideas and keeps the students directly engaged in laboratory work.

Science, especially chemistry is taught with activity based approach. But it is difficult for the third world countries like Pakistan, where the economic resources are very limited, to provide full teaching facilities to their students to develop scientific environment. Consequently, it is imperative to teach chemistry with low cost material in laboratories to keep students on scientific track. Therefore, the researcher tried his best to teach grade 12 science students with low cost teaching material to investigate the impact of low cost teaching materials on students' attitude towards science.

1.1. Objectives of the Study

There was a single objective of the study:

To investigate the impact of low cost teaching materials on students' attitude towards science (Chemistry).

1.2. Hypothesis.

The null hypothesiswas tested.

Ho: there is no impact of teaching through low cost materials on students' attitude towards Chemistry.

1.3. Significance of the work

This study is significant for several reasons. Firstly, this study is likely to guide the curriculum designers to incorporate low cost activities in the curriculum that makes the curriculum more effective, interesting and attractive for the students and science teachers. Secondly, this study is likely to help in building the capacity of science teachers to use and fabricate low cost activities by arranging different workshops and training that may help the effective teaching of science. Lastly, this study is likely to create a culture of low cost activity which will enrich our laboratory activities.

2. Literature Review

About the definition of attitude towards science Petty (1995) reached at the conclusion that all definitions for the attitude are within a consensus in which they are positive or negative thoughts, feelings or behaviors towards the objects around us. Therefore, different researchers defined attitude differently. According to Simpson and Oliver (1990) attitude is a concept that gives emotional trends relating to events or ideas. Therefore phrases "I like science" or "I enjoy science courses" enumerate as attitude. According to Osborne et al. (2003) attitude consists of different sub-constructs which ultimately gives rise to a person's attitude towards science.

One should not take the scientific attitude as attitude towards science. These are two different terminologies as Bennett (2003) makes a clear distinction between attitude towards science and scientific attitude. According to him, attitude towards science is linked to the views and images that the individual develops about science as a result of interaction with different situations, while the term scientific attitude is linked to the ways of thinking or scientific method, which covers the skills and is related to the undertaking of practical work. Gardner (1988) mentioned two categories about the broad nature of attitude i.e. attitude towards science that is related to interest in science. Simply, attitude towards science means like or dislike of any things related to science. The second category is "scientific attitude" which is a scientific process (open mindedness, objectivity, honesty). In the words of Yara (2009) attitude towards science denotes interest or feeling towards studying science. It is the students' disposition towards liking or disliking science. Gardner (1988) defines attitude as "*a learned predisposition to evaluate in certain ways objects, people, actions, situations or propositions involved in learning science*". (p. 34)

Developing positive attitudes towards science is one of the key goals for teaching and learning sciences Malik et al. (2010) conducted a study on the Effect of Problem solving teaching strategy on 8th Grade students' attitude towards Science. The study was conducted with 60 students 30 in each experimental and control group at a public high school in Islamabad. A scale regarding attitude towards science learning (AtSL) with Cronbach's alpha 0.86 was administered to the students of both experimental and control groups. It was concluded that student in experimental group made a positive improvement in attitude towards science learning as compared to students in the control group. Sılay (2008) worked on the effects of directive and non-directive problem-solving on attitudes and achievement of students in a developmental science course. It was concluded that

attitude became more positive in direct instruction. Miller (1961) and Morse (1995) found that students with positive attitude towards science had positive attitude towards their science teacher, science curriculum and science-classroom climate. Students' attitude towards science is more likely to influence the success in science courses.

In contrast to positive attitude towards science, there are negative attitudes as well. These negative attitudes have been documented in numerous studies for a number of years in relation to courses in research, statistics and mathematics (Adams & Holcomb, 1986; Elmore &Vasu, 1980; Wise, 1985). According to Wise (1985), Waters, Martelli, Zakrajsek, and Popovich, 1988) one of the main problems of these negative attitudes is that they have been found to serve as obstacles to learning. In turn, these negative attitudes have been found to be associated with poor performance in such courses (Elmore& Lewis, 1991; Woelke, 1991; Zeidner, 1991). However, (Meece, Wigfield, &Eccles, 1990) suggest that attitudes are actually mediators between past performance and future achievement.

There is a mixed finding of different researches about activity based teaching and attitude towards science. Akporehwe and Onwioduoki (2003) conducted a study and found out that the activity-based approaches have significant effects on students' attitudes with guided discovery approach being most facilitative. It was also shown that gender and the interaction between opposite gender and activity-based approaches were not significant. This gave an indication that other factors play great role in enhancing student's attitudes. Similarly, Townsend (2012) conducted a study to examine the impact/effect of activity based activities on students' attitude toward science. The researcher reported that not only the students' attitudes towards science improved, but confidence and understanding of science increased as well. Students had positive feelings towards science; even they did not choose it as their favorite subject. According to students, science was more enjoyable when activities and laboratories were a part of learning experience. A similar study has been conducted by Demircioglu, Gokhan and Ayas (2005) in Turkey to investigate the effect on the students' achievement and misconception of new teaching material developed for the unit" acid and base". Moreover, the students' attitudes towards chemistry were also explored. The results indicated that students in the experimental group had higher attitude toward chemistry. This showed that the implementation of the new material produced better results both in terms of achievement and attitude. According to Gnanadesikan (1997) the use of activities has invigorated our

teaching and improved our attitude. Some students responded very positively to this, while others show negative response.

Another study was conducted by Townsend (2012) on the Effects of laboratory-based activities on student's attitudes towards science. The sample comprised of 40 fifth grade students who were taught science over a five month period on laboratory based activities. It was concluded that using labs/activities inspired and increased the understanding of science in fifth grade students which showed a positive attitude towards science.

Smist and Owen (1994) believe that chemistry attitudes are predicted positively by self-efficacy and through chemistry attitudes self-efficacy reduced indirectly chemistry laboratory anxiety. In other words, attitude towards chemistry served as a mediator in linking self-efficacy and chemistry laboratory anxiety. Student's attitudes towards chemistry are very important for their involvement in learning in laboratory as well as in classrooms. According to Bandura (1986) self-efficacy is one's belief in his/her capacity to perform a specific task. Individuals may assess their skills and capabilities prior to performing certain actions or activities. Bandura (1986) further added that if individuals have high self-efficacy to perform activities, they are more likely to attempt doing those activities and to develop positive attitudes toward them.

2.1. Studies Related to Activities with Low Cost Materials

Activities/experiments are important for active learning of the students, but it cannot be denied that these involve high cost/expenditure as most of the schools do not have well-equipped science laboratories. According to Khitab (2004) "*most of the schools do not have separate chemistry laboratories and those having chemistry laboratories are not well equipped. However, it is certainly possible to design low cost activities and experiments using easily available materials to chemistry*" (p. 13) According to Shafiq (Personal communication, March 2010) the use of those materials found around us as used and thrown away garbage, in science laboratories in an education institution is called low cost materials. Those activities which are performed in science laboratories with the help of low cost apparatus are called low cost activities. Low cost apparatus increases the capacity to observe. Similarly Ara (1998) stresses on the use of apparatus fabricated of low cost materials for the teaching of chemistry at the secondary level. She was of the

opinion that for the development of scientific skills; illustration and provision of opportunities for scientific investigation the use of low cost materials are equally effective.

According to Ali and Papaiah (2015) "*Sometimes the standard teaching aids may remain out of reach – may be due to any reason. Look around, quite possible one gets something from the surrounding, which may serve as a better teaching aid for the topic. A step further, perhaps he who is innovative, may prepare such an aid for the available materials from here and there, low cost-no cost teaching material is the term that refers to an offhand construction of a teaching aid with simple available materials costing little or nil. No-cost teaching material is mater is that which a teacher can use by carrying it from local sources. It may waste things which a teacher can use as a teaching aid. Low-cost teaching aids can be used in nursery, primary, middle, secondary and senior secondary schools*" (p. 3)

A study was conducted by Sivakumar (2016) to find out the effectiveness of low cost teaching aids in teaching science.The sample consisted of 40 students in Control group and 40 students in Experimental group. It was concluded that the achievement scores of Experimental group students were higher than the Control group students. Teaching by using low cost teaching aids is more effective.

Another study was conducted by Khitab (2011) on the Development of Low Cost Learning Material for the teaching of Chemistry at Secondary Level. The sample consisted of 10 secondary school teachers and 100 students of class 10^{th}. It was concluded that none of the science teachers could construct low cost material for the teaching of chemistry at the secondary level.

3. Methodology

Experimental method was used in this study and groups,ie, control and experimental were randomly selected with the help of concerned teachers after obtaining demographic detail of participants.

3.1. Population of the Study

All the science students of government and private colleges of Khyber Pakhtunkhwa, studying at the 12^{th} grade, formed the population. The total number of

Government, Non Government Higher secondary schools and colleges is 1521; where 381166 Science students (Class 11th to 12th) were enrolled.

3.2. Sample of the Study

60 students of 12thgrade science stream were taken as a sample, i.e, 30 students for the control group and 30 students for the experimental group. The convenient sampling approach was adopted due to the nature of the study. And for such purpose the students enrolled in Oxford Education Academy Batkhela, Khyber Pakhtunkhwa Pakistan were taken as a sample for the following reasons.

1. This institution was accessible to researcher.
2. The Principal and staff of the Institution were cooperative.
3. This was a well populated institution and students from far flung area were enrolled here.

3.3. Selection of Topics

Keeping in view the objectives of the study, the researcher went through the chemistry book of grade 12 in order to select the topics to be taught in science classes. Mostly the selected topics were those that could be taught through activities with low cost materials. The selected topicswere ;

(i) Preparation of Acetylene apparatus, (ii) Sodium Hydroxide, (iii) Hydrogen and Chlorine Gas by Brine solution in Nelson Cell (iv) The reactions of aluminum metal with HCI and NaOH. (v) Examining the effect of heat on solubility, (vi) Total Hardness Determination in Water , (vii) Measurement of atmospheric pressure. One of the low cost apparatus has been given in Fig 3.1.

Figure 3.1. Low Cost Apparatus for the Preparation of Acetylene Gas

Presented Low Cost Apparatus | Modified Low Cost Apparatus | Developed Low Cost Apparatus

3.4. Construction of Instrument

Likert scale was constructed purely to measure the students' attitude towards chemistry on the factors such as the Behavior tendency to learn chemistry (BTLC), Liking for chemistry laboratory work (LCLW), Liking for chemistry theory lesson (LCTL), Evaluation belief about chemistry (EBAC), Leisure interest in science (LIS) Enjoyment of chemistry (EC)

SD = Strongly Disagree, D = Disagree, NS= Not sure, A = Agree, SA= Strongly Agree

Example;

S. No	Statement of Attitude towards chemistry	SD	D	NS	A	SA
I	Activity based teaching method is the best way of learning chemistry.	1	2	3	4	5

3.5. Administration of Instrument

The researcher taught the experimental group with low cost material and the control group with the lecture method for 17 days regularly. After seventeen days the modified test of TOSRA comprising 29 items was administered and timed for 90 minutes. As it was not a routine test, therefore, students were not familiar with it in their school and college life. Therefore,the researcher guided them. However, the respondents' response was quick and returned the test in no time. The collected data were analyzed using quantitative data analysis approach. Descriptive statistics, mean, the standard deviationand t- test was used to find the mean difference across groups along with effect size to find the strength of the mean difference.

4. Results

The modified form of TOSRA test was applied to treat both groups, i.e., control and experimental. The test consisted of six factors, i.e., the Behavior tendency to learn chemistry, Liking for chemistry laboratory work, Liking for chemistry theory lesson, Evaluation belief about chemistry, Leisure interest in science and enjoyment of chemistry.

To know the impact of teaching science through activities with low cost materials on students' attitude towards science (Chemistry), t-test was applied after treatment. The details are given in the table 4.1

Table 4.1.Comparison of Control and Experimental Groups in Attitude Towards Chemistry

	Groups	Mean	Std. Deviation	t-value	Df	Sig (two tailed)	Effect size Cohen's d
Pair 1	Control	121.20	8.235				
	Experimental	132.03	13.975	8.616	29	.000	0.944
Significance Level		$p < 0.05$					

Table 4.1. shows that there was a significant difference between the attitude towards science scores of the control and experimental group at 0.05 levels. Higher mean score of experimental group (132.03) shows that experimental group showed well in their TOSRA test. Higher standard deviation of experimental group means that there was more variation of score among students than the control group indicating that some students were more impressed by low cost activities than other fellows. To evaluate the mean difference further Cohen's D effect size was used and its values (0.944 > 0.8 Cohen effect size value) showed that a large effect size in case of experiment group.

Table 4.2. Comparison of Control and Experimental groups in Attitude Towards Chemistry

S No	**Factors**	**Groups**	**Mean**	**Std. Dev;**	**T**	**Sig ;**	**Effect size Cohen's d**
1	Behavior tendency to learn chemistry	Control	27.93	2.741	7.938	.000	0.96
		Experimental	31.01	3.998			
2	Liking for chemistry theory lesson	Control	15.47	1.737	6.262	.000	0.76
		Experimental	17.50	3.246			
3	Evaluation belief	Control	24.90	2.568			

	about chemistry	Experimental	27.30	2.336	9.055	.000	0.97
4	Liking forchemistry laboratory work	Control	21.53	2.909	7.289	.000	0.94
		Experimental	24.10	2.537			
5	Lasure interest in science	Control	16.73	3.352	8.137	.000	0.91
		Experimental	19.37	2.385			
6	Enjoyment of chemistry	Control	15.87	2.968	2.344	.000	0.55
		Experimental	17.60	3.286			
P < 0.05 Significant Level Df=29							

Table 4.2 shows that there was a significant difference between the students' behavior tendency to learn chemistry, factor of attitude towards science, scores of the control and experimental group at 0.05 levels. Higher mean score of experimental group (31.47) shows that the experimental group showed well in their behavior tendency to learn chemistry. Higher standard deviation of experimental group means that there was more variation of score among students than the control group indicating that some students were more impressed by low cost activities than other fellows. Higher mean score of second factor,Liking for chemistry laboratory workof experimental group (17.50) shows that experimental group showed well in their attitude towards science. Higher standard deviation of experimental group means that there was high variation of score among students than the control group, which indicates that students were more impressed by low cost activities than other fellows and liked to work in chemistry laboratory with low cost activities. Similarly, the mean scores (M=27.93, 15.47, 24.10, 19.37 and 17.60)ofLiking for chemistry theory lesson, Evaluation belief about chemistry, Laisure interest in science and enjoyment of chemistry respectively of experimental group show that experimental group showed well in their TOSRA. The standard deviations of these factors were also higher in the experimental group which showed that the students were impressed by low cost activities. To elaborate the difference further Cohen's D effect size was also calculated as the Table 2 shows a large effect size in factors of attitude towards chemistry.Therefore, the null hypothesis, which claimed "there is no impact of teaching science through low cost materials on students' attitude towards science" of the study is therefore, rejected.

5. Conclusion and Discussion

The usage of the instrument of attitude towards chemistry in this study was to compare experimental and control groups on the basis of teaching chemistry through activities with low cost materials. The experimental group showed significant effect on the control group. This fact is evident from different strata where there was great difference between the score of experimental and control groups indicating positive attitude towards chemistry. The Cohen's D criteria 0.944> 0.8 favored to be large in the case of the experimental group. Standard deviation in the score of experimental group indicates that students of this group were more impressed by low cost activities than the other fellows. Furthermore, experimental group dominated overthecontrol group in mean scores in all sub-scale of attitude towards chemistry i.e. Behavior tendency to learn chemistry,Liking for chemistry theory lesson, Evaluation belief about chemistry, Liking for chemistry laboratory work, Leisure interest in science, Enjoyment of chemistry with greater size effect ranging from 0.76 to 0.97 except enjoyment of chemistry with 0.55 favored medium size. Higher mean scores, greater size effect and higher standard deviation of experimental group indicate that students were more impressed by the teaching through activities with low cost materials as compared with the control group who received instruction trough a traditional method and liked to work in chemistry laboratory with low cost activities and had significantly higher performance accuracy in the test and higher attitude towards chemistry.

5.1. Recommendations

Following important recommendations were drawn on the basis of the findings and conclusion of this particular study between the experimental and control group performance and impact of teaching chemistry with low cost activities on attitude towards chemistry.

1. Teaching with low cost material improves the attitude of the students towards chemistry therefore, activity based teaching with low cost material is recommended for all types of students, whether they are high learners, slow learners or average learners as it increases students' attitude towards science.
2. Teaching with low cost material improves the behavior tendency of the students to learn chemistry of the students, therefore, it is recommended to design such low cost material in a curriculum that develops the behavior tendency of the students to learn chemistry which in turn leads to develop the positive attitude of the students towards chemistry.

3. There is a great impact of teaching through low cost material on chemistry laboratory work, therefore, the Government may formulate a policytoprovidelow cost apparatus and arrange refresher courses for the teachers in fabricating and the use of low cost equipment.

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Effect of Practice Teaching Schools' Climate on Professional Development of Prospective Teachers in Balochistan

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ABSTRACT

Practice teaching is a period of professional development in which schools' climate has a great effect on the lives, thoughts and attitude of prospective teachers. Much care is taken in the selection of the content for prospective teachers but no care is taken in the selection of practice teaching schools. Unwillingness of the mentors, lack of support from leadership, unavailable resources, discouraging attitude of the staff and students in practice teaching schools leave an adverse effect on prospective teachers. Good experiences and opportunities contribute to the professional development of prospective teachers but when some of them have bad experiences and unfavorable working environment in their practice teaching schools, they re-think about their choice of teaching profession. The present study was designed to measure the effect of Practice teaching schools' climate on the professional development of male and female prospective teachers. Simple survey was conducted from 145 participants of Quetta city, enrolled in Associate Degree in Education (ADE) / B.Ed (Hons) program through the use of cluster sample technique. Two self-developed questionnaires built on five point Likert scale were used to collect data. SPSS version 20.0 was used for the analysis of data. The findings of the study showed that majority of the participants found positive climate in practice teaching schools where they went for teaching practice. No gender difference was found in professional development of the prospective teachers regarding the effect of positive and negative climate of practice teaching schools.

Keywords: Practice teaching, School climate, Prospective teacher, Professional development

1. INTRODUCTION

It is a fact that the success of the nation depends on its highly educated and skilled man power, which strives for its recognition, honor and prosperity. In the quotes of our great leaders, we find emphasis on educating new generation with skill, care and respect. The duty of educating future generation lies on the shoulder of the teachers, so they should be equipped with knowledge, skill and should show good disposition to be modeled by their students. If we want good product (student), first we have to enrich the capabilities of the product maker, the teachers. Rena (2008) affirmed the key role of teachers in implementation of reforms and making difference in students' achievement. Teachers, being a core value for all teaching and learning process, need special education and training before they enter the teaching profession so Government should provide them with opportunities to polish themselves for the assigned task. Rena (2008) stated that every education system which aims to provide quality education to its citizens should rely on its trained, prepared and competent teachers. Mahmood & Salfi (2012) mentioned quality as the heart of education in which teachers play a crucial role.

A common notion is, "Practice makes man perfect", therefore, pre-service teachers are passed through a process of practicing teaching before joining teaching as a profession. Azeem (2011) referred this teaching practice period, a time when prospective teachers get first-hand

experience with a particular group of children. They observe school life, pattern of people's experience, deal with diversified students and also get opportunity of collaboration, a sense of family, connections among staff and the quality of relationships with students (Karen, Jill, Kate, Barry & Farida**,** 2015). According to Tok (2011) one of the benefits of this practice is to develop a positive or favorable attitude towards teaching in future teachers. This positive attitude could be developed if a favorable and encouraging environment is experienced by a prospective teacher otherwise challenges of the field can cause change in his/her perception and may result in desertion of teaching profession.

Practice teaching is a period of professional development. People use different other names for Professional development, including staff development, in-service training, professional learning or continuing education. Whatever the term is, the purpose is the same — to improve learning of educators and students. Prospective teachers are sent to school for practicing teaching in the real environment of the schools where they get knowledge and experience. The school climate contributes in the professional development of the prospective teachers. It has effect on the knowledge, skill and attitude of both, male and female prospective teachers.

1.1. Objectives of Study

The objectives of this study are:-

1. To identify the climate of the practice teaching schools.
2. To examine gender differences in professional development of the prospective teachers regarding the effect of practice teaching in school's climate.

1.2. Research Question

Following research question was formulated which guided the study.

What is the climate of the practice teaching schools?

1.3. Hypotheses

In order to achieve the objective two, the following hypotheses were formulated:-

H_{o1}: There is no significant difference in the mean Professional Development scores of male PTs and female PTs who experienced positive school climate during teaching practice.

H_{o2}: There is no significant difference in the mean Professional Development scores of male PTs and female PTs who experienced negative school climate during teaching practice.

2. LITERATURE REVIEW

2.1. Teaching Practice

Azeem (2011) provides different terms for teaching practice like field studies, student teaching, infield experience, internship or school based experience. It does not matter what term is used for "practice teaching", its main purpose is to provide opportunities to teachers for applying theory into practice under the direct and continuous supervision of experienced masters. Quick and Sieborger (2005) called it a period of transition when a university student becomes classroom teacher. Gujjar, Naoreen, Saifi and Bajwa (2010) stated that during practice teaching, PTs are emotionally involved in school activities and as they get experience in the field, they feel more committed, challenged and even authorized.

During teaching practice, PTs are expected to perform almost all duties which a regular teacher performs in the premises of a school. There they observe all the activities performed inside and outside of the classroom, and also put their knowledge of child psychology, teaching techniques, methods and principles into practice (Gujjar et al., 2010). According to Cakmak (2006), PTs have to teach a couple of the classes supervised by an experienced teacher who could be a teacher of the practice teaching school or a college supervisor, along with participating in the routine activities of school life and contacting with different members of the school such as students, parents and other staff members. Tuli and File (2009) explained practicum as a period of supervised experiences which helps PTs in understanding the scope of teacher's role.

2.2. Objectives of Teaching Practice

Every program has some objectives which help in assessment of that program. The new ADE and B.Ed (Hons) programs in Pakistan have same objectives for teaching practice. Gujjar et al., (2010) mentioned that it provides opportunities to prospective teachers.

1. To establish an appropriate teacher student relationship.

2. To evaluate the potential and suitability of student for this profession.

3. To develop interpersonal relationship with academic and administrative staff and community

4. To experience the ways of overcoming the problems of discipline which will enable him / her to develop method of control?

5. To exchange new methods, ideas, material and equipments between practice teaching schools and teachers' training institution.

6. To plan effective lessons.

7. To develop skill in teaching methods, techniques, principles and procedures.

8. To develop desirable attitude associated with teaching profession.

9. To acquire professional behavior and traits of a teacher

10. To evaluate his/her teaching through the benefits of constructive criticism.

11. To get acquainted with own strengths and weaknesses.

12. To have link with school environment and its resources.

2.3. School Climate

Perkins (2007) described school climate as conducive environment for learning, founded through the interaction of physical settings, relationships among humans and psychological atmosphere of the school. School climate not only affects the physical, emotional and intellectual learning of its students but also the educational practices, emotions and perceptions of the perspective teachers who get experiences in these schools during teaching practice. Maier (2010) considered school climate as the quality of the school environment which is experienced by prospective teachers, having effect on their behavior and is based on their collective perceptions of behavior in schools.

According to the definition of National School Climate Centre, School climate is based on the experience of parents, students and school personnel in school life which informs about the goals, interpersonal relationships, norms, teaching and learning practices, values and structure of that organization.

2.4. Importance of School Climate in Teaching Practice

School climate has significant role in practice teaching programs because prospective teachers learn the working of a school, with its inside structures, dynamics and relationships (Henning, Petker and Petersen, 2015). Caires, Almeida and Vieira (2012) stated that multiple variables play a key role in becoming a teacher such as personal characteristics, guidance of supervisor, student-teachers' resources and characteristics of the placement school.

2.5. Professional Development

Mizell (2010) described professional development as educational experiences of different types which are related to the work of an individual. Professional development contributes to the learning of educators which makes their performance better and also results in raising students' achievement. Educators who do not experience effective professional development, lack improvement in their skills due to which students' learning suffers.

2.6. Researches on Practice Teaching

Much work has been done on the practice teaching. Different aspects of teaching experience in schools were measured and explained by researchers in different parts of the world. Caires et al., (2005) conducted a study to see the impact of teaching practice on student teachers' personal and professional development. The sample was comprised of 224 PTs of University of Minho (North of Portugal).An inventory consisting on 64 items was adopted for data collection. The results described the main changes occurring in the student teachers' personal and professional development.

Kiggundu and Nayimuli (2009)conducted a study on the PTs of Vaal University of Technology who got the experience of practice teaching in the Vaal(South Africa) area. The study aimed to explain the influence of teaching experiences on prospective teachers' perception of the teaching profession. The participants were interviewed and it was found that despite the positive experiences during teaching practice, PTs experienced challenges which affected their perception of the teaching profession.

Saifi,Sherzaman, Shah, Idress & Zaman (2013) explored the effect of reformed practicum, proposed in USAID project, on the professional development of PTs in terms of pedagogical skills and beliefs. The sample of 28 B.Ed (Hons) students was selected from University of Gujrat. Data were collected through observation, questionnaire and interviews. The study concluded that PTs' frequent visits to practicum schools, regular meetings with cooperative teacher and supervisor, class room teaching in supervision resulted in positive change in their beliefs about the environment of school, discipline and behavior of the teachers.

Hamaidi et al. (2014) investigated the perspectives of student-teachers about practicum experiences and the challenges faced during practicum. 71 student-teachers of class room teacher and early childhood education studying at the University of Jordan were the sample of the study. The findings revealed that the practicum practices benefited them in acquiring many teaching skills like interacting and communicating with students and managing class room, but participants also highlighted challenges such as lack of orientation and support by cooperative teacher, difficulty in communicating with cooperative teacher and lack of guidance by supervisor.

Budiharso's (2015) study aimed to see the role of practicum in improving teacher's professional development. The study was qualitative in nature and 20 student-teachers, who experienced 10-week teaching in Surakarta, were the sample of the study. At the end of teaching practice, semi-structured interviews were conducted from student-teachers. The findings confirmed the significant role of practice teaching in improving teaching performance of student-teacher. The study also found out that class room observation is the means of self-evaluation which improves student-teacher's skills, competence and knowledge in teaching.

3. Methodology

3.1. Research Design

It was a quantitative causal-comparative study by nature which aimed to investigate the effect of practice teaching schools' climate on the professional development of prospective teachers. Simple survey was conducted for data collection.

3.2. Population

The 4th semester students of ADE (Session 2014-15) and B.Ed (Hons) (Session 2014-17) program were the population of the study. It comprised 806students, enrolled in 20 institutions of 13 districts of Balochistan namely Quetta, Pishin, Panjgur, Loralai, Lasbela, Sibi, KillaSaifullah, Mastung, Kalat, Khuzdar, Jaffarabad, Noshki and Kech. Out of total population 361 were male and 445 were female.

3.3. Sample and Sampling Techniques

Sample was taken in two steps. In first step, convenient sampling technique was applied and Quetta district was selected as sampling district. Due to poor law and order situation in Balochistan, it was inconvenient for researcher to collect data from other districts. In second step, cluster sampling technique was used and Quetta district was taken as cluster by selecting all PTs of ADE and B.Ed (Hons) (4th semester) program as participants of the study. The sample was comprised of 145 prospective teachers (57 male and 88 female) who were taken from the five institutions (3 elementary colleges and 2 universities) situated in district Quetta and were investigated to share their experiences of teaching practice in their respective schools.

3.4. Instrumentation

The data were collected with the help of two self-developed questionnaires for prospective teachers. Questionnaire-1 (26 items) was developed for identifying the climate of practice teaching schools and questionnaire-2(31 items) was developed for measuring the effect of practice teaching schools on the professional development of prospective teachers. Both the questionnaires were scored through five point Likert scale. The instruments were validated by seeking help from the team of experts.

Before the collection of the final data, both the questionnaires were administered to the sample of 20 prospective teachers (10 male and 10 female) of Govt. College of Elementary Education (M & F) KillaSaifullah, enrolled in ADE program. Five items of questionnaire 1 which had low item-total correlation were excluded from the items of the questionnaire1, so there were 26 items in the final version of questionnaire 1, in which item 1 was about demographic

information and 25 items were for identifying practice teaching schools' climate. The Reliability coefficient of questionnaire 1 was 0.727.

There were 31 items in questionnaire 2, in which item 1 was about demographic information and rest of the items were to measure the effect of practice teaching schools' climate on the professional development of prospective teachers. The Reliability coefficient of this instrument was 0.803.

As questionnaire 1 was developed to identify the climate of practice teaching schools where PTs went to get teaching experience, so a cut-off point was decided according to the mean scores of25 items. The detail is given in the table.

Table3.1. Detail of Cut-off Point for School Climate

Negative school climate	**Cut-off point**	**Positive school climate**
25-74	75	76-125

Table 3.1 shows that the highest mean score is 125 and the lowest is 25 whereas the median mean score is 75 which is the cut-off point. It was assumed that if the perceived mean score of school climate, obtained by PTs, was equal to or below than 74, it would show the negative school climate and if the obtained mean score fell between the ranges 76-125, it would exhibit the positive school climate.

In order to see difference in the professional development of male and female PTs, four levels of professional development were decided. The detail of these levels is given in the table.

Table 3.2. Levels of Professional Development

Levels of PD	What knowledge I got?	Which skills I learnt?	Which change I found in my attitude?
1 Low PD 30-59	A little ➢ Learning about self control ➢ Learning about importance of teaching ➢ Realization regarding the importance of interpersonal relationships ➢ Realization of self potential regarding good teacher ➢ Self acknowledgement about performing	A little ➢ Success inlesson delivery ➢ Learning about different learning styles of students ➢ Improvement in planning and execution of lesson due to feedback ➢ Enhancement of teaching skills ➢ Exposure to diversified teaching through observation	A little change in attitude regarding: ➢ Value and respect of a teacher ➢ Teacher's responsibility and student's satisfaction ➢ Provision of guidance and help to student ➢ emotional attachment with school ➢ learning from others

	administrative tasks		
2 Moderate PD 60-89	Some ➢ Learning about self control ➢ Learning about importance of teaching ➢ Realization regarding the importance of interpersonal relationships ➢ Realization of self potential regarding good teacher ➢ Self acknowledgement about performing administrative tasks	Some ➢ Success inlesson delivery ➢ Learning about different learning styles of students ➢ Improvement in planning and execution of lesson due to feedback ➢ Enhancement of teaching skills ➢ Exposure to diversified teaching through observation	Some change in attitude regarding: ➢ Value and respect of a teacher ➢ Teacher's responsibility and student's satisfaction ➢ Provision of guidance and help to student ➢ emotional attachment with school ➢ learning from others
3 High PD 90-119	Much ➢ Learning about self control ➢ Learning about importance of teaching ➢ Realization regarding the importance of interpersonal relationships ➢ Realization of self potential regarding good teacher ➢ Self acknowledgement about performing administrative tasks	Much ➢ Success inlesson delivery ➢ Learning about different learning styles of students ➢ Improvement in planning and execution of lesson due to feedback ➢ Enhancement of teaching skills ➢ Exposure to diversified teaching through observation	Much change in attitude regarding: ➢ MuchValue and respect of a teacher ➢ Teacher's responsibility and student's satisfaction ➢ Provision of guidance and help to student ➢ emotional attachment with school ➢ learning from others
4 Very high PD 120-150	A lot of ➢ Learning about self control ➢ Learning about importance of teaching ➢ Realization regarding the importance of interpersonal	A lot of ➢ Success in lesson delivery ➢ Learning about different learning styles of students ➢ Improvement in planning and execution of lesson	A lot of change in attitude regarding: ➢ Value and respect of a teacher ➢ Teacher's responsibility and student's satisfaction ➢ Provision of guidance and help

	relationships ➢ Realization of self potential regarding good teacher ➢ Self acknowledgement about performing administrative tasks	due to feedback ➢ Enhancement of teaching skills ➢ Exposure to diversified teaching through observation	to student ➢ emotional attachment with school ➢ learning from others

Table 3.2 shows four levels of professional development and the description of PD in terms of change in knowledge, skills and attitude. It was assumed that if the perceived mean score of PD of PTs fell between the range 30-59, it would be level 1, showing low PD because PTs got a little knowledge, skills and change in their attitude. If the perceived mean score of PD of PTs fell between the range 60-89, it would be level 2, showing moderate PD because PTs got some knowledge, skills and change in their attitude. If the perceived mean score of PD of PTs fell between the range 90-119, it would be level 3, showing high PD because PTs got much knowledge, skills and change in their attitude. If the perceived mean score of PD of PTs fell between the range 120-150, it would be level 4, showing very high PD because PTs got a lot of knowledge, skills and change in their attitude.

3.5. Data collection

The researcher visited the sample institutions personally and collected data. Before filling up the questionnaire, the participants were told to recall their teaching practice. They were told that their responses would be kept confidential.

4. Data Analysis and Interpretation

The obtained data were analyzed by computing Mean for answering the research question and t-test was applied to test the Null Hypotheses of the study at 0.05 level of significance. The calculations were done through SPSS version 20.

Table 4.1. Detail of Sum of the Means of School Climate

Items	N	Sum of Means
25	145	84.06

Table 4.1 shows that the obtained mean score of 145 participants was 84.06. It shows that the climate of the practice teaching schools was positive where male and female prospective teachers went for practice teaching. Before testing null hypothesis, the number of male and female

who experienced positive and negative school climate was computed. The detail is given in the table.

Table 4.2. Nature of Practice Teaching School Climate Experienced by PTs

Gender	Positive or Negative School Climate			Total
	75 Cut off point	25-74 Negative school climate	76-125 Positive school climate	
Male	4 (67 %)	6 (29 %)	47(40 %)	57
Female	2(33 %)	15 (71 %)	71 (60 %)	88
Total	6(4 %)	21(15 %)	118(81%)	145

Table 4.2 shows that 118prospective teachers found positive school climate while practicing teaching in their respective schools, in which 47were male and 71were female. 21 PTs found negative school climate in which 6 were male and 15 were female. The sum of the responses of 6 PTs was equal to 75 which failed to determine the nature of the school climate where they went for practice teaching. After finding out the number of PTs, experiencing positive and negative school climate, the formulated null hypothesis were tested by applying independent sample t-test. The calculated values of Ho_1 are given in the following table.

Table 4.3 Mean, S.D, t and p value of Professional Development of Male and Female PTs who had experienced Positive School Climate.

					t-test for Equality of Means Equal variances assumed			
Gender	N	Mean	S.D	Std. Error Mean	Sig.	t	df	Sig. (2-tailed)
Male	47	3.6723	.25804	.03764	.009	.939	116	.350
Female	71	3.6085	.41625	.04940				

P>.05

Table 4.3 shows that there was no significant difference in the professional development of male and female prospective teachers who had experienced positive school climate for male (M=3.67, SD=.26) and for female (M=3.61, SD=.42) conditions; t (116) =.939, p = .350.

It shows that the difference between the means of male and female PTs is not significant at 0.05 level. The calculated means suggest that male PTs and female PTs who had experienced teaching

practice in positive school climate have attained same level of professional development. Hence Ho1"There is no significant difference in the mean Professional Development scores of male PTs and female PTs who experienced positive school climate during teaching practice" is accepted.

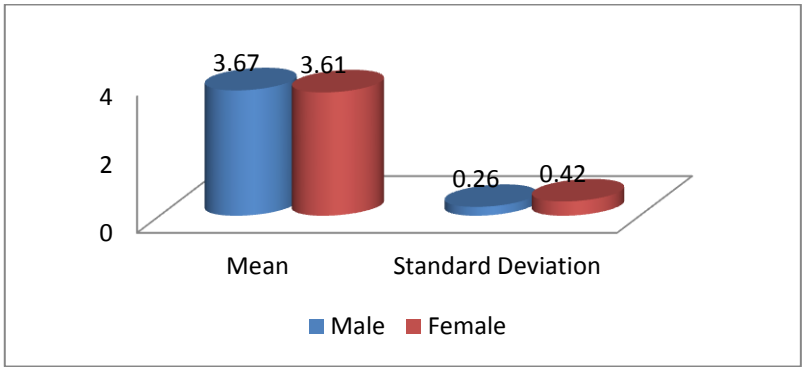

Figure 4.1. Graphical representation of Gender wise difference in Professional Development while experiencing teaching in Positive School Climate

In order to see the level of professional development of male and female PTs, the sum of means of their responses was calculated. Detail is given in table.

Table 4.4. Detail of the sum of Means of the Responses of PT who had Experienced Positive School Climate

Gender	Items in Questionnaire	Sum of Means
Male (47)	30	110.17
Female (71)	30	108

Table 4.4.shows that the calculated mean score of PD of male PTs is 110.17 and female PTs is 108. Both fell between the range of 90-119 which is level 3. It shows high PD and indicates that both male and female PTs got much knowledge, skills and change in their attitude while practicing teaching in positive school climate.

Table 4.5. Mean, S.D, t and p value of Professional Development of Male and Female PTs who had experienced Negative School Climate.

					t-test for Equality of Means Equal variances assumed			
Gender	N	Mean	S.D	Std. Error Mean	Sig.	t	df	Sig. (2-tailed)
Male	6	2.7444	.53735	.21937	.165	-.682	19	.504
Female	15	2.8933	.41770	.10785				

P>.05

Table 4.6 shows that there was no significant difference in the professional development of male and female prospective teachers who had experienced negative school climate for male (M=2.74, SD=.54) and for female (M=2.89, SD=.42) conditions; t (19)= -.682, p = .504.

It shows that the difference between the means of male and female PTs is not significant at .05 level. The calculated means suggest that male PTs and female PTs who had experienced teaching practice in negative school climate have attained same level of professional development. Hence Ho_2"There is no significant difference in the mean Professional Development scores of male PTs and female PTs who experienced negative school climate during teaching practice" is accepted.

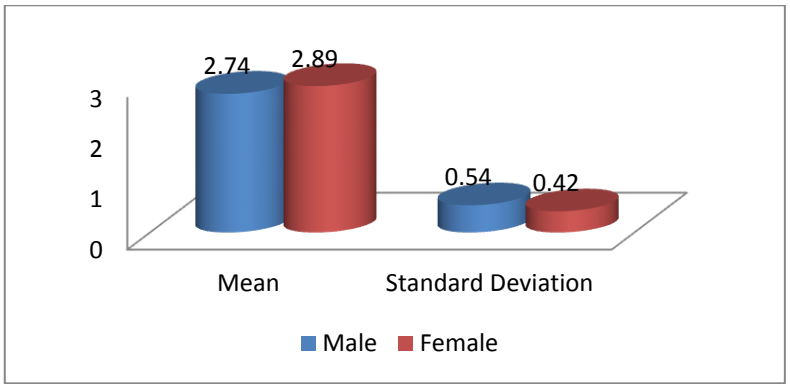

Figure 4.2. Graphical representation of Gender wise difference in Professional Development while experiencing teaching in Negative School Climate

In order to see the level of professional development of male and female PTs, the sum of means of their responses was calculated. Detail is given in table.

Table 4.6. Detail of the sum of means of the responses of PT who had Experienced Negative School Climate

Gender	Items in Questionnaire	Sum of Means
Male (6)	30	98.5
Female (15)	30	94.6

Table 4.6 shows that the calculated mean score of PD of male PTs is 98.5 and female PTs is 94.6. Both fell between the range of 90-119 which is level 3. It shows high PD and indicates that both male and female PTs got much knowledge, skills and change in their attitude while practicing teaching in negative school climate

5. Discussion and Conclusion

The study is conducted to identify the climate of practice teaching schools. The results of the study showed that the majority of the PTs found positive school climate in their respective

schools which is a good sign of change. One of the reasons of this change is that for new pre-service teacher education programs- ADE and B.ED (Hons), different trainings were conducted in Quetta city by Bureau of Curriculum and Extension Centrein collaboration with Pre-STEP. They conducted trainings for supervisors, co-operative teachers and heads of the institutions regarding their responsibilities and the way of guiding and facilitating PTs. These trainings really helped in bringing positive change in their mind set and behavior. As a result, PTs no longer faced the challenges in practice teaching schools which they were facing before.

The results of the study showed that there is no difference in the mean professional development scores of male and female PTs who experienced positive school climate during teaching practice. Both attained the same level of professional development. These findings are logical that positive school climate influenced much knowledge, skill and attitude of male and female PTs. The study of Caires and Almeida (2012) had shown the same result by counting the benefits of practice teaching.

The results of the study showed that there is also no difference in the mean professional development scores of male PTs and female PTs who experienced negative school climate during teaching practice. They faced many difficulties but they continued their teaching practice in negative environment of the school and attained much knowledge about their strengths and weaknesses. They enhanced their skill of lesson planning and delivery, diversified teaching through observation and different learning styles of students. It also brought change in their attitude regarding value and responsibilities of the teacher, provision of guidance and help to student, emotional attachment with school and learning from others. The findings of the study are parallel with the findings of Caires et al. (2012) which pointed out multiple achievements and gains (knowledge, skill, sense of efficacy, flexibility and interactions) of PTs, during practice teaching while facing many difficulties.

To sum up the discussion, practice teaching contributes in the professional development of PTs. They will learn more if favorable environment is provided to them in the school which they visited for teaching purpose.

5.1. RECOMMENDATIONS

1. Authorities may arrange trainings for supervisors, co-operative teachers and heads of institutions for telling and realizing the responsibility of guiding and facilitating PTs.
2. Training institutions may arrange regular meetings with Heads of practicum schools to establish good relations with them.
3. Government may provide additional increment in salary to co-operative teachers as a sign of appreciation and motivation for facilitating PTs.

4. Practicum coordinator and supervisor may arrange frequent visits to practicum schools to solve the problems of PTs immediately.

5. Practicum co-coordinator may arrange monthly meetings with Heads of practicum schools for the purpose to inform them about the behavior and support of their staff and students which PTs receive in their school.

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Work-Family Conflict among Public and Private Sector College Teachers

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Abstract

The present study was designed to investigate work-family conflict experienced by public and private sector college teachers. Major objectives of this research were to investigate the existence of work and family conflict among college teachers and to determine the impact of college teachers' demographic variations of gender, designation, experience and working extra hours in determining direction of work family conflict. For data collection a work-family conflict scale consisted of 63 items was used. The sample consisted of 100 college teachers among them 50 were male teachers and 50 were female teachers. Data were collected through stratified random sampling technique. Results of this research revealed that teachers working in private sector universities were experiencing higher work family conflict; male college teachers of both sectors had higher work family conflict as compared to female college teachers of both sectors. Teachers who were designated as an Associate Professor had higher work family conflict as compared with Lecturer and Assistant Professors. It is recommended that management of private sector colleges may take necessary steps to reduce the work family conflict of college teachers. It is recommended that teachers who are suffering due to higher work family conflict may take psychotherapy and may learn the art of cognitive restructurings in order to save themselves from the adverse effects of work family conflict. It is also recommended that teachers must practice religion in their life and seek help from Allah Almighty for better resolution of work family conflict.

Keywords: Work-Family Conflict, Public and Private Sector, College Teachers, Demographic factors

1. Introduction

Balancing responsibilities of the family and demand of the work is a constant apprehension for professionals, today every professional is busy than ever and the old concept of working hours during the weekdays has been changed. Now even after the working hours it's difficult for employees to forget about office demands until the next working day. One main reason of this shift is the advent of advanced information technology including cell phones, messages, internet access at home or any where we go. Due to the advent of information and communication technology, now it is not difficult to take the office on the road when traveling to home. Even at home, official errand scan inflict family time with a sudden call that may restrain the time to be had for the family.

This absurdity between the anxiety of job and family concerns create role conflict and stress on today's' professionals. Researchers set apart the incongruity between the sphere of work and the sphere of family as work-family conflict. Conflict between these spheres comes about when involvement in one role is more complicated due to participation in the other role. Nowadays, work-family conflict (work interfering with family) is more widespread than family-work conflict (family interfering with work) though both can occur. However, despite of the direction of causation, when one sphere is inharmonious with another sphere, the result is conflict and increased stress on an individual (King, 2013).

1.1. Research Objectives

1. To investigate the existence of work family conflict among teachers working in private and public sectors colleges.
2. To determine the impact of college teachers' demographic variations of gender, designation, experience and working extra hours in determining level of work family conflict.

1.2. Hypotheses

H_{o1}: Teachers who are working in the public sector colleges are experiencing less work family conflict than those working in private sector colleges.

H_{o2}: The male college teachers are experiencing higher work family conflict than female college teachers.

H_{o3}: Experienced teachers can handle their work family conflict more effectively than less experienced one.

H_{o4}: Teachers who are doing extra hours work are experiencing more work family conflict than teachers who do not work extra hours.

H_{o5}: Teachers who are designated as Associate professors are experiencing more conflict than teachers who are designated as a lecturer.

H_{o6}: Teachers who are living with their spouse are experiencing less conflict than teachers who are separated or widowed.

2. Literature Review

Greenhaus and Beutell (1985) were pioneers in the field of work-family conflict research, they viewed work-family conflict as a type of inter-roles conflict where work

and family roles were unable to get along and seen as challenging for an individual's time, liveliness and behaviors on and off the work.

Anafarta and Kuruuzum (2012) carried out a study in order to investigate the impact of numerous biographical factors such as age, gender, marital status, socio economic status, number of kids and service of the life partner on family work conflict and work -family. Results revealed that level of work-family conflict was high in both of the genders (males and females) and no statistically significant difference was found between the mean score of male and female respondents. Logistic regression analysis demonstrated that work family conflict faced by males was negatively interrelated with job tenure and education but positively associated with marital status. Work-family conflict experienced by females was negatively correlated with education whereas it was positively correlated with marital status. Job tenure had an impact on family-work conflict of males while age of children and taking care elderly parents were noted to have an impact on family-work conflict of females. It is generally observed that female professional may also be more likely to take time off from work to care for a sick child than their male counterparts. In order to accommodate maternal issues of female workers, maternity leave of three months is given after that mother of new born have to rejoin job. Working mothers can face more problems at working place, due to challenge perceptions and stereotypes that can start as a working woman becomes a working mother. Working mothers having children are supposed as less capable and less worthy of training than childless women. The factor of absenteeism is mostly present in working mothers because they face health issue regarding their children. They are considered as less favorite in any organization.

Change (2011) conducted a study to investigate that how to identify the influence of work-family conflict and sex-role in married female teachers' job involvement. The researcher concluded that married female teachers showed lower job involvement due to the high work-family conflict group as compared with those in the low work-family conflict group. Results showed that to increase married female teacher's job involvement, psychological changes for women are compulsory. In this context a study was carried out by Ansari (2012) to explore the existing differences between work-to-family interference, and family-to-work interference between male and female employees. Research study concluded that there was no major gender difference existing between male and female in relation to work-family interference and family-to-work interference.

Family and work continued to be important domains of our lives, and the interaction of both are critically important for employees and managers. In this context researchers had much accomplishment in encouraging both organizations and employees to distinguish the significance of achieving greater balance in lives of professionals. If some imbalance is present it will damage the organization in terms of effectiveness and efficiency and to the individual in terms of constant worry and poor quality of life.

Work family conflict is a kind of inter roles conflict in which the role stresses from the work and family spheres are reciprocally incompatible in some respect. Consequently involvement in the family role is more challenging by virtue of involvement in the work role (Greenhaus & Beutell, 1985). Professionals are managing different roles simultaneously in life; while performing each role one cannot ignore the other role. Therefore, an individual might feel clash which results in attitudinal changes such as cynicism and arrogance which ultimately lead towards negativity, which can obstruct effective communication at work place. In addition to this professionals are also fulfilling their official and personal responsibilities. Long working hours, fewer salaries and no paid leaves make them stressed and aggressive. That is why they become a victim of mental stress due to single earner of their family.

The growing interest in understanding fully the interface of work and family roles and their antecedents has stimulated the development of a predictive model of work-family conflict. Ahmad (2008) developed a model on predictors of work-family conflict which suggests that the predictors could be job-related (job type, work time commitment, job involvement, role overload, job flexibility), family-related (number of children, life-cycle stage, family involvement, child care arrangements) and individual-related (life role values, gender role orientation, locus of control and perfectionism).

Teaching is a noble profession which requires expertise from professionals. Along with teaching college teachers are generally engaged in research and management related activities, while performing these duties teachers some time fail to construct a balance between their work role and family roles (Arreola, 2000).

3. Methodology

3.1. Population and Sample

Study was descriptive and quantitative in nature which was carried out to measure the work family conflict experienced by teachers working in private and public sector

colleges. The population of the study comprised of male and female teachers of private and public Graduate and Post Graduate Colleges. A stratified random sample of 100 college teachers was collected from two public sector and two private sector colleges (Federal Government College for Women Islamabad F-7/2 Islamabad, Punjab College of Commerce Islamabad, and Islamabad Model College for Boys I-10/1 Islamabad and Punjab College of Commerce Islamabad).

Age of teachers ranged from 25 to 50 years and their job experience ranged from 1 to 25 years. Data were collected from teachers those were teaching various subjects including Urdu, Physics, Chemistry, Islamiat, Statistic, Biology, Education, English, Computer Science, Pakistan Studies and Mathematics.

3.2. Research Instrument

For the measurement of work family conflict an indigenous work family conflict scale was developed by the researchers through standardized process. It was comprised of 63 items and four subscales named: conflict due to personal factors, conflict due to work , conflict due to family pressures, conflict due to lack of time. Likert type five point rating scale was used as response category.

3.3. Data Collection

Data were collected through a personal visit of the sampled colleges; respondents were instructed to rate each statement according to their own agreement and disagreement of each statement on Likert type 5 point rating scale.

4. Results

After data collection, it was analyzed with the help of statistical package of (SSPS) version 20.Reliability was determined through Alpha reliability coefficient and item total correlations were calculated to check the internal consistency of research scale; results revealed that all items have significant correlation with the total scale, which ranges from .327 to.852.

Table 4.1 Inter- Scales Correlations of Respondents Score on the Work-Family Conflict Scale (N=100)

Work Family Conflict	Personal Factors	Conflict due to Work	Conflict due to Family	Conflict due to Lack Time

Conflict due to Personal Factors				
Conflict due to Work	.528			
Conflict due to Family Pressures	.659	.623		
Conflict due to Lack of Time	.591	.536	.537	
Total	.886	.825	.765	.769

Table 4.1 shows that the inter scales correlation of subscales with total scale, it ranges from .765 to .886.it shows that subscale personal has higher correlation with total scale whereas, and subscale family has lower correlation with total scale.

Table 4.2 Mean and SD of Respondents Scores on the Variables "Sector" (N=100)
Teachers of Public Sector Teachers of Private Sector

Work family Conflict	Mean	SD	Mean	SD
Conflict due to Personal Factors	72.1	10.2	82.8	15.1
Conflict due to Work	57.5	9.8	63.6	10.3
Conflict due to Family Pressures	14.2	4.3	17.0	3.1
Conflict due to Lack of Time	49.3	5.4	51.3	6.5
Total	193.2	26.7	214.8	35.0

Table 4.2 shows the Mean and Standard deviation of private and public sector college teachers sore on work family conflict scale. Results shows that teachers those are working in Private sector colleges are experiencing higher work family conflict as compared to teachers working in the public sector colleges. This table provides us interesting information that teachers working in private sector colleges are experiencing higher work

family conflict on all subscales as compared to teachers those working in the public sector colleges.

Table 4.3. Mean and SD of Respondents' Scores on the Variables "Gender" (N=100)

Male College Teachers Females College Teachers

Work family conflict	**Mean**	**SD**	**Mean**	**SD**
Conflict due to Personal Factors	77.4	13.9	78.1	14.5
Conflict due to Work	60.5	10.5	56.4	11.2
Conflict due to Family Pressures	15.6	4.0	15.8	2.7
Conflict due to Lack of Time	50.3	6.0	47.7	6.1
Total	**204.8**	**34.4**	**187.0**	**34.5**

Table 4.3 describes the Mean and Standard deviation of male and female college teachers, it can be seen from the table that male teachers are experiencing more work family conflict as compared to female college teachers.

Table 4.4. Mean and SD of Respondents' Scores on the Variables "Work Experience" (N=100)

Less than 1 year 2 to 5 years 6 to 10 11 years and above

Work family Conflict	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Conflict due to Personal Factors	88.4	24.2	76.9	10.5	76.1	12.6	75.0	8.8
Conflict due to Work	55.7	13.4	60.5	10.7	57.4	11.6	59.8	8.5
Conflict due to Family Pressures	17.7	3.3	16.3	2.9	15.3	3.4	14.5	3.4
Conflict due to Lack of Time	48.2	9.9	50.1	5.6	48.5	5.5	49.0	5.0
Total	210.0	50.8	203.9	23.8	197.4	30.7	198.5	22.1

Table 4.4 describes the Mean and Standard deviation of the teachers' scores in relation with different work experience. Results revealed that teachers with less work experience are having higher work family conflict as compared to teachers with more work experiences.

Table 4.5. Mean and SD of Respondents' Scores on the Variable "Working Extra Hours" (N=100)

	Extra hours		Regular hours	
Work family Conflict	**Mean**	**SD**	**Mean**	**SD**
Conflict due to Personal Factors	78.0	10.9	77.6	14.1
Conflict due to Work	62.0	10.3	58.5	11.0
Conflict due to Family Pressures	15.9	3.2	15.7	3.4
Conflict due to Lack of Time	54.8	5.2	49.0	6.2
Total	210.7	24.5	201.1	29.0

Table 4.5 shows the total Mean and Standard deviation of the respondents score on the variables working extra hour. From the table it can be seen that teachers working extra hours are experiencing higher work family conflict as compared to teachers who do not work extra hours (part time jobs).

Table 4.6. Mean and SD of Respondents' Scores on the Variables "Designation" (N=100)

	Lecturers		Assistant Professors		Associate Professors		Professors	
Work family Conflict	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Conflict due to Personal Factors	78.6	15.0	75.3	10.0	77.5	9.1	74.6	12.9
Conflict due to Work	58.4	11.2	57.4	8.8	65.0	7.0	60.5	13.7
Conflict due to Family Pressures	16.0	3.3	15.0	2.7	15.5	2.1	14.6	4.9
Conflict due to Lack of Time	48.6	6.6	49.0	4.5	52.5	4.9	51.5	4.8
Total	201.7	30.1	196.9	20.8	210.5	23.3	201.4	33.7

Table 4.6 shows the Mean and Standard deviation of teachers in relation with their designations (Lecturer, Assistant Professor, Associate Professor and Professor). Results show that Associate professors are experiencing higher work family conflict as compared to Lecturers, Assistant Professors and Professors. They are experiencing conflict due to more work.

Table 4.7 Mean and SD of respondents Scores on the Variables "Marital Status" (N=100)

	Living with Spouse		Separated		Widows/Widowers	
Work family Conflict	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Conflict due to Personal Factors	70.4	13.7	68.5	20.8	78.7	12.3
Conflict due to Work	55.5	10.5	53.3	16.1	62.5	11.7
Conflict due to Family Pressures	10.6	3.3	16.6	4.0	16.0	4.3

Conflict due to Lack of Time	49.3	5.4	56.0	13.9	47.5	5.9
Total	185.91	27.0	194.5	52.2	204.7	29.1

Table 4.7 presents the Mean and Standard deviation for three types of marital status. Results show that widows/widowers are experiencing higher work family conflict as compared to teachers of who are living with their spouses or even separated.

4.1. Discussion

Several studies have been carried out in recent years about the antecedents and consequences of the conflict between work and family roles. Failure in balancing two vital components of life, namely work and family, is likely to lead to increase in work family conflict. Research indicates that work family conflict brings about numerous negative outcomes in work and family domains, some of which are exhaustion, anxiety, high blood pressure, low satisfaction from marriage, poor role performance, low professional well-being, life dissatisfaction, low organizational commitment, work dissatisfaction, burnout, desire to quit and high turnover (Friedman & Greenhaus 2010).

Present study was designed to explore the work family conflict among teachers of public and private sector colleges. First objective of the study was to investigate the existence of work family conflict among college teachers. The second objective of the study was to determine the impact of demographic variation such as gender, designation, experience and working extra hours in determining the level of work family conflict among the college teachers.

In this study various hypotheses were formulated to test the research objectives.

First hypothesis of the study was formulated to see the impact of sector in determining the level of work family conflict. The result confirms that teachers those were working in the private sector colleges were experiencing higher work family conflict as compared to the teachers working in the public sector colleges.

Second hypothesis of the study was, male college teachers are experiencing higher work family conflict than female college teachers. Analogous to many other countries, Pakistan has also experienced several changes in female employment participation and the number of couples with dual career has been increasing in the past few years. This transform has led to a significant variation in the number and variety of family roles like

spouse, parent or caretaking of the elderly undertaken by the employees. The results of study confirm this hypothesis that male college teachers have experienced higher work family conflict as compared to female college teachers. As far as previous research study in this area is concerned a study was carried out in Antalya on employees of manufacturing and service sectors, results found that level of work-family conflict of males and females was almost same(high), and no statistically meaningful difference was found between their means. However logistic regression analysis revealed that the males' work-family conflict was negatively correlated with education and job tenure, but positively correlated with marital status whereas females work-family conflict was negatively correlated with education whereas, it was positively correlated with marital status (Audrey, 2012).

The third hypothesis of the study stated that experienced teachers can handle their work family conflict more effectively than less experienced ones. The result of the study confirms this hypothesis because teachers whose experience was less than one year were experiencing higher work family conflict.

The fourth hypothesis of the study was, teachers who are doing extra hours work are experiencing more work family conflict than teachers who do not work extra hours. Results make it clear that those are doing extra hours work are having higher work family conflict.

The fifth hypothesis was, teachers who are designated as Associate professors are experiencing more conflict than teachers who are designated as a lecturer. Results show that teachers designated as an associate professor are experiencing higher work family conflict as compared to teachers working on other designations. The sixth hypothesis was, teachers who are living with their spouse are experiencing less conflict than teachers who are separated or widowed. The sixth hypothesis was, teachers living with their spouse are experiencing less conflict than teachers who are separated or widowed/widowers. Results supported this hypothesis because widows /widowers teachers were experiencing higher work family conflict as compared to teachers who were separated or living with life partners.

5. Conclusions

1. Teachers working in the private sector colleges were experiencing higher work family conflict as compared to teachers working in public sector colleges.

2. Male college teachers of both sectors (public and private) were having higher work family conflict as compared to female college teachers of both sectors (public and private).
3. Teachers with less work experience were having higher work family conflict as experienced ones.
4. Teachers who were working extra hours (part time job)were facing higher work family conflict as compared to those were not working extra hours.
5. Teachers who were designated as an Associate Professor having higher work family conflict as compared to others designations.
6. Teachers who were living with their spouse are experiencing less work family conflict than who were living without life partners.

5.1. Recommendations

In fact when employees have less control over their own schedules, their stress levels increase and they may be forced to choose between work and family activities, and they may take stress home from their jobs or from family to work. Outcome of conflicts between work and family life could be affecting employees' attendance, attention, productivity, health and safety. No doubt work is an important aspect of life which obviously requires time and energy if work family conflict handled properly, work experiences improve the quality of life in the family sphere, because reduced work–family conflict can improve employees' work productivity along with organizational productivity.

5.1.1. Based on conclusions some specific recommendations are as under:

1. Teachers working in private sector were experiencing higher work family conflict so, it is recommended that private sector colleges may create a culture that assumes employees control on their own schedules.

2. Male teachers experienced higher work family conflict t;it is recommended that college management may provide work family conflict management training. They may also provide flexible timetable in order to cater their life role effectively.

3. The result for the variable "designation" showed that Associate Professors were having higher work family conflict as compared to others, so it is recommended that may provide flexible schedule, recognition and also manageable credit hours work.

4. For the variable of "working extra hours", it revealed that teachers who were doing extra hours work having higher work family conflicts as compared to those who are not working extra hours, so it is recommended that they must be paid adequately so they may not work extra hours. Moreover, Government may provide desirable pay packages and economic incentives to all teachers so they can manage their expenses effectively.

5. Results revealed that teachers who were living without spouse experienced higher work family conflict than teachers living with spouse it is therefore, recommended that college administration may arrange social evening and get together frequently so such teachers can take pleasure.

5.2. Recommendations

1. Physical exercise can facilitate to become more attentive therefore, it is recommended that teachers should spare some time for exercise even when their work schedule is packed, it may eventually facilitate them to restore their energy level and concentration.

2. In order to solve work family conflict effectively management can play its role too, by increasing work flexibility, management can modify solutions that work best for them, as opposed to "one size fits all" approach.

3. It is also recommended that teachers must learn art of resorting balance in the work and family responsibility; they must prioritize and plan daily activities, if they become skilled at time management this would lead them towards better conflict management.

4. Finally in order to create harmony in life, it is recommended that teachers may practice religion in their life and seek help from Allah Almighty in handling work family conflict more effectively.

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